Applied GeoSystems 3315 Almaden Expressway, Suite 34, San Jose, CA 95118 (408) 264-7723

• FREMONT • IRVINE • HOUSTON • BOSTON • SACRAMENTO • CULVER CITY • SAN JOSE

REPORT
LIMITED ENVIRONMENTAL SITE ASSESSMENT
at
ARCO Service Station No. 2035
Southeast Corner of Marin and San Pablo Avenues
Albany, California

1/24/90

AGS Job 69036-1

Report prepared for

ARCO Products Company
P.O. Box 5811
San Mateo, California

by
Applied GeoSystems

William R. Dugan
Project Geologist

Michael N. Clark
C.E.G. 1264

January 24, 1990

Applied GeoSystems 3315 Almaden Expressway, Suite 34, San Jose, CA 95118 (408) 264-7723
• FREMONT • IRVINE • HOUSTON • BOSTON • SACRAMENTO • CULVER CITY • SAN JOSE

REPORT
LIMITED ENVIRONMENTAL SITE ASSESSMENT
ARCO Service Station No. 2035
Southeast Corner of Marin and San Pablo Avenues
Albany, California

For ARCO Products Company

INTRODUCTION

At the request of ARCO Products Company (ARCO), Applied GeoSystems conducted a limited subsurface environmental investigation to assess the presence of possible hydrocarbon contamination in the soil in the immediate area of the underground gasoline-storage tanks at ARCO Station No. 2035. Work was conducted at the above-referenced location prior to tank removal and replacement. The investigation involved drilling five soil borings and performing laboratory analyses on selected soil samples obtained from the borings. This report presents our findings, and conclusions.

SITE DESCRIPTION AND BACKGROUND

ARCO Service Station No. 2035 is an operating service station southeast of the intersection of Marin and San Pablo Avenues, in Albany, California. The location of the site is shown on the Site Vicinity Map (Plate P-1). The site is a relatively flat, asphalt- and concrete-covered lot.

It is our understanding, from information supplied by ARCO, that one 6,000-gallon underground gasoline-storage tank (T1), two 4,000-gallon underground gasoline-storage tanks (T2 and T3), one 10,000-gallon underground gasoline-storage tank (T4), and one underground 550-gallon waste-oil storage tank (T5) are at the site. The approximate locations of the underground storage tanks and other pertinent features at the site are shown on the Generalized Site Plan (Plate P-2).

REGIONAL AND LOCAL HYDROGEOLOGY

The ARCO station is within the East Bay Plain in the north-central portion of the Berkeley Alluvial Plain (Hickenbottom and Muir, 1988). The active Hayward Fault is approximately 2 miles east of the site. Helley et al. (1979) mapped the earth materials underlying the site area as older Quaternary alluvium deposits composed of a heterogeneous mixture of poorly consolidated to unconsolidated clay, silt, sand, and gravel. The site is less than 1,200 feet

north of the Codornices Creek and approximately 1 mile east of Fleming Point on the eastern shoreline of the San Francisco Bay. The direction of ground-water flow in the vicinity of the site is inferred to be to the west-southwest, based on regional and local topography and drainage patterns. Ground water was encountered during our drilling activities, at a depth of 17 to 18 feet.

FIELD WORK

Field work performed at the site by Applied GeoSystems on behalf of ARCO was conducted in accordance with Applied GeoSystems Site Safety Plan No. 69036-1S, dated August 7, 1989 (Applied GeoSystems, 1989). A contamination investigation permit was obtained from Alameda County Flood Control and Water Conservation District (Zone 7) before drilling the borings at the site. A copy of this permit is included in Appendix A to this report. On August 9, 1989, five soil borings were drilled near underground gasoline-storage tanks T1 through T4, to evaluate potential hydrocarbon contamination of the soil in the immediate area of these tanks. The locations of the five borings are shown on Plate P-2. Field procedures followed during the drilling of these borings is described in Field Methods, Appendix B.

Soil Description

The earth materials encountered during this investigation consisted primarily of interbedded layers of silty to gravelly clay and silty to sandy gravel. A summary of the Unified Soil Classification System used to identify the soil excavated during drilling is presented on Plate P-3. Descriptions of earth materials encountered in borings B-1 through B-5 are presented on the Logs of Boring (Plates P-4 through P-8). A graphic representation of the earth materials encountered in the borings is shown on Geologic Cross Sections A-A' (Plate P-9).

Ground water was encountered in all of the boreholes at depths of approximately 17 to 18 feet, except in boring B-5. Free hydrocarbon product was not encountered in any of the five boreholes drilled; however, a sheen was observed on water from borings B-1 and B-4.

LABORATORY ANALYSES

Fifteen soil samples collected from borings B-1 through B-5 were selected for chemical analysis. The selected samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg) by modified Environmental Protection Agency (EPA) Method 5030/8015 and for purgeable gasoline constituents benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) by EPA Method 8020.

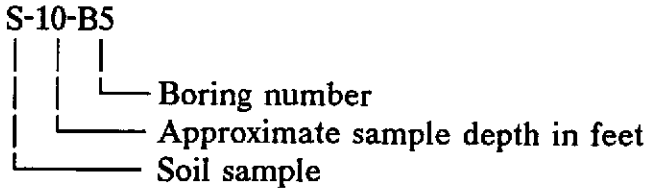
RESULTS OF LABORATORY ANALYSES

Results of laboratory analyses of selected soil samples from boreholes B-1 through B-5 showed concentrations of TPHg from nondetectable to 2,400 parts per million (ppm), and concentrations of benzene, toluene, ethylbenzene, and total xylene isomers up to 33 ppm, 140 ppm, 40 ppm, and 220 ppm respectively. Laboratory results of soil samples collected nearest initial water at depths of 14-1/2 to 15 feet were reported as nondetectable, except for the sample collected at a depth of 15 feet in B-4, which was reported to contain a TPHg concentration of 520 ppm. The results of the laboratory analyses are are summarized in Table 1 and presented in Appendix C.

TABLE 1
RESULTS OF LABORATORY ANALYSIS OF SOIL SAMPLES
ARCO Station No. 2035
Southeast Corner of Marin and San Pablo Avenues
Albany, California

Sample Identifier	TPHg	B	T	E	X
S-10-B1	1,900	<4	15	8	53
S-15-B1	<1	<.005	.006	<.005	<.005
S-19-1/2-B1	<1	<.005	<.005	<.005	<.005
S-10-B2	51	1.9	.35	.81	4.0
S-14-1/2-B2	<1	.063	<.005	<.005	<.005
S-20-B2	<1	.039	.044	.007	.041
S-10-B3	75	3.1	8.2	1.8	11.0
S-14-1/2-B3	<1	.21	<.025	<.025	.039
S-20-B3	<1	<.005	<.005	<.005	<.005
S-10-B4	2,400	33	140	40	220
S-15-B4	520	<1	6.9	6.2	6.3
S-19-B4	<1	<.005	.007	<.005	<.005
S-9-1/2-B5	<1	.007	.006	<.005	<.005
S-15-B5	<1	<.005	.006	<.005	<.005
S-20-B5	<1	<.005	<.005	<.005	<.005

Results in milligrams per kilogram (mg/kg), or parts per million (ppm).
TPHg: Total petroleum hydrocarbons as gasoline
B:benzene T:toluene E:ethylbenzene X:total xylene isomers
<: indicates less than the reported limit.
Sample identification:



CONCLUSIONS

The following conclusions are based on the results of this limited assessment.

- The shallow soil near the four underground gasoline-storage tanks has been affected by hydrocarbon contamination, especially in the areas of borings B-1 and B-4. The elevated concentrations of TPHg and BTEX and organic vapor meter readings reported in soil samples collected from borings B-1 through B-4 form the basis of this conclusion.

- The first-encountered ground water beneath the site in the area of the underground gasoline tanks appears to have been affected by hydrocarbon contamination. This conclusion is based on a sheen discovered on the surface of the water observed within borings B-1 and B-4.

LIMITATIONS

This report was prepared in accordance with generally accepted standards of environmental geological practice in California at the time this assessment was performed. This assessment was conducted solely for the purpose of evaluating environmental conditions of the soil with respect to hydrocarbon-product contamination at the subject site in the immediate area of the product-storage tanks. No soil engineering or geotechnical implications are stated or should be inferred. Evaluation of the geologic conditions at the site for the purpose of this assessment is made from a limited number of observation points. Subsurface conditions may vary away from the data points available.

REFERENCES CITED

Applied GeoSystems. August 7, 1989. Site Safety Plan Subsurface Environmental Investigation at the ARCO Service Station No. 2035, Southeast Corner Marin and San Pablo Avenues, Albany, California. AGS Report No. 69036-1S.

Clark, J. C. 1981. Stratigraphy, Paleontology, and Geology of the Central Santa Cruz Mountains, California Coast Ranges. United States Geological Survey Professional Paper 1168.

Helley, E. S., K. R. Lajoie, W. E. Spangle, and M. L. Blair. 1979. Flatland deposits of the San Francisco Bay region, California. United States Geological Survey Professional Paper 943.

Hickenbottom, K. and K. Muir. 1988. Geohydrogeology and Ground-Water-Quality Overview of the East Bay Plain Area, Alameda County, California. Alameda County 205 (j) Report. Alameda County Flood Control and Water Conservation District.

Source: U.S. Geological Survey
7.5-Minute Quadrangle
Richmond,
Oakland West, California
Photorevised 1980

N

Approximate Scale

2000 1000 0 2000 4000

feet

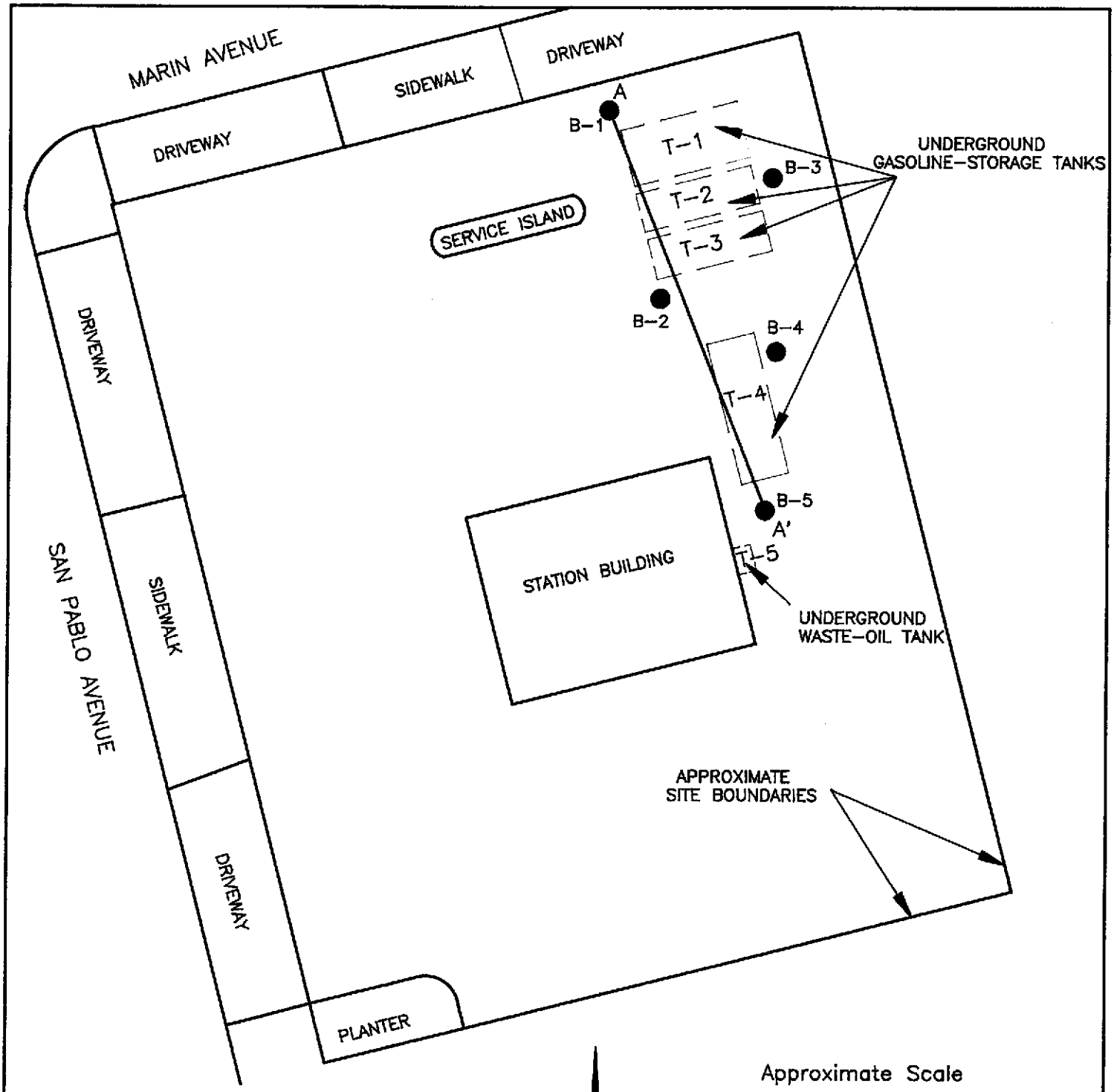
Applied GeoSystems

PROJECT NO. 69036-1

SITE VICINITY MAP
ARCO Service Station No. 2035
Marin and San Pablo Avenues
Albany, California

PLATE

P - 1



EXPLANATION

B-5 ● = Soil boring (Applied GeoSystems, August 9, 1989)

A — A' = Cross section

N

Approximate Scale

20 10 0 20 40

feet

Source: Modified from plan supplied by ARCO.

Applied GeoSystems

PROJECT NO. 69036-1

GENERALIZED SITE PLAN
ARCO Service Station No. 2035
Marin and San Pablo Avenues
Albany, California

PLATE

P - 2

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		LTR	DESCRIPTION	MAJOR DIVISIONS		LTR	DESCRIPTION
Coarse-grained soils	Gravel and gravelly soils	GW	Well-graded gravels of gravel-sand mixtures, little or no fines	Fine-grained soils	Silts and clays LL<50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		GP	Poorly-graded gravels or gravel-sand mixtures, little or no fines			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		GM	Silty gravels, gravel-sand-silt mixtures			OL	Organic silts and organic silt-clays of low plasticity
		GC	Clayey gravels, gravel-sand-clay mixtures		Silts and clays LL>50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils. Elastic silts
	Sand and sandy soils	SW	Well-graded sand of gravelly sands, little or no fines			CH	Inorganic clays of high plasticity, fat clays
		SP	Poorly-graded sands or gravelly sands, little or no fines			OH	Organic clays of medium to high plasticity, organic silts
		SM	Silty sands, sand-silt mixtures	Highly organic soils		PT	Peat and other highly organic soils
		SC	Clayey sands, sand-clay mixtures				


Depth through which sampler is driven


Relatively undisturbed sample


No sample recovered


Static water level observed in well


Initial water level observed in boring

S-10 Sample number


Sand pack


Bentonite annular seal


Neat cement annular seal


Caved native soil


Blank PVC


Machine-slotted PVC

P.I.D. Photoionization detector

BLOWS REPRESENT THE NUMBER OF BLOWS OF A 140-POUND HAMMER FALLING 30 INCHES TO DRIVE THE SAMPLER THROUGH EACH 6 INCHES OF AN 18-INCH PENETRATION.

DASHED LINES SEPARATING UNITS ON THE LOG REPRESENT APPROXIMATE BOUNDARIES ONLY. ACTUAL BOUNDARIES MAY BE GRADUAL. LOGS REPRESENT SUBSURFACE CONDITIONS AT THE BORING LOCATION AT THE TIME OF DRILLING ONLY.

Applied GeoSystems

PROJECT NO. 69036-1

UNIFIED SOIL CLASSIFICATION SYSTEM AND SYMBOL KEY
ARCO Service Station No. 2035
Marin and San Pablo Avenues
Albany, California

PLATE
P - 3

Total depth of boring: 20 feet **Diameter of boring:** 8 inches **Date drilled:** 8-9-89

Casing diameter: N/A **Length:** N/A **Slot size:** N/A

Screen diameter: N/A **Length:** N/A **Material type:** N/A

Drilling Company: Exploration Geoservices **Driller:** Mike & Kurt

Method Used: Hollow-Stem Auger **Field Geologist:** Steve Bittman

Signature of Registered Professional: _____

Registration No.: _____ **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (6 inches) over baserock (6 inches).	
2	S-2	12 21 21	20	CH	Silty clay with occasional sand, brown, black and orange mottled, damp, hard, high plasticity, noticeable odor.	
4		16				
6	S-5	35 50	30	CL	Gravelly clay with pebbles, brown, damp, hard, low plasticity, noticeable odor.	
8				GW	Sandy gravel with clay gravel, brown, moist, very dense, obvious odor.	
10	S-10	21 35 42	400			
12	S-11.5	22 34 47	50			
14	S-13	24 38 50	2	CH	Silty clay, slightly sand, light gray, orange and brown mottled, damp, hard, high plasticity, noticeable odor. Interbed with orange brown sandy silt, moist, hard, high plasticity.	
16	S-15	12 16 21	0		▽	
18				GM	Silty gravel with pebbles, orange-brown, wet, very dense, noticeable odor.	
20	S-19.5	25 50	12		Total Depth = 20 feet.	

Applied GeoSystems

PROJECT NO. 69036-1

LOG OF BORING B - 1

ARCO Service Station No. 2035
Marin and San Pablo Avenues
Albany, California

PLATE

P - 4

Total depth of boring: 20-1/2 feet **Diameter of boring:** 8 inches **Date drilled:** 8-9-89

Casing diameter: N/A **Length:** N/A **Slot size:** N/A

Screen diameter: N/A **Length:** N/A **Material type:** N/A

Drilling Company: Exploration Geoservices **Driller:** Mike & Kurt

Method Used: Hollow-Stem Auger **Field Geologist:** Steve Bittman

Signature of Registered Professional: _____

Registration No.: _____ **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0						
					Asphalt (6 inches) over baserock (6 inches).	
2	S-2	8, 15, 23	2	CH	Silty clay, brown, blue and green mottled, moist, hard, high plasticity, noticeable odor.	
4		10, 25		CL	Gravelly clay with clayey sand interbed, brown, black mottled, damp, very dense, noticeable odor.	
6	S-5	36	175			
8				GW	Sandy gravel with clay, brown and gray, moist, very dense, obvious odor.	
10	S-10	15, 36, 40	450			
12						
14	S-14.5	25, 50	25	CL	Sandy clay with silty gravel, gray, brown mottled, damp, hard, low plasticity, noticeable odor.	
16						
18				GW	Silty gravel with sand, brown and gray, wet, very dense, noticeable odor.	
20	S-20	27, 50	5			
					Total Depth = 20-1/2 feet.	

Applied GeoSystems

PROJECT NO. 69036-1

LOG OF BORING B - 2

ARCO Service Station No. 2035
Marin and San Pablo Avenues
Albany, California

PLATE

P - 5

Total depth of boring: 20-1/2 feet **Diameter of boring:** 8 inches **Date drilled:** 8-9-89

Casing diameter: N/A **Length:** N/A **Slot size:** N/A

Screen diameter: N/A **Length:** N/A **Material type:** N/A

Drilling Company: Exploration Geoservices **Driller:** Mike & Kurt

Method Used: Hollow-Stem Auger **Field Geologist:** Steve Bittman

Signature of Registered Professional:

Registration No.: **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0						
					Asphalt (6 inches) over baserock (6 inches).	
2	S-2	9 15 18	8	CH	Silty clay with occasional small gravel, brown, gray mottled, damp, high plasticity, very stiff, noticeable odor.	
4		12 19		CL	Gravelly clay, brown, black mottled, damp, low plasticity, very stiff, noticeable odor.	
6	S-5	23	25			
8				SC	Clayey sand with gravel, gray, brown mottled, very dense, obvious odor.	
10	S-10	10 15 45	480			
12						
14	S-14.5	44 50	75	CL	Sandy clay, brown, gray mottled, damp, hard, medium plasticity, noticeable odor.	
16				▽		
18				GM	Silty gravel, brown, wet, very dense.	
20	S-20	35 50	.3			
					Total Depth = 20-1/2 feet.	

Applied GeoSystems

PROJECT NO. 69036-1

LOG OF BORING B - 3

ARCO Service Station No. 2035
Marin and San Pablo Avenues
Albany, California

PLATE

P - 6

Total depth of boring: 19-1/2 feet **Diameter of boring:** 8 inches **Date drilled:** 8-9-89

Casing diameter: N/A **Length:** N/A **Slot size:** N/A

Screen diameter: N/A **Length:** N/A **Material type:** N/A

Drilling Company: Exploration Geoservices **Driller:** Mike & Kurt

Method Used: Hollow-Stem Auger **Field Geologist:** Steve Bittman

Signature of Registered Professional:

Registration No.: **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0						
					Asphalt (6 inches) over baserock (6 inches).	
2	S-2	5 10 12	40	CH	Silty clay, gray, damp, high plasticity, very stiff, noticeable odor.	
4		10 26		CL	Gravelly clay, brown, damp, hard, medium plasticity, noticeable odor.	
6	S-5	8	100			
8		11 27				
10	S-10	39	540			
12						
14		25 45		SM	Silty sand with gravel, brown and gray, damp, hard, low plasticity, obvious odor.	
16	S-15	50	511			
				▽		
18				SW	Gravelly sand with silt, brown, wet, very dense.	
	S-19	50	1			
20					Total Depth = 19-1/2 feet.	

Applied GeoSystems

PROJECT NO. 69036-1

LOG OF BORING B - 4

ARCO Service Station No. 2035
Marin and San Pablo Avenues
Albany, California

PLATE

P - 7

Total depth of boring: 20-1/2 feet **Diameter of boring:** 8 inches **Date drilled:** 8-9-89

Casing diameter: N/A **Length:** N/A **Slot size:** N/A

Screen diameter: N/A **Length:** N/A **Material type:** N/A

Drilling Company: Exploration Geoservices **Driller:** Mike & Kurt

Method Used: Hollow-Stem Auger **Field Geologist:** Steve Bittman

Signature of Registered Professional: _____

Registration No.: _____ **State:** CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
					Asphalt (6 inches) over baserock (6 inches).	
0				CH	Silty clay with some sand, gray-brown, moist, high plasticity, very stiff, noticeable odor.	
2	S-2	8 12 15	1			
4		13 45		CL	Gravelly clay with sand, yellow brown, damp, hard, low plasticity, noticeable odor.	
6	S-5	50	15			
8						
10	S-9.5	30 50	5	GW	Sandy gravel, clayey, yellow brown, moist, very dense, noticeable odor.	
12						
14	S-15	36 36 43	0	SC	Clayey sand with gravel, yellow brown, damp, very dense.	
16						
18				CH	Silty clay, gray and brown, moist, hard, high plasticity.	
20	S-20	30 40 50	0			
					Total Depth = 20-1/2 feet.	

Applied GeoSystems

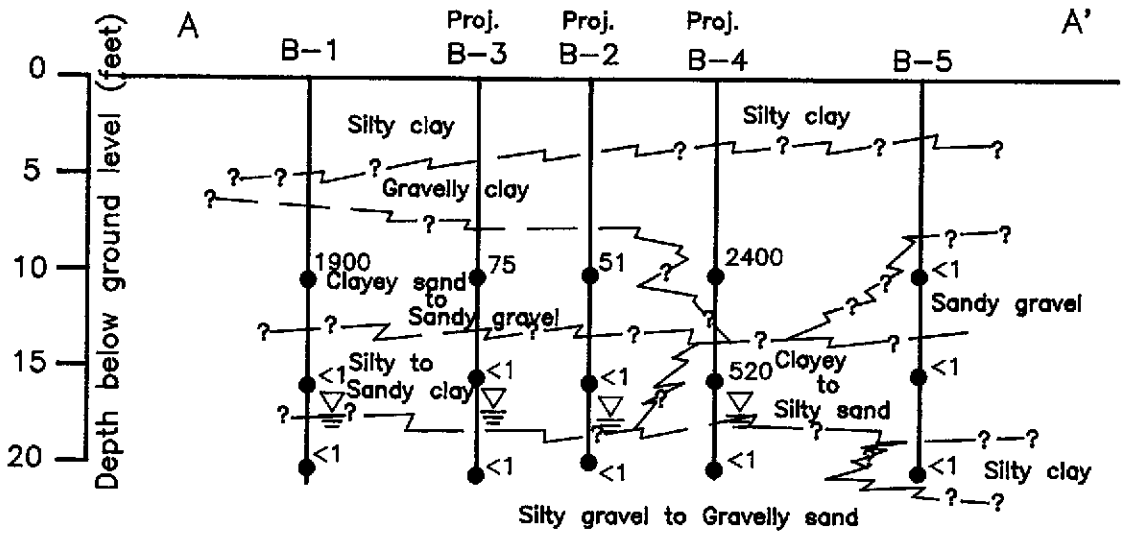
PROJECT NO. 69036-1

LOG OF BORING B - 5

ARCO Service Station No. 2035
Marin and San Pablo Avenues
Albany, California

PLATE

P - 8



EXPLANATION

= Laboratory analyzed soil sample showing concentration of TPH as gasoline in parts per million (ppm)

= Initial water level in boring (Free ground water not encountered in B–5)

Approximate Horizontal Scale

20 10 0 20 40

feet

Approximate Vertical Scale

10 5 0 10 20

feet

Applied GeoSystems

PROJECT NO. 69036-1

GEOLOGIC CROSS SECTION A-A'
ARCO Service Station No. 2035
Marin and San Pablo Avenues
Albany, California

PLATE

P - 9

APPENDIX A

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94566 • (415) 484-2600

16 August 1989

Applied GeoSystems
3315 Almaden Expressway, Ste 34
San Jose, CA 95118

Gentlemen:

Enclosed is Groundwater Protection Ordinance permit 89457 for a contamination investigation near the intersection of Marin Avenue with San Pablo Avenue in Albany for Arco Products Company.

Please note that permit condition A-1 requests that an application be submitted five days prior to your proposed start of work.

If you have any questions, please contact Wyman Hong or Craig Mayfield at 484-2600.

Very truly yours,

Mun J. Mar
General Manager

By
J. Killingstad, Chief
Water Resources Engineering

WH:bkm
Enc.

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94566 • (415) 484-2600

GROUNDWATER PROTECTION ORDINANCE PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

(1) LOCATION OF PROJECT Northeast Corner of Marin and San Pablo Avenues Albany, CA

(2) CLIENT
Name ARCO Products Company
Address P.O. Box 5811 Phone 571-2400
City San Mateo CA Zip 94402

(3) APPLICANT
Name Applied GeoSystems
3315 Almaden Expressway
Address Suite 34 Phone (408) 264-7723
City San Jose CA Zip 95118

(4) DESCRIPTION OF PROJECT
Water Well Construction ___ Geotechnical Investigation
Cathodic Protection ___ General
Well Destruction ___ Contamination ✓

(5) PROPOSED WATER WELL USE
Domestic ___ Industrial ___ Irrigation ___
Municipal ___ Monitoring ___ Other ___

(6) PROPOSED CONSTRUCTION
Drilling Method:
Mud Rotary ___ Air Rotary ___ Auger ✓
Cable ___ Other ___

DRILLER'S LICENSE NO. C57 # 484288

WELL PROJECTS
Drill Hole Diameter ___ in. Maximum
Casing Diameter ___ in. Depth ___ ft.
Surface Seal Depth ___ ft. Number ___

GEOTECHNICAL PROJECTS
Number of Borings 5 Maximum
Hole Diameter 9 in. Depth 20 ft.

(7) ESTIMATED STARTING DATE 8-9-89
ESTIMATED COMPLETION DATE 8-9-89

(8) I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Wm R. Dugan Date 8-9-89

FOR OFFICE USE

PERMIT NUMBER 89457
LOCATION NUMBER

PERMIT CONDITIONS

Circled Permit Requirements Apply

A. GENERAL
(1.) A permit application should be submitted so as t arrive at the Zone 7 office five days prior t proposed starting date.
2. Submit to Zone 7 within 60 days after completic of permitted work the original Department c Water Resources Water Well Drillers Report c equivalent for well projects, or drilling log and location sketch for geotechnical projects.
(3.) Permit is void if project not begun within 9 days of approval date.

B. WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches c cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal ar industrial wells or 20 feet for domestic, irriga tion, and monitoring wells unless a lesser dept is specially approved.

(C.) GEOTECHNICAL. Backfill bore hole with compacted cut tings or heavy bentonite and upper two feet with com pacted material. In areas of known or suspecte contamination, tremied cement grout shall be used place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concre placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 8 Aug 89
Wyman Hong

219

APPENDIX B

APPENDIX B

FIELD METHODS

Site Safety Plan

Field work performed at the site by Applied GeoSystems on behalf of ARCO was conducted in accordance with Applied GeoSystems Site Safety Plan No. 69036-1S, dated August 7, 1989. This plan describes the safety requirements for the evaluation of soil contamination, including requirements for soil sampling, and drilling of soil borings. The Site Safety Plan is applicable to personnel of Applied GeoSystems and its subcontractors. Applied GeoSystems personnel and subcontractors of Applied GeoSystems scheduled to perform the work at the site were briefed on the contents of the site safety plan before work began. A copy of the site safety plan was available for reference by appropriate parties during the work. The Staff Geologist of Applied GeoSystems acted as the Site Safety Officer.

Soil Borings

Before borings were drilled, permits were acquired from the Alameda County Flood Control and Water Conservation District (Zone 7), and Underground Service Alert was notified of our intent to drill. A copy of the permit is included in Appendix A. Approximate locations of known utility lines and structures were marked.

The borings were drilled by a Mobile B-53 truck-mounted drill rig operated by personnel of Exploration Geoservices, of San Jose, California. The drill rig was equipped with 8-inch-diameter, hollow-stem augers. The augers were steam-cleaned prior to drilling each boring to minimize the possibility of cross-contamination. After the borings were drilled neat-cement grout with bentonite was used to backfill the borings to the ground surface.

Drill Cuttings

Drill cuttings subjectively evaluated as having hydrocarbon contamination at levels greater than 100 parts per million (ppm) were separated from those subjectively evaluated as having hydrocarbon contamination levels less than 100 ppm. Evaluation was based either on subjective evidence of soil discoloration or on measurements taken with an OVM. Readings were collected by placing the intake probe of the OVM against the soil in the brass sleeve promptly after opening the sampler. The drill cuttings from the borings were placed on plastic at the site and covered with plastic.

Soil Sampling in Borings

Soil samples were collected at 5-foot intervals from the ground surface to the total depth of the borings. The soil samples were collected by advancing the boring to a point immediately above the sampling depth and driving a California-modified, split-spoon sampler containing brass sleeves through the hollow center of the auger into the soil. The sampler and brass sleeves were laboratory-cleaned, steam-cleaned, or washed thoroughly with Alconox and water prior to each use. The sampler was driven 18 inches with a standard 140-pound hammer repeatedly dropped 30 inches. The number of blows to drive the sampler each successive 6 inches was counted and recorded to evaluate the relative consistency of the soil.

The samples selected for laboratory analysis were removed from the sampler and quickly sealed in their brass sleeves with aluminum foil, plastic caps, and aluminized duct tape. The samples were labeled, promptly placed in iced storage, and delivered to a laboratory certified by the State of California to perform the analyses requested.

One of the samples in brass sleeves not selected for laboratory analysis at each sampling interval was tested in the field with an OVM. This testing was performed by placing the intake probe of the OVM against the soil in the brass sleeve promptly after opening the sampler. The OVM readings are presented in Logs of Boring.

Logging of Borings

A geologist was present to log the soil cuttings and samples by the Unified Soil Classification System. Samples not selected for chemical analysis and the soil in the sampler shoe were extruded in the field for inspection. Logs include texture, color, moisture, plasticity, consistency, blow counts, and any other characteristics noted. Logs also include subjective evidence for the presence of hydrocarbons, such as soil staining, obvious product odor, and OVM readings.

Sample Labeling and Handling

Sample containers were labeled in the field with the job number, sample location and depth, and date and promptly placed in iced storage for transport to the laboratory. A Chain of Custody Record was initiated by the geologist and updated throughout handling of the samples and accompanied the samples to a laboratory certified by the State of California for the analyses requested. Samples were transported to the laboratory promptly to help ensure that recommended sample holding times would not be exceeded. Samples will be properly disposed of after their useful life has expired.

APPENDIX C

ANAMETRIX INC
Environmental & Analytical Chemistry
1961 Concourse Drive, Suite E, San Jose, CA 95131
(408) 432-8192 • Fax (408) 432-8198

REPORT

Bill Dugan
Applied GeoSystems
3315 Almaden Expressway
Suite 34
San Jose, CA 95118

August 25, 1989
Anametrix W.O.#: 8908111
Date Received : 08/14/89
Project Number : 69036-1

Dear Mr. Dugan:

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,

ANAMETRIX, INC.

Terry Cooke
TPH Supervisor

TC/dag

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

Client : Applied GeoSystems
Address : 3315 Almaden Expressway
Suite 34
City : San Jose, CA 95118
Attn. : Bill Dugan

Anametrix W.O.#: 8908111
Date Received : 08/14/89
Purchase Order#: N/A
Project No. : 69036-1
Date Released : 08/25/89

Anametrix I.D.	Sample I.D.	Matrix	Date Sampled	Method	Date Extract	Date Analyzed	Inst I.D.
RESULTS							
8908111-01	S-10-B1	SOIL	08/09/89	TPHg		08/15/89	N/A
8908111-02	S-15-B1	SOIL	08/09/89	TPHg		08/17/89	N/A
8908111-03	S-19.5-B1	SOIL	08/09/89	TPHg		08/17/89	N/A
8908111-04	S-10-B2	SOIL	08/09/89	TPHg		08/14/89	N/A
8908111-05	S-14.4-B2	SOIL	08/09/89	TPHg		08/17/89	N/A
8908111-06	S-20-B2	SOIL	08/09/89	TPHg		08/17/89	N/A
8908111-07	S-10-B3	SOIL	08/09/89	TPHg		08/16/89	N/A
8908111-08	S-14.5-B3	SOIL	08/09/89	TPHg		08/18/89	N/A
8908111-09	S-20-B3	SOIL	08/09/89	TPHg		08/17/89	N/A
8908111-10	S-10-B4	SOIL	08/09/89	TPHg		08/14/89	N/A
8908111-11	S-15-B4	SOIL	08/09/89	TPHg		08/15/89	N/A
8908111-12	S-19-B4	SOIL	08/09/89	TPHg		08/18/89	N/A
8908111-13	S-9.5-B5	SOIL	08/09/89	TPHg		08/17/89	N/A
8908111-14	S-15-B5	SOIL	08/09/89	TPHg		08/17/89	N/A
8908111-15	S-20-B5	SOIL	08/09/89	TPHg		08/17/89	N/A
QUALITY ASSURANCE (QA)							
8908111-13	S-9.5-B5	SOIL	08/09/89	SPIKE		08/17/89	N/A

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 69036-1 S-10-B1	Anametrix I.D.	: 8908111-01
Matrix	: SOIL	Analyst	: CB
Date sampled	: 08/09/89	Supervisor	: TC
Date anl.TPHg	: 08/15/89	Date released	: 08/25/89
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
71-43-2	Benzene	4000	ND
108-88-3	Toluene	4000	15000
100-41-4	Ethylbenzene	4000	8000
1330-20-7	Total Xylenes	4000	53000
	TPH as Gasoline	80000	1900000

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 69036-1 S-15-B1	Anametrix I.D.	: 8908111-02
Matrix	: SOIL	Analyst	: CB
Date sampled	: 08/09/89	Supervisor	: TL
Date anl.TPHg	: 08/17/89	Date released	: 08/25/89
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
71-43-2	Benzene	5	ND
108-88-3	Toluene	5	6
100-41-4	Ethylbenzene	5	ND
1330-20-7	Total Xylenes	5	ND
	TPH as Gasoline	1000	ND

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 69036-1 S-19.5-B1	Anametrix I.D.	: 8908111-03
Matrix	: SOIL	Analyst	: CS
Date sampled	: 08/09/89	Supervisor	: FC
Date anl.TPHg	: 08/17/89	Date released	: 08/25/89
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
71-43-2	Benzene	5	ND
108-88-3	Toluene	5	ND
100-41-4	Ethylbenzene	5	ND
1330-20-7	Total Xylenes	5	ND
	TPH as Gasoline	1000	ND

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 69036-1 S-10-B2	Anametrix I.D.	: 8908111-04
Matrix	: SOIL	Analyst	: CS
Date sampled	: 08/09/89	Supervisor	: JC
Date anl.TPHg	: 08/14/89	Date released	: 08/25/89
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
71-43-2	Benzene	50	1900
108-88-3	Toluene	50	350
100-41-4	Ethylbenzene	50	810
1330-20-7	Total Xylenes	50	4000
	TPH as Gasoline	1000	51000

ND - Not detected at or above the practical quantitation limit for the method.

TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.

BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 69036-1 S-14.4-B2	Anametrix I.D.	: 8908111-05
Matrix	: SOIL	Analyst	: CB
Date sampled	: 08/09/89	Supervisor	: TC
Date anl.TPHg	: 08/17/89	Date released	: 08/25/89
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
71-43-2	Benzene	5	63
108-88-3	Toluene	5	ND
100-41-4	Ethylbenzene	5	ND
1330-20-7	Total Xylenes	5	ND
	TPH as Gasoline	1000	ND

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 69036-1 S-20-B2	Anametrix I.D.	: 8908111-06
Matrix	: SOIL	Analyst	: 08
Date sampled	: 08/09/89	Supervisor	: TC
Date anl.TPHg	: 08/17/89	Date released	: 08/25/89
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
71-43-2	Benzene	5	39
108-88-3	Toluene	5	44
100-41-4	Ethylbenzene	5	7
1330-20-7	Total Xylenes	5	41
	TPH as Gasoline	1000	ND

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 69036-1 S-10-B3	Anametrix I.D.	: 8908111-07
Matrix	: SOIL	Analyst	: CB
Date sampled	: 08/09/89	Supervisor	: TC
Date anl.TPHg	: 08/16/89	Date released	: 08/25/89
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
71-43-2	Benzene	200	3100
108-88-3	Toluene	200	8200
100-41-4	Ethylbenzene	200	1800
1330-20-7	Total Xylenes	200	11000
	TPH as Gasoline	4000	75000

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 69036-1 S-14.5-B3	Anametrix I.D.	: 8908111-08
Matrix	: SOIL	Analyst	: OS
Date sampled	: 08/09/89	Supervisor	: TC
Date anl.TPHg	: 08/18/89	Date released	: 08/25/89
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
71-43-2	Benzene	25	210
108-88-3	Toluene	25	ND
100-41-4	Ethylbenzene	25	ND
1330-20-7	Total Xylenes	25	39
	TPH as Gasoline	1000	ND

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 69036-1 S-20-B3	Anametrix I.D.	: 8908111-09
Matrix	: SOIL	Analyst	: CK
Date sampled	: 08/09/89	Supervisor	: TC
Date anl.TPHg	: 08/17/89	Date released	: 08/25/89
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
71-43-2	Benzene	5	ND
108-88-3	Toluene	5	ND
100-41-4	Ethylbenzene	5	ND
1330-20-7	Total Xylenes	5	ND
	TPH as Gasoline	1000	ND

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 69036-1 S-10-B4	Anametrix I.D.	: 8908111-10
Matrix	: SOIL	Analyst	: CB
Date sampled	: 08/09/89	Supervisor	: TC
Date anl.TPHg	: 08/14/89	Date released	: 08/25/89
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
71-43-2	Benzene	2000	33000
108-88-3	Toluene	2000	140000
100-41-4	Ethylbenzene	2000	40000
1330-20-7	Total Xylenes	2000	220000
	TPH as Gasoline	40000	2400000

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 69036-1 S-15-B4	Anametrix I.D.	: 8908111-11
Matrix	: SOIL	Analyst	: CB
Date sampled	: 08/09/89	Supervisor	: TC
Date anl.TPHg	: 08/15/89	Date released	: 08/25/89
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
71-43-2	Benzene	1000	ND
108-88-3	Toluene	1000	6900
100-41-4	Ethylbenzene	1000	6200
1330-20-7	Total Xylenes	1000	6300
	TPH as Gasoline	20000	520000

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 69036-1 S-19-B4	Anametrix I.D.	: 8908111-12
Matrix	: SOIL	Analyst	: CS
Date sampled	: 08/09/89	Supervisor	: TC
Date anl.TPHg	: 08/18/89	Date released	: 08/25/89
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
71-43-2	Benzene	5	ND
108-88-3	Toluene	5	7
100-41-4	Ethylbenzene	5	ND
1330-20-7	Total Xylenes	5	ND
	TPH as Gasoline	1000	ND

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 69036-1 S-9.5-B5	Anametrix I.D.	: 8908111-13
Matrix	: SOIL	Analyst	: CB
Date sampled	: 08/09/89	Supervisor	: FC
Date anl.TPHg	: 08/17/89	Date released	: 08/25/89
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
71-43-2	Benzene	5	7
108-88-3	Toluene	5	6
100-41-4	Ethylbenzene	5	ND
1330-20-7	Total Xylenes	5	ND
	TPH as Gasoline	1000	ND

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 69036-1 S-15-B5	Anametrix I.D.	: 8908111-14
Matrix	: SOIL	Analyst	: CB
Date sampled	: 08/09/89	Supervisor	: TC
Date anl.TPHg	: 08/17/89	Date released	: 08/25/89
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
71-43-2	Benzene	5	ND
108-88-3	Toluene	5	6
100-41-4	Ethylbenzene	5	ND
1330-20-7	Total Xylenes	5	ND
	TPH as Gasoline	1000	ND

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Applied GeoSystems
3315 Almaden Expressway, Suite 34
San Jose, California 95118
(408) 264-7723 FAX (408) 264-2435

TRANSMITTAL FORM

TO MR. GIL WISTAR
ALAMEDA COUNTY HEALTH AGENCY
HAZARDOUS MATERIALS DIVISION
80 SWAN WAY, ROOM 200
OAKLAND, CA 94621
ATTN: BILL DUGAN

Date	Project No.
1/25/90	69036-1

Subject:
REPORT LIMITED ENVIRONMENTAL SITE ASSESSMENT AT ARCO SS#2035 LOCATED SOUTHEAST CORNER OF MARIN AND SAN PABLO AVENUES, ALBANY, CA

MEMO

Gil Wistar 3/5

Larry,

Here's a site assessment for the ARCO station in Albany, which has had a lot of problems over the years with its UGTs. With soil contamination at 10' as up to 2,400 ppm, I would recommend that you require ARCO to replace the tanks and clean up the site ASAP.

Let me know if you have any questions —

Thanx,

Gil

the following items:

orts ☐ Specifications

MENT AT ARCO SS#2035
PABLO AVENUES, ALBANY, CA.

copies for approval
copies for distribution
corrected prints

0

ADER'S FILE

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D.	: 69036-1 S-20-B5	Anametrix I.D.	: 8908111-15
Matrix	: SOIL	Analyst	:
Date sampled	: 08/09/89	Supervisor	:
Date anl.TPHg	: 08/17/89	Date released	: 08/25/89
Date ext.TPHd	: N/A	Date ext. TOG	: N/A
Date anl.TPHd	: N/A	Date anl. TOG	: N/A

CAS #	Compound Name	Reporting Limit (ug/kg)	Amount Found (ug/kg)
71-43-2	Benzene	5	ND
108-88-3	Toluene	5	ND
100-41-4	Ethylbenzene	5	ND
1330-20-7	Total Xylenes	5	ND
	TPH as Gasoline	1000	ND

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

TOTAL VOLATILE HYDROCARBON MATRIX SPIKE REPORT
EPA METHOD 5030 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 69036-1 S-9.5-B5
Matrix : SOIL
Date sampled : 08/09/89
Date analyzed : 08/17/89

Anametrix I.D. : 8908111-13
Analyst : CB
Supervisor : TC
Date Released : 08/25/89

COMPOUND	SPIKE AMT. (UG/KG)	MS (UG/KG)	%REC MS	MSD (UG/KG)	%REC MSD	RPD	%REC LIMITS
Gasoline	500	530	106%	420	84%	-23%	50-150

* Limits established by Anametrix, Inc.

CHAIN OF CUSTODY RECORD

San Jose Branch
3315 Almaden Expressway, Suite 34
San Jose, CA 95118 (408)264-7723

Applied GeoSystems

SAMPLER (signature): Steve Bittman

Phone: (408) 264-7723

LABORATORY:
Anametrix Inc.
1961 Concourse Dr. Suite E
San Jose CA.

TURNAROUND TIME: (2 weeks)

Project Leader: Bill Dugan

Phone No. (408) 264-7723

SHIPPING INFORMATION:

Shipper

Address

Date Shipped

Service Used

Airbill No. Cooler No.

Relinquished by: (signatures)	Received by: (signatures)	Date	Ti.
Steve Bittman			
	Received for laboratory by:	8-14-89	8:

LABORATORY SHOULD SIGN UPON RECEIPT AND RETURN A COPY OF THIS FORM WITH THE LABORATORY RESULTS

Sample No.	Site Identification	Date Sampled	Analyses Requested	Sample Condition Upon Receipt
S-10-B1	69036-1	8-9-89	TPH(G) BTEX	Cool
S-15-B1	SB	SB	SB	SB
S-19.5 B1				
S-10-B2				
S-14.5-B2				
S-20-B2	69036-1	SB	BTEX	
S-10-B3				
S-14.5-B3	69	8/	TPH(G)	Cool
S-20-B3				
S-10-B4				
S-15-B4				
S-19-B4				
S-9.5-B5				
S-15-B5				
S-20-B5	SB	SB	SB	SB