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

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February 7, 1990
AGS 19025-2

Mr. Rick Mueller
Pleasanton City Fire Department
44 Railroad Street
Pleasanton, California 94520

Subject: Letter summarizing the proposed subsurface environmental investigation at Exxon Station 7-7003, 349 Main Street, Pleasanton, California.

Mr. Mueller:

At the request of Exxon Company, U.S.A. (Exxon), Applied GeoSystems is prepared to perform a limited subsurface environmental investigation at Exxon Station 7-7003, 349 Main Street, Pleasanton, California. The location of the site is shown on the Site Vicinity Map, Plate P-1. Three gasoline-storage tanks and one waste-oil-storage tank were removed in July 1989. A soil sample collected from below the regular unleaded tank contained 150 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPHg) (Applied GeoSystems Report 19025-1, October 25, 1989).

As recommended by the California Regional Water Quality Control Board and by Applied GeoSystems in Report 19025-1, October 25, 1989, we will initially install three ground-water monitoring wells. Proposed wells MW-1 and MW-2 will be located adjacent to the east and north margins of the former tank pit area. Proposed well MW-3 will be located in the inferred downgradient direction from the former waste-oil-storage tank pit area. In addition, the proposed location of MW-3 will provide triangulation data necessary to evaluate the hydraulic gradient. A fourth well will be installed if site conditions warrant such action. The proposed locations of these wells are shown on the Generalized Site Plan, Plate P-2.

The scope of work is defined by the following tasks, which are in accordance with guidelines established by the Regional Water Quality Control Board for underground storage tank sites:

Task 1. Field Investigation

Drill three 10-inch-diameter soil borings to a depth of approximately 55 feet, collect soil samples at 2-1/2- or 5-foot intervals, construct a 4-inch-diameter monitoring well in each boring, develop and sample the wells, survey the wells to mean sea level, measure ground-water levels in the wells to evaluate the gradient, conduct a

literature search of wells within 1/2-mile radius, collect and analyze one composite sample of the aerated soil cuttings, and properly dispose of soil and purge water.

Task 2. Laboratory Analyses

Analyze an estimated two soil samples per boring for TPHg by modified Environmental Protection Agency (EPA) Method 8015 and for the purgeable hydrocarbon constituents benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) by EPA Method 8020, and analyze two soil samples for total lead by a Department of Health Services (DHS) approved method. One water sample per well will be analyzed for TPHg by EPA Method 8015 and for BTEX by EPA Method 602. In addition, one water sample will be analyzed for total lead by a DHS approved Method and a sieve analysis will be performed on one representative sample of the aquifer material.

Task 3. Data Evaluation and Report

Prepare a report describing field and laboratory procedures and methodology, providing our written and illustrated interpretations of the data, followed by our conclusions, and recommendations.

Applied GeoSystems will contact Underground Service Alert to delineate public underground utilities before drilling begins, and each borehole will be hand augered to a depth of 5 feet from the ground surface. Drilling is scheduled to begin on February 12, 1990, and to conclude on February 14, 1990.

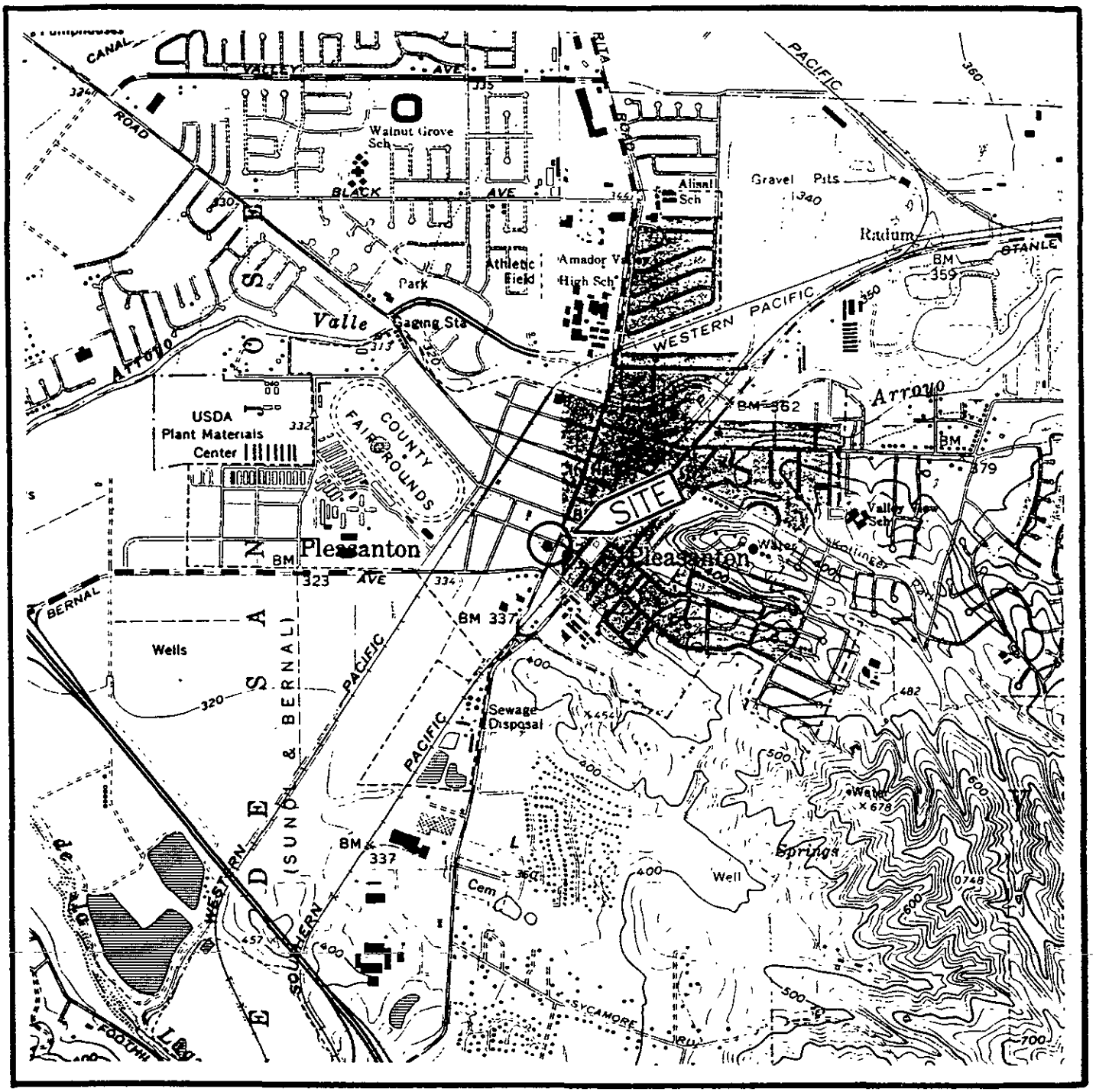
Please call with questions regarding the proposed work or the project in general.

Sincerely,
Applied GeoSystems

Leigh I. Beem
Project Geologist

William R. Short
Project Manager

Enclosures: Site Vicinity Map, Plate P-1
Generalized Site Plan, Plate P-2



Source: U.S. Geological Survey
7.5-Minute Quadrangle
Dublin/Livermore, California
Photorevised 1980

N

Approximate Scale

2000 1000 0 2000 4000

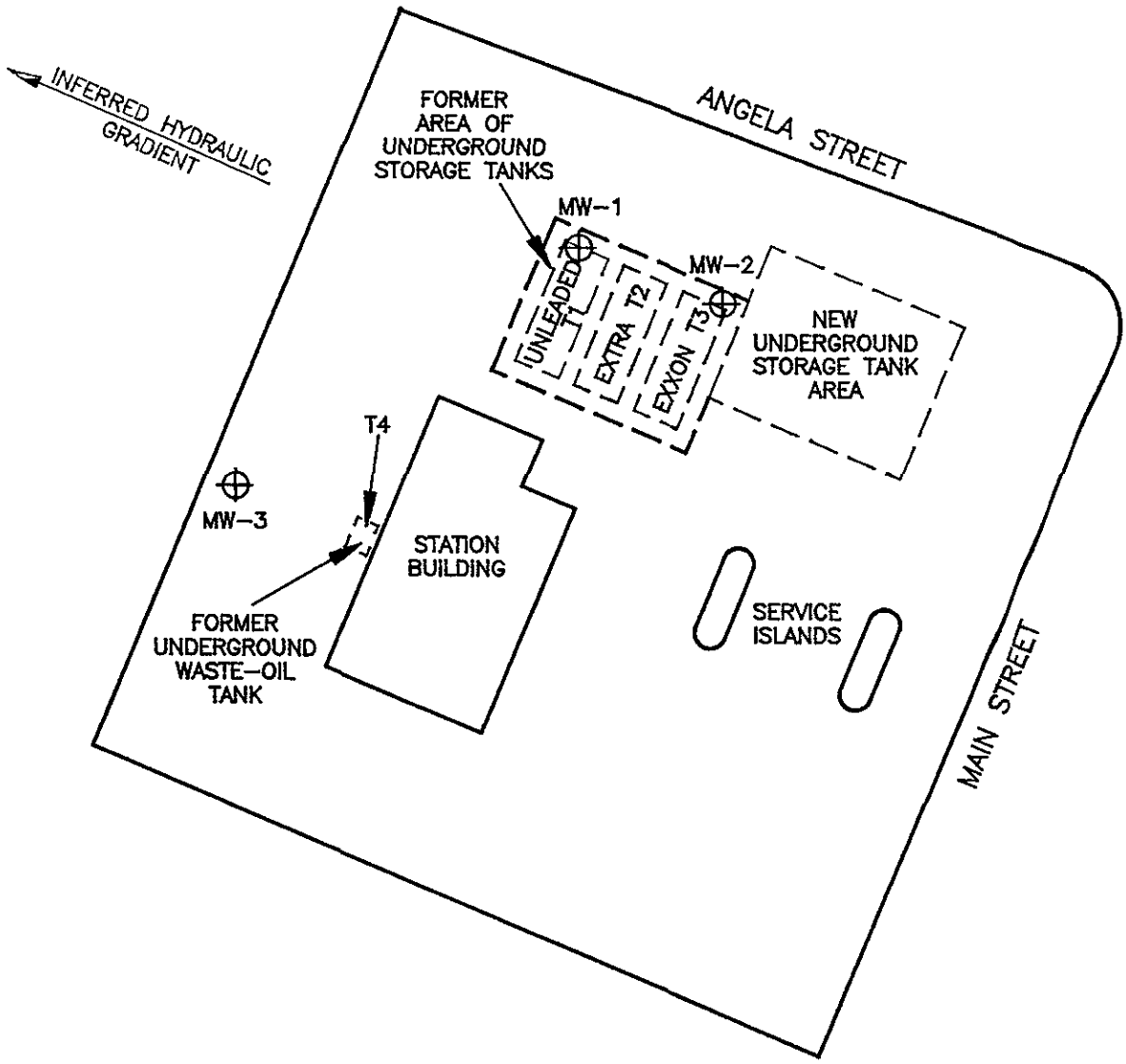
feet

Applied GeoSystems

PROJECT NO. 19025-2

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

PLATE
P - 1



T4 = Tank number

⊕ = Approximate proposed monitoring well location

Source : Modified from plan supplied by Exxon

N

Approximate Scale

30 15 0 30 60

feet

Applied GeoSystems

PROJECT NO. 19025-2

GENERALIZED SITE PLAN
Exxon Service Station 7-7003
349 Main Street
Pleasanton, California

PLATE

P - 2

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REPORT ON SUPPLEMENTAL SUBSURFACE ENVIRONMENTAL INVESTIGATION

at

Exxon Station 7-7003
349 Main Street
Pleasanton, California

AGS Job No. 19025-2

Report prepared for

Exxon Company U.S.A.
2300 Clayton Road
Concord, California

by

Applied GeoSystems

JoEllen Kuszmaul
Project Geologist

Paul A. Studemeister
Project Geologist
R.G. 4635

August 1, 1990

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

REPORT
SUPPLEMENTAL SUBSURFACE ENVIRONMENTAL INVESTIGATION
at
Exxon Station 7-7003
349 Main Street
Pleasanton, California

For Exxon Company U.S.A.

1.0 INTRODUCTION

At the request of Exxon Company U.S.A. (Exxon), Applied GeoSystems (AGS) conducted a supplemental subsurface investigation at Exxon Station 7-7003 in Pleasanton, California. The purpose of the investigation was to provide additional information regarding the extent and concentrations of hydrocarbons in soil and ground water, and to evaluate the ground-water gradient at the site. This work was recommended because gasoline hydrocarbons were detected in soil during tank replacement in August 1989.

The investigation included drilling 13 borings, installing ground-water monitoring wells in five of the borings, collecting soil and ground-water samples for laboratory analyses, conducting a search of private water wells within a 1/2 mile radius of the site, and evaluating the ground-water flow direction and gradient at the site.

EXXON COMPANY, U.S.A.

POST OFFICE BOX 4032 • CONCORD, CA. 94524-2032 • (415) 246-8700

MARKETING DEPARTMENT

ENVIRONMENTAL ENGINEERING
G. D. GIBSON
SENIOR ENVIRONMENTAL ENGINEER

August 13, 1990

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 Report on Supplemental Subsurface Investigation 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 drilling of 13 soil borings and the installation of monitoring wells in five of the borings. Detectable levels of hydrocarbons were found in both soil and groundwater samples analyzed during this investigation. Further work at this site, to include additional soil borings and one or more additional monitoring wells, will be proposed in the near future.

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:rh
1408E
Attachment

c - w/attachment:
Mr. L. Feldman - San Francisco Bay Region Water Quality Control Board

w/o attachment:
Ms. M. D. Baca
Mr. P. J. Brininstool
Mr. J. R. Hastings
Mr. J. K. Hunter
Mr. L. W. Lindeen
Mr. M. Thomson - Alameda County District Attorney's Office
Mr. R. C. Witham - Applied GeoSystems

1.1 Site Description

Exxon Station No. 7-7003 is at the southwest corner of Angela and Main Streets in Pleasanton, California (Plate P-1). The site has an approximate elevation of 343 feet above mean sea level and is located in a commercial and residential area.

Features at the site include a service station building and two service islands that dispense gasoline. New gasoline underground storage tanks (USTs) are located to the northeast of the station building (Plate P-2); these tanks include a 12,000-gallon unleaded, a 10,000-gallon premium unleaded, and a 10,000-gallon leaded gasoline USTs. In addition, a new waste-oil UST is adjacent to the northwest corner of the service station building.

1.2 Previous Environmental Investigations

1.2.1 Soil Vapor Survey

In June 1989, at Exxon's request, AGS performed a soil-vapor survey to evaluate the concentration of hydrocarbons in the soil prior to the removal and replacement of the USTs. Vapor samples were collected at ten locations near the service islands, the product lines, and the USTs, at depths of 15 feet and between 23 and 28 feet below grade. Data from this survey indicated detectable levels of hydrocarbons in the soil around the gasoline UST and west of the waste-oil UST. The highest readings were found on the western side of the gasoline USTs (AGS Report No. 19025-1V, dated July 20, 1989).

1.2.2 Tank Removal

In July 1989, three 8,000-gallon steel gasoline USTs and a waste-oil UST were removed. The gasoline tanks were used to store unleaded, premium unleaded, and leaded product. Examination of the steel tanks after removal indicated no obvious signs of leakage, holes, pitting, or areas of weakness. After removal of the tanks, a total of 23 soil samples were collected for laboratory analyses. Of these samples, 15 were from the excavation at approximate depths of 14 and 23 feet below grade, one from the waste-oil-storage tank excavation at a depth of 7 feet, one from near the new tank pit at a depth of 13 feet, and 6 from near the product lines at depths of 3 feet. In August 1989, new fiberglass tanks were installed east of the old tank pit.

Results of the laboratory analyses indicated nondetectable hydrocarbon levels in the areas near the product line trench, the new tank pit floor, and at a depth of approximately 14 feet near the southern side and the center of the old tank pit. However, the results from samples collected at approximate depths of 23 feet near the northern side of the tank pit indicated levels of up to 150 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPHg). An additional foot of soil was excavated in this area (to a depth of 24 feet), and samples from this depth contained up to 40 ppm TPHg. The results of analyses of the sample from the waste-oil tank pit showed no detectable TPHg, total petroleum hydrocarbons as diesel (TPHd), total oil and grease (TOG), or volatile organic compounds (VOCs). Low concentrations of chromium, zinc, and lead were detected in the sample. Based on these results, AGS recommended the installation of three ground-water monitoring wells to assess the impact of gasoline hydrocarbons on the ground water beneath the site (AGS Report No. 19025-1, dated October 1, 1990).

1.3 Regional Geology and Hydrogeology

The City of Pleasanton is located near the western edge of the Livermore Valley, in the Coast Ranges Geomorphic Province. The valley is elongated in an east-west direction and is surrounded by hills of the Diablo Range. The main surface streams in the area and the ground-water in the basin move generally toward the east-west-trending axis of the valley and then to the west.

The Livermore Valley ground-water system consists of an unconfined saturated zone overlying a sequence of leaky or semiconfined aquifers (California Department of Water Resources, 1974). The water-bearing rocks and sediments of the Livermore Valley include the pre-Pleistocene Tassajara and Livermore Formations, and the Pleistocene-Holocene valley-fill materials. The valley-fill sediments include unconsolidated clastic deposits of alluvial and fluvial origin, ranging in thickness from a few feet to approximately 400 feet.

Exxon Station No. 7-7003 is located within the Bernal subbasin. The valley-fill materials in this subbasin are approximately 400 feet thick. Within the valley-fill sediments, the water-bearing layers are up to 100 feet thick, and are separated by impermeable beds up to 30 feet thick. Both the aquifers and the confining units appear to be laterally continuous across the subbasin. The water level in the uppermost continuous aquifer in the subbasin is reported at approximately 310 feet below the surface (Alameda County Flood Control and Water Conservation District, 1986).

1.4 Ground-Water Use

On March 1, 1990, Mr. Craig Mayfield from the Alameda County Flood Control and Water Conservation District (ACFCWCD), Zone 7, in Pleasanton, California, informed AGS about the recorded wells within a 1/2-mile radius of the site. The ACFCWCD records contain information on 10 wells located near the site. Plate P-3 shows the approximate location of these wells. According to the ACFCWCD records, seven of these wells are monitoring wells, one is an active water-supply well, one is an abandoned water-supply well, and one is used for electrolysis protection. Table 1 presents the locations, known total depths, and use or status of the wells.

2.0 FIELD INVESTIGATION

2.1 Preparation for Field Work

Before field work began, Ground-Water Protection Ordinance Permits for well construction were acquired from the ACFCWCD. Copies of the permits are in Appendix A. Field work was conducted in accordance with the AGS Site Safety Plan (AGS Report No. 19025-2S, February 12, 1990) and in accordance with the field procedures outlined in Appendix B.

2.2 Drilling of Borings and Installation of Monitoring Wells

Field work was conducted in two phases. Borings B-1, B-1A, B-2, and B-3 were drilled between [redacted] Boring B-1 was drilled at the northern edge of the old tank pit to a depth of 59 feet. In this location, organic vapor meter (OVM) readings higher

than 900 ppm were found between depths of 20 to 31 feet, and the top of the saturated zone was found at an approximate depth of 28 feet. This boring was subsequently backfilled to avoid providing a conduit for hydrocarbons to move to the ground water, and boring B-1A was drilled approximately 10 feet to the west of the old tank pit. Boring B-2 was drilled approximately 5 feet northeast of the pit, and B-3 approximately 10 feet west of the former waste-oil UST (Plate P-2). Ground-water was encountered at 30 to 33 feet below grade, and the borings were advanced to approximate depths of 40 feet. Monitoring wells MW-1, MW-2, and MW-3 were installed in borings B-1A, B-2, and B-3, respectively.

The second phase of drilling was conducted betwee[redacted]when borings B-4 through B-12 were drilled to further delineate hydrocarbons in soil and ground water. Borings B-4 through B-9 and B-11 were drilled around the former tank pit area to depths of 31-1/2 to 32 feet. Borings B-10 and B-12 were drilled at the northwest and northeast corners of the property to depths of 48-1/2 and 35 feet, respectively. During drilling, ground water was encountered at approximately 42 feet in B-10 and 32 feet in B-12; wells MW-4 and MW-5 were constructed in B-10 and B-12, respectively.

During drilling, soil samples were collected from the borings at 2-1/2 to 5-foot intervals. The Unified Soil Classification System was used to classify soils encountered in the boring (Appendix C). Descriptions of the earth materials encountered in the boring are presented on the Logs of Borings (Appendix C), which also show the OVM readings under the column entitled "P.I.D." (photoionization detector).

On June 5, 1990, Ron Archer Civil Engineer Inc., of Pleasanton, California, surveyed the elevations of the well casings relative to mean sea level. The results are reported in Appendix D.

2.3 Monitoring and Sampling of Ground Water

Wells MW-1, MW-2, and MW-3 were developed on February 20, and wells MW-4 and MW-5 were developed on June 10, 1990. Ground-water levels were measured and subjective evaluations of ground-water samples were performed on February 23, 1990. Ground-water samples were collected from monitoring wells MW-1, MW-2, and MW-3 on March 1, 1990. Wells MW-1 through MW-5 were monitored and sampled on June 15, 1990.

3.0 LABORATORY ANALYSES

3.1 Soil

Soil samples were analyzed for TPHg by modified Environmental Protection Agency (EPA) Method 8015 and benzene, toluene, ethylbenzene, and xylenes by EPA Method 8020. In addition, one sample from each boring was also analyzed for total lead by EPA Method 7241. The samples from borings B-1 through B-3 and B-1A were analyzed for TPHg and BTEX by Applied Analytical Environmental Laboratories (formerly the Applied GeoSystems laboratory) in Fremont, California (Certificate No. 153), and for lead by Anametrix Inc. of San Jose, California (Certificate No. 151). The samples from borings B-4 through B-12 were analyzed by Sequoia Analytical of Redwood City, California (Certificate No. 145).

3.2 Ground Water

Ground-water samples were analyzed for TPHg by EPA Method 8015, BTEX by EPA Method 602, and total lead by EPA Method 7420. The samples were analyzed for TPHg

and BTEX by Applied Analytical Environmental Laboratories. For the February samples, the lead analyses were performed by Anametrix Inc. of San Jose, California (Certificate No. 151). For the June samples, the lead analyses were performed by Chromalab, Inc., of San Ramon, California (Certificate No. E694).

4.0 RESULTS OF INVESTIGATION

4.1 Site Geology

Soil encountered during drilling to a depth of 48-1/2 feet consists of a 4-foot-thick layer of silty to gravelly sand, which overlies alternating layers of sandy to clayey gravel, silty sand, sandy silt, and silty to sandy clay (Appendix C). In all but one boring, ground water was encountered during drilling at approximately 30 to 33 feet in sand or gravel. In boring B-10 (MW-4), water was encountered at 42 feet in gravelly, clayey sand. Plates P-4, Fence Diagram A - A', illustrates the distribution of subsurface materials in the vicinity of the former gasoline USTs. Plate P-5, Fence Diagram B - B', shows the stratigraphy between wells MW-3 and MW-4. Plate P-2 shows the reference location of the fence diagram.

After well installation, ground-water levels stabilized in MW-4 at approximately 30 feet below grade and in the remaining wells at approximately 25 to 26 feet below grade. This observation suggests that either the water-bearing material is confined or, more likely, that upper clay and silt layers are contributing water to the wells. The data also suggests that well MW-4 is screened in a different saturated zone than the other wells at the site (Plate P-5).

4.2 Results of Ground-Water Monitoring

No floating product or sheen was observed in any of the site wells in February or June (Table 2). The ground-water elevations were calculated using the depth-to-water data and the surveyed well-head elevations (Appendix D) for both the February and June monitoring results (Table 2). The ground-water elevations were used to construct Ground-Water Elevation Maps, Plates P-6 and P-7. Because MW-4 appears to be constructed in a deeper saturated zone than the other site wells, data from this well was not used to construct Plate P-7.

The data indicate that the ground-water flow direction is approximately toward the west to northwest. A ground-water gradient of approximately 0.007 is suggested by the February results (Plate P-6) and 0.008 by the June results (Plate P-7).

4.3 Results of Analyses

4.3.1 Soil

Concentrations of TPHg greater than 100 parts per million (ppm) were found in three soil samples from borings near the southwestern part of the former UST pit. One sample from a depth of 21 feet in boring B-5 contained 1,400 ppm TPHg; one from 21 feet in B-1 contained 320 ppm; and one from 26 feet in B-6 contained 180 ppm. Nondetectable concentrations of TPHg were found in each sample analyzed from borings B-3 and B-8 through B-12. The laboratory results are presented in Table 3. Copies of the Chain of Custody Records and analysis reports are in Appendix E.

Detectable concentrations of TPHg appear to be limited to depths between 21 and 26 feet in the southwestern part of the former gasoline UST pit. Plates P-8 and P-9 show the distribution of TPHg in soil at depths of 21 and 26 feet, respectively.

The concentrations of total lead in the soil samples were generally low (less than 15 ppm). Concentrations in the samples from borings near the western part of the former UST pit (B-5 through B-7) were slightly higher than those from the outlying borings (Table 4).

4.3.2 Ground Water

In the March 1990 results, the highest TPHg concentration, 3.3 ppm, was detected in the ground-water sample from MW-1, just west of the former UST pit. The ground-water sample from MW-2 contained 0.065 ppm and that from MW-3 contained a level below the detection limits. In the June 1990 results, MW-1 contained 1.3 ppm TPHg, which represents a decrease compared to the previous data. Concentrations of TPHg in MW-2 and MW-3 increased to 0.67 and 0.20 ppm, respectively. Plate P-10 shows the concentration of TPHg in ground water on June 15, 1990. The map shows a dissolved plume that extends southwest from well MW-2 to MW-3, and west an unknown distance.

Concentrations of BTEX were below detection limits in MW-3, and both TPHg and BTEX were below detection limits in MW-4 and MW-5. The laboratory results are presented in Table 5. Copies of the Chain of Custody Records and analysis reports are in Appendix F.

In the March 1990 results of lead analyses, low concentrations of lead (up to 0.01 ppm) were detected in wells MW-1 through MW-3. Results of the June 1990 lead analyses indicate that

lead is below detection limits (0.05 ppm) in the ground-water samples from each well except MW-5, which contained 0.06 ppm (Table 6).

5.0 CONCLUSIONS

The following conclusions are based on the information obtained during this investigation:

- Monitoring well MW-4 is considered to be screened in a deeper saturated zone than that of the other site wells.
- The ground water in monitoring wells MW-1 through MW-3 and MW-5 appears to be derived from a shallow, laterally discontinuous saturated zone.
- Based on the results of the well search, ground-water use in the vicinity of the site appears to be limited.
- The direction of ground-water flow appears to be to the northwest at a gradient of 0.007 to 0.008.
- Hydrocarbons in soil appear to be adequately delineated to the north, east, and south of the former gasoline USTs. Soil with TPHg concentrations greater than 100 ppm appears to be limited to soil between depths of 21 and 26 feet below grade in an area immediately southwest of the former gasoline USTs and extends an unknown distance west and southwest of boring B-5.
- Results of ground-water analyses indicate the presence of gasoline hydrocarbons in the ground water beneath the site, with the highest concentrations in MW-1 to the west (approximately downgradient) of the former gasoline USTs. The dissolved hydrocarbon plume may extend offsite west and north of the former gasoline USTs.
- The results suggest that the gasoline hydrocarbons in soil and ground water are concentrated in the vicinity of former gasoline USTs.

6.0 REFERENCES

Alameda County Flood Control and Water Conservation District (Zone 7). 1986. Water Level Contours Map. Water Resources Engineering.

Applied GeoSystems. July 20, 1989. Report on Soil Vapor Survey at Exxon Service Station, 349 Main Street, Pleasanton, California. Job No. 19025-1V.

Applied GeoSystems. October 1, 1989. Report on Limited Subsurface Environmental Investigation at Exxon Station No. 7-7003, 349 Main Street, Pleasanton, California. Job No. 19025-1.

Applied GeoSystems. February 12, 1990. Site Safety Plan for Exxon Service Station, 349 Main Street, Pleasanton, California. Job No. 19025-2S.

California Department of Water Resources. 1966. Evaluation of Ground Water Resources, Livermore and Sunol Valleys, Appendix A: Geology. Bulletin No. 118-2.

California Department of Water Resources. 1974. Evaluation of Ground Water Resources: Livermore and Sunol Valleys. Bulletin 118-2, 153 p.

TABLE 1
WELLS WITHIN 1/2-MILE RADIUS OF SITE

Well No.[1]	Well Location	Total Depth	Use/ Status	Number of Wells
1.	Vervais Ave & Santa Rita	82	Water Supply	1
2.	4558 2nd Street	35	Water Supply (abandoned)	1
3.	Case Ave. &	19	Monitoring	1
	Bernal Ave.	25	Monitoring	1
4.	249 Main St.	--	Electrolysis Protection	1
5.	Shell Station,			
	1st St. &	95	Monitoring	3
	Bernal Ave.	28.5	Monitoring	1
6.	200 Bernal Ave.	72	Monitoring	1

Data based on Alameda County Flood Control and Water Conservation District records.

[1]Well number corresponds to that shown on Plate P-2, Wells Within 1/2-Mile Radius of Site.

TABLE 3
RESULTS OF SOIL ANALYSES
FOR GASOLINE HYDROCARBONS
(page 1 of 2)

Sample Number	TPHg ppm	Benzene ppm	Toluene ppm	Ethyl Benzene ppm	Xylenes ppm
S-11-B1	<2.0	<0.050	<0.050	<0.050	<0.050
S-21-B1	320.0	0.061	0.32	9.7	17
S-33-B1	4.3	<0.050	<0.050	<0.050	0.20
S-16-B1A	<2.0	<0.050	<0.050	<0.050	<0.050
S-25.5-B1A	52.0	<0.050	<0.050	0.94	1.3
S-30.5-B1A	<2.0	<0.050	<0.050	<0.050	<0.050
S-20-B2	<2.0	<0.050	<0.050	<0.050	<0.050
S-25.5-B2	<2.0	<0.050	<0.050	<0.050	<0.050
S-30.5-B2	17.0	0.086	0.30	0.066	0.40
S-20-B3	<2.0	<0.050	<0.050	<0.050	<0.050
S-25-B3	<2.0	<0.050	<0.050	<0.050	<0.050
S-33-B3	<2.0	<0.050	<0.050	<0.050	<0.050
S-18.5-B4	<1.0	<0.0050	0.0067	<0.0050	<0.0050
S-21-B4	13	0.020	0.016	0.066	1.1
S-26-B4	<1.0	<0.0050	0.018	<0.0050	<0.0050
S-18.5-B5	2.3	<0.0050	0.025	<0.0050	<0.0050
S-21-B5	1,400	5.5	5.3	33	35
S-26.5-B5	<1.0	<0.0050	0.0088	<0.0050	<0.0050
S-18.5-B6	<1.0	<0.0050	0.054	<0.0050	<0.0050
S-26-B6	180	2.1	0.55	1.2	0.86
S-28.5-B6	<1.0	0.0054	0.018	0.0039	<0.0050
S-18.5-B7	3.5	0.0073	0.029	0.0090	0.020
S-26-B7	<1.0	0.011	0.050	0.042	0.018
S-31.5-B7	<1.0	0.0081	0.028	<0.0050	0.015

TABLE 3
RESULTS OF SOIL ANALYSES
FOR GASOLINE HYDROCARBONS
(page 2 of 2)

Sample Number	TPHg ppm	Benzene ppm	Toluene ppm	Ethyl Benzene ppm	Xylenes ppm
S-18.5-B8	<1.0	<0.0050	0.027	<0.0050	<0.0050
S-26-B8	<1.0	0.0058	0.011	<0.0050	<0.0050
S-31-B8	<1.0	0.018	0.038	<0.0050	<0.0050
S-21-B9	<1.0	<0.0050	0.014	<0.0050	0.0058
S-26-B9	<1.0	<0.0050	0.012	<0.0050	<0.0050
S-31-B9	<1.0	<0.0050	0.034	<0.0050	0.0057
S-16-B10	<1.0	<0.0050	<0.0050	<0.0050	0.013
S-23.5-B10	<1.0	<0.0050	0.0055	<0.0050	<0.0050
S-31-B10	<1.0	<0.0050	0.033	<0.0050	0.014
S-43.5-B10	<1.0	<0.0050	0.036	<0.0050	0.0062
S-18.5-B11	<1.0	<0.0050	0.022	<0.0050	<0.0050
S-21-B11	<1.0	<0.0050	<0.0050	<0.0050	<0.0050
S-28.5-B11	<1.0	<0.0050	0.014	<0.0050	<0.0050
S-21-B12	<1.0	<0.0050	<0.0050	<0.0050	0.026
S-28.5-B12	<1.0	<0.0050	<0.0050	<0.0050	0.015
Composite Sample S-0605-1ABCD	<1.0	<0.0050	<0.0050	<0.0050	0.021

TPHg = total petroleum hydrocarbons.
< = below the detection limits of the analysis.
Sample designation = S-43.5-B10
- S = Soil sample.
- 43.5 = Sample depth in feet.
- B10 = Boring number.

TABLE 4
RESULTS OF SOIL ANALYSES
FOR LEAD

Sample Number	Total Lead (ppm)
S-21-B1	6.4
S-25.5-B1A	8.3
S-25.5-B2	5.2
S-25-B3	6.8
S-21-B4	6.4
S-21-B5	14
S-26-B6	12
S-26-B7	14
S-26-B8	5.7
S-26-B9	4.9
S-23.5-B10	7.2
S-21-B11	5.5
S-21-B12	3.8
Composite Sample	
S-0606-1ABCD	4.9

Sample designation = S-43.5-B10
- S: Soil sample.
- 43.5: Sample depth in feet.
- B10: Boring number.

TABLE 2
RESULTS OF SUBJECTIVE EVALUATIONS OF GROUND WATER

Date	Depth to Water (ft)	Ground-Water Elevation (ft)	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
MW-2	(Wellhead Elevation = 344.22 ft)			
2/90	26.31	317.31	None	None
6/90	26.25	317.97	None	None
MW-3	(Wellhead Elevation = 342.90 ft)			
2/90	24.78	318.12	None	None
6/90	25.29	317.61	None	None
MW-4	(Wellhead Elevation = 343.38 ft)			
6/90	30.94	312.44	None	None
MW-5	(Wellhead Elevation = 345.20 ft)			
6/90	26.94	318.26	None	None

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

TABLE 5
RESULTS OF GROUND-WATER ANALYSES
FOR GASOLINE HYDROCARBONS

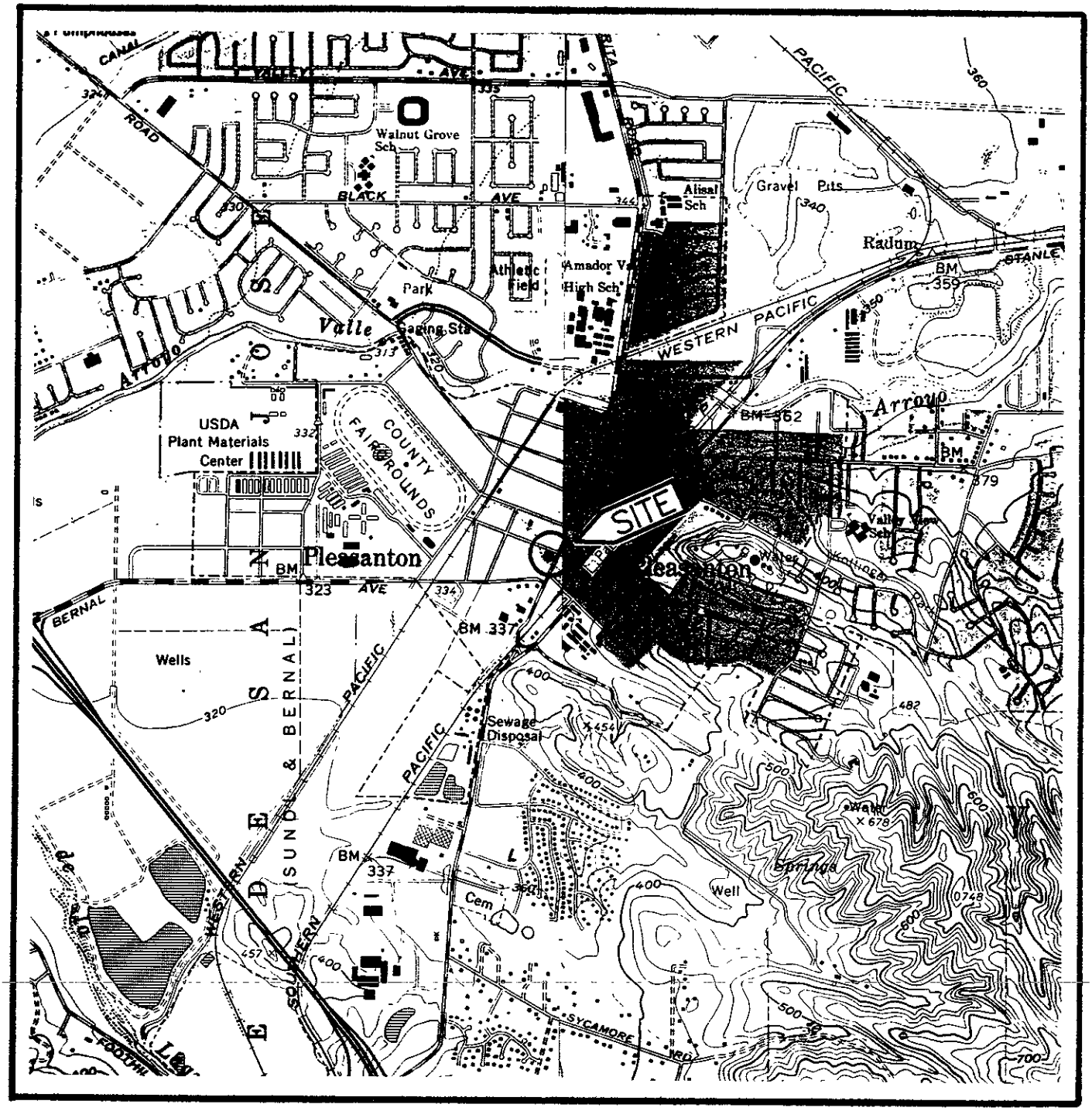
Sample Number	TPHg ppm	Benzene ppm	Toluene ppm	Ethyl-benzene ppm	Total Xylenes ppm
(March 1990)					
W-28-MW1	3.3	0.021	0.0092	0.059	0.0190
W-29-MW2	0.065	0.0030	0.0020	0.00098	0.0065
W-27-MW3	<0.020	<0.0005	<0.0005	<0.0005	<0.0005
(June 1990)					
W-27-MW1	1.3	0.0079	0.0059	0.032	0.058
W-27-MW2	0.67	<0.0005	0.0026	<0.0005	<0.0005
W-27-MW3	0.20	<0.0005	<0.0005	<0.0005	<0.0005
W-34-MW4	<0.020	<0.0005	<0.0005	<0.0005	<0.0005
W-26-MW5	<0.020	<0.0005	<0.0005	<0.0005	<0.0005

TPHg = total petroleum hydrocarbons.
< = below the detection limits of the analysis.
Sample designation = W-26-MW5
- W — Water sample.
- 26 — Sample depth in feet.
- MW5 — Well number.

TABLE 6
RESULTS OF GROUND-WATER ANALYSES
FOR LEAD

Sample Number	Total Lead (ppm)
(March 1990)	
W-28-MW1	0.01
W-29-MW2	0.008
W-27-MW3	0.01
(June 1990)	
W-27-MW1	<0.05
W-27-MW2	<0.05
W-27-MW3	<0.05
W-34-MW4	<0.05
W-26-MW5	0.06

< = below the detection limits of the analysis.
Sample designation = W-26-MW5
- W: Water sample.
- 26: Sample depth in feet.
- MW5: Well number.



Source: U.S. Geological Survey
7.5-Minute Quadrangle
Dublin/Livermore, California
Photorevised 1980

N

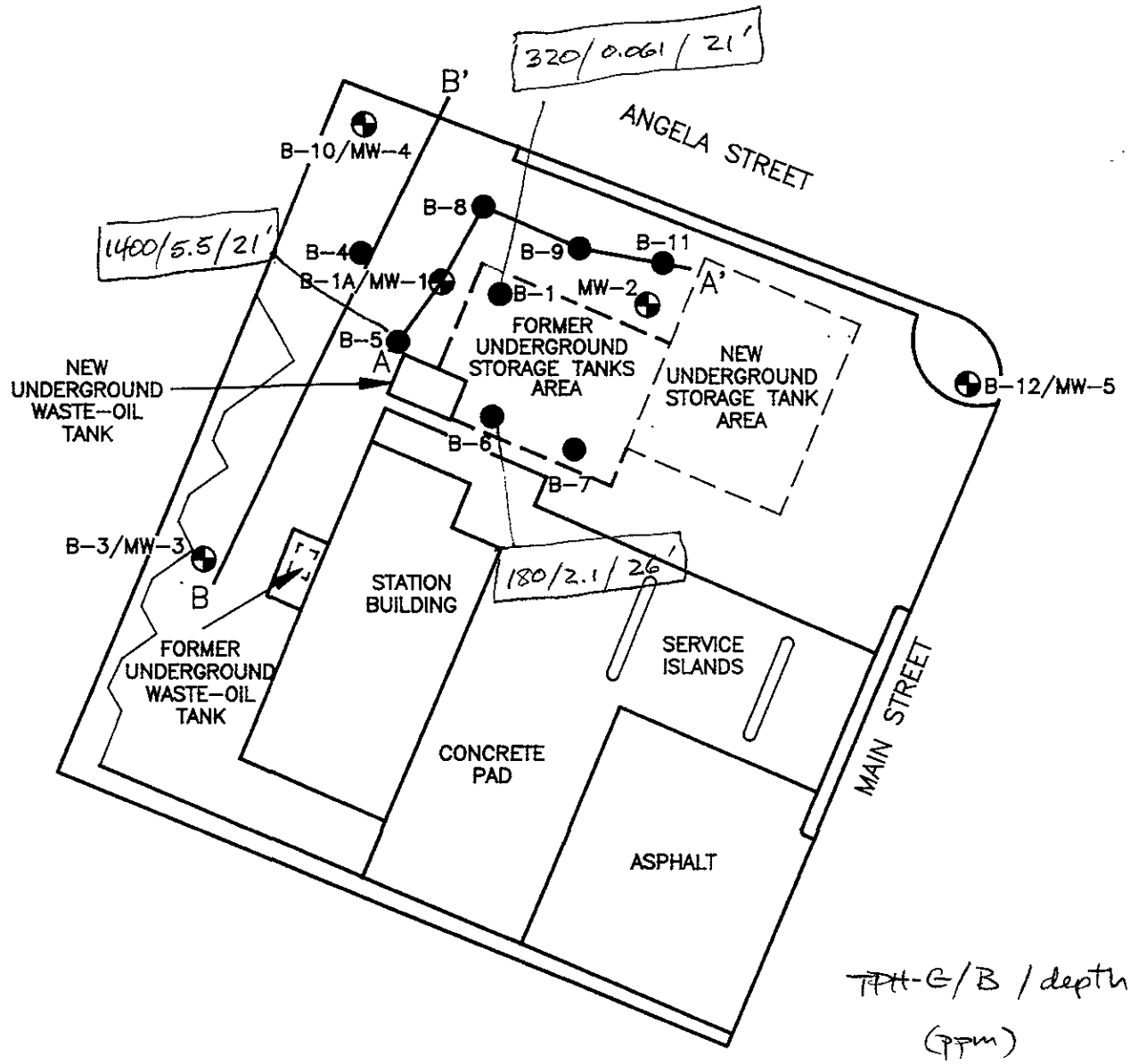
Approximate Scale
2000 1000 0 2000 4000
feet

Applied GeoSystems

PROJECT NO. 19025-2

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

PLATE
P - 1



B — B' = Fence diagram

B-12/MW-5 = Monitoring well

B-11 = Soil boring

N

Approximate Scale

30 15 0 30 60

feet

Source : Modified from plan supplied by Exxon

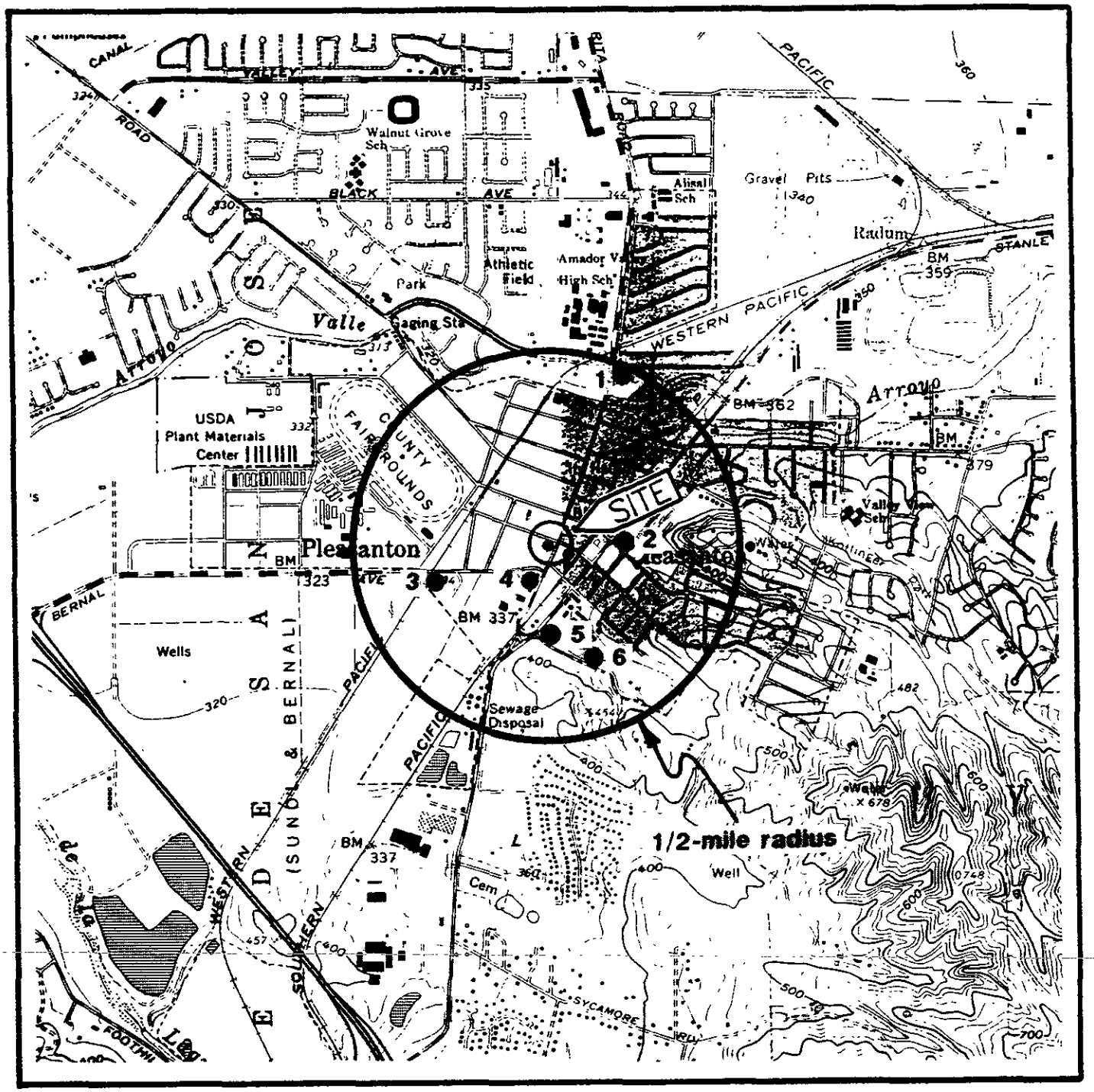
Applied GeoSystems

PROJECT NO. 19025-2

GENERALIZED SITE PLAN
Exxon Service Station 7-7003
349 Main Street
Pleasanton, California

PLATE

P - 2



Source: U.S. Geological Survey
7.5-Minute Quadrangle
Dublin/Livermore, California
Photorevised 1980

1 ● = Active water-supply well
2 ● = Abandoned water-supply well
3, 5, 6 ● = Monitoring wells
4 ● = Electrolysis protection well

N

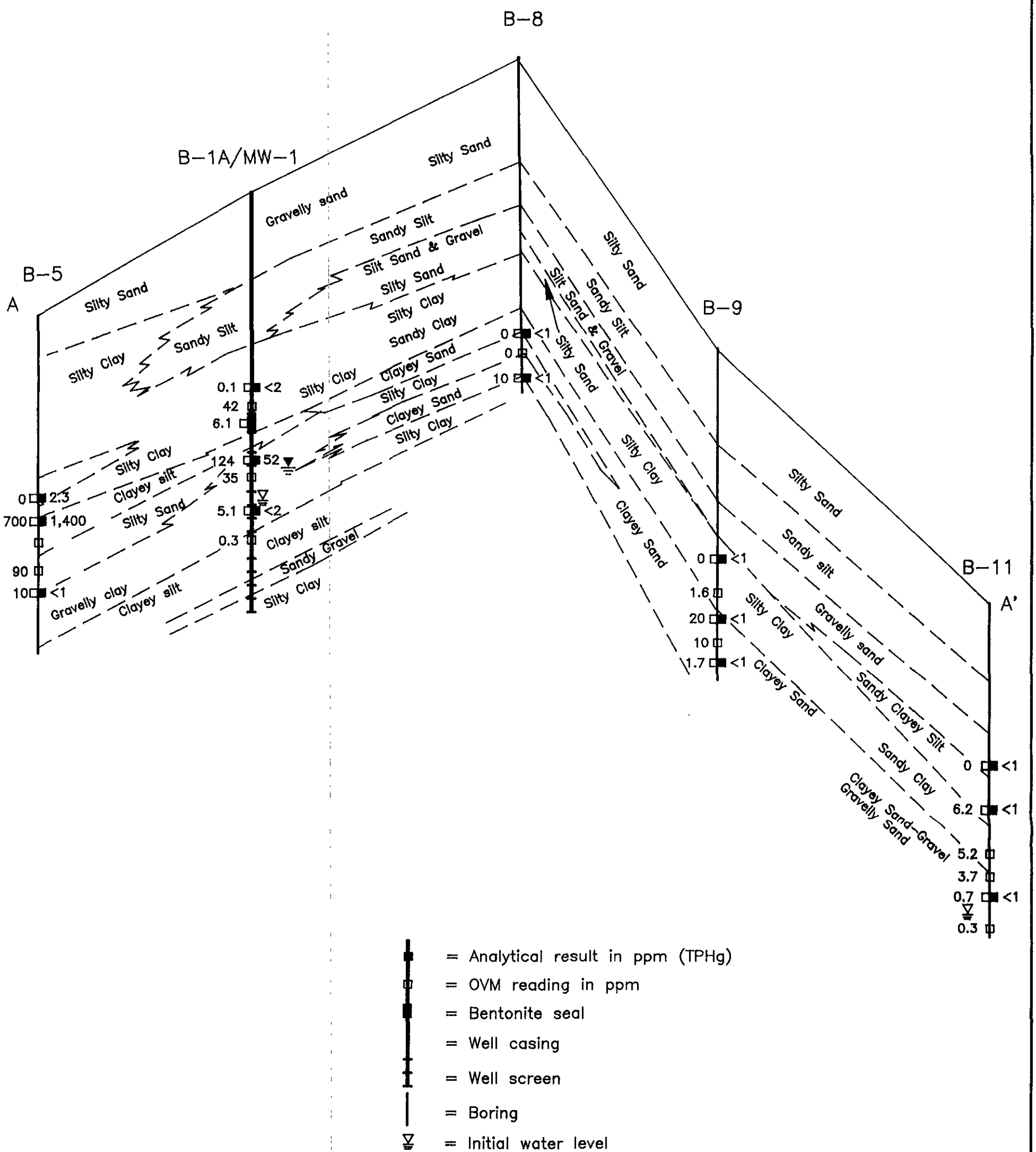
Approximate Scale
2000 1000 0 2000 4000
feet

Applied GeoSystems

PROJECT NO. 19025-2

WELLS WITHIN 1/2-MILE RADIUS OF SITE
Exxon Service Station 7-7003
349 Main Street
Pleasanton, California

PLATE
P - 3

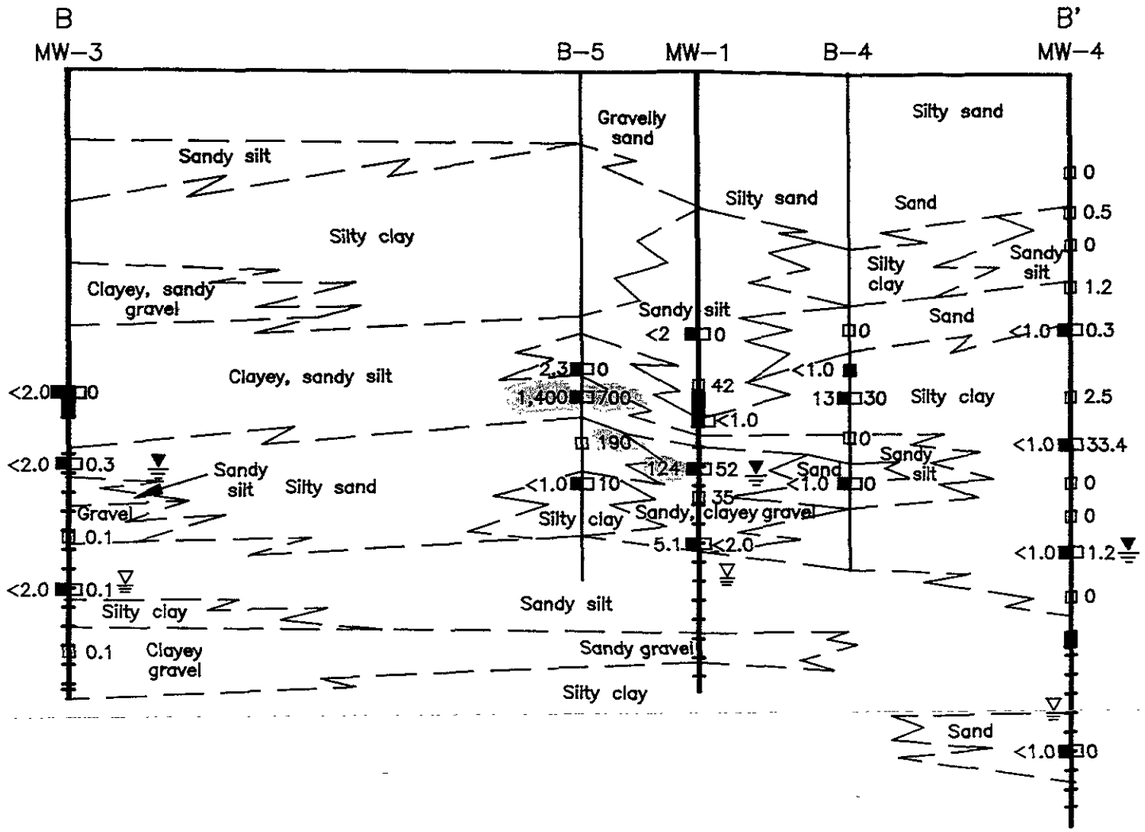


Applied GeoSystems

PROJECT NO. 19025-2

FENCE DIAGRAM A - A'
Exxon Service Station 7-7003
349 Main Street
Pleasanton, California

PLATE
P - 4



= Bentonite plug
= OVM reading in ppm
= Analytical result in ppm (TPHg)
= Well casing
= Well screen
= Boring
= Initial water level
= Static water level (6-15-90)

Approximate Horizontal Scale

15 7.5 0 15 30

feet

Approximate Vertical Scale

10 5 0 10 20

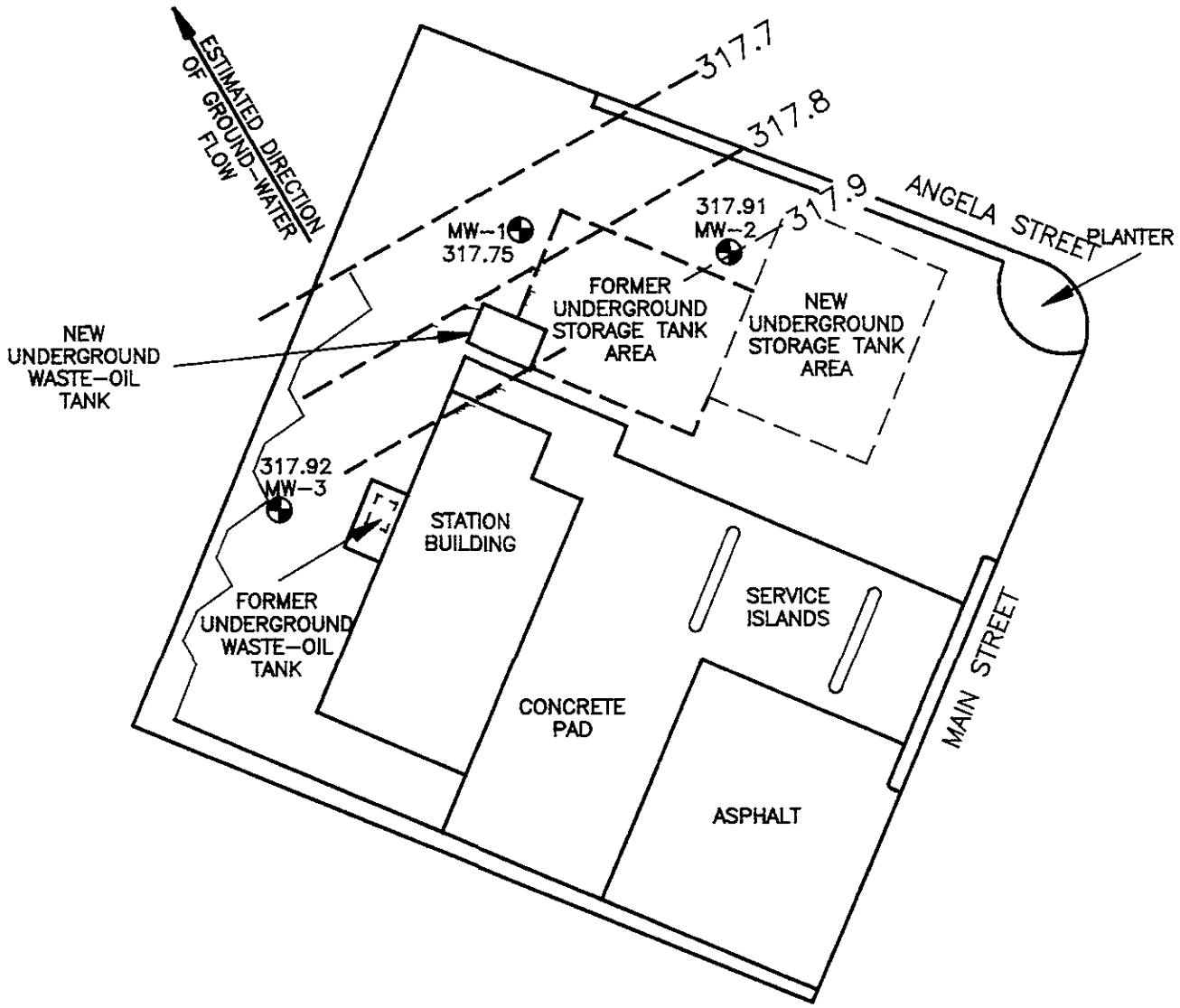
feet

Applied GeoSystems

PROJECT NO. 19025-2

FENCE DIAGRAM B - B'
Exxon Service Station 7-7003
349 Main Street
Pleasanton, California

PLATE
P - 5



317.9 = Line of equal elevation of ground water in feet above mean sea level

MW-3 = Monitoring well

N

Approximate Scale

30 15 0 30 60

feet

Source : Modified from plan supplied by Exxon

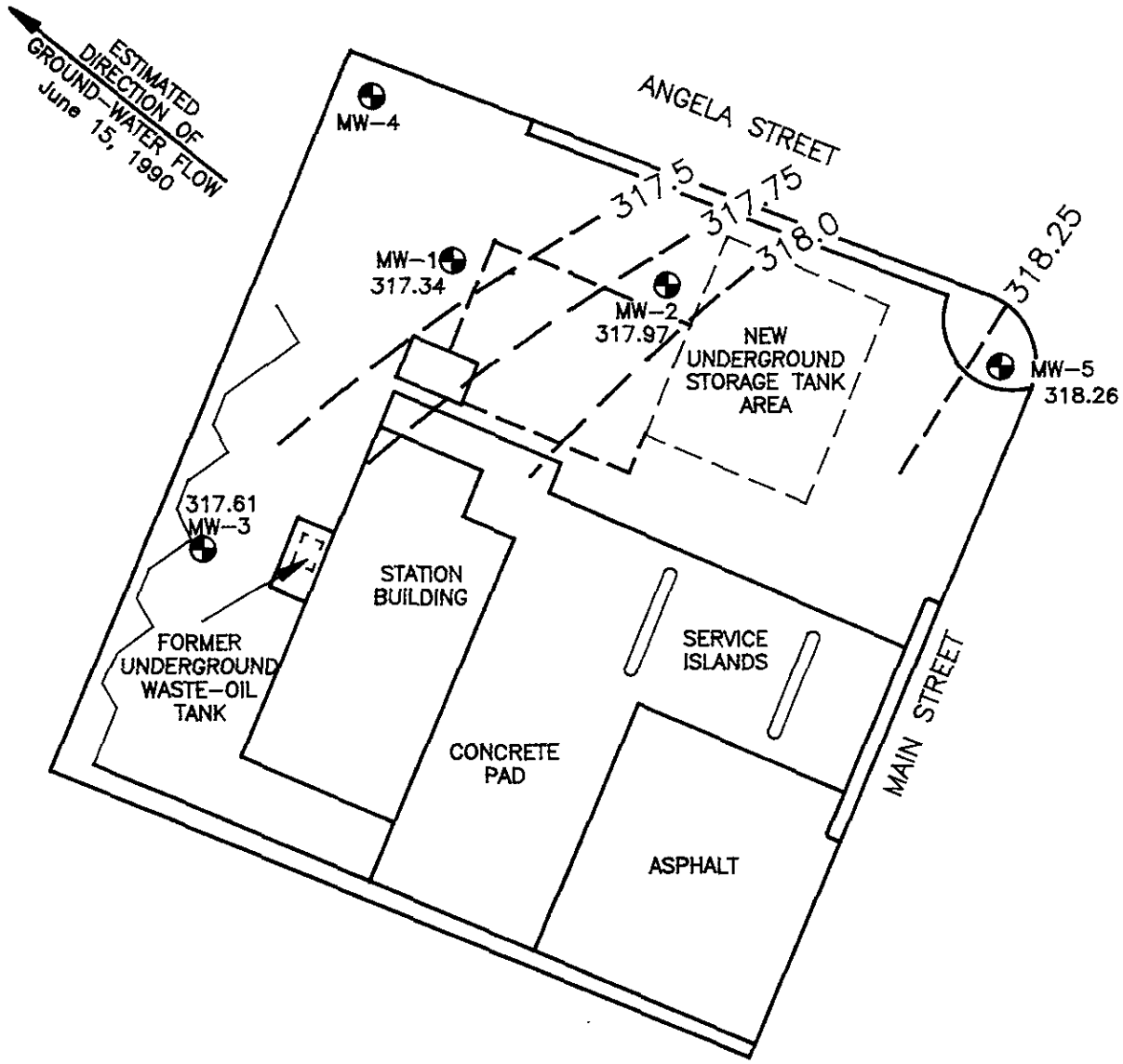
Applied GeoSystems

PROJECT NO. 19025-2

GROUND-WATER ELEVATION MAP
(February 23, 1990)
Exxon Service Station 7-7003
349 Main Street
Pleasanton, California

PLATE

P - 6



318.25 = Line of equal elevation of ground water in feet above mean sea level

MW-5 = Monitoring well

N

Approximate Scale

30 15 0 30 60

feet

Source : Modified from plan supplied by Exxon

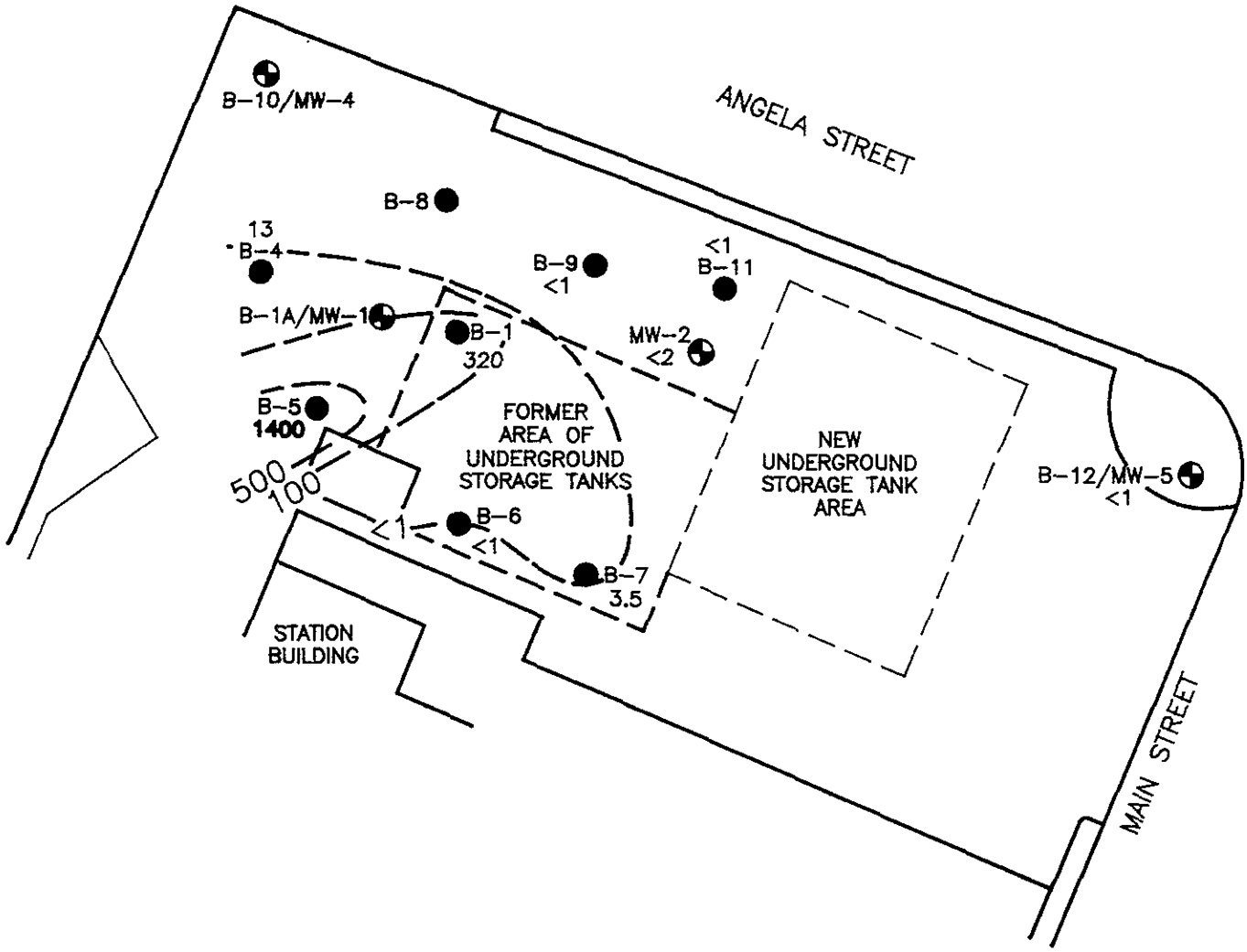
Applied GeoSystems

PROJECT NO. 19025-2

GROUND-WATER ELEVATION MAP
(June 15, 1990)
Exxon Service Station 7-7003
349 Main Street
Pleasanton, California

PLATE

P - 7



500 = Line of equal concentration in parts per million

1,400 = Concentration in parts per million

B-12/MW-5 = Monitoring well

B-11 = Soil boring

TPHg = Total petroleum hydrocarbons as gasoline

N

Approximate Scale

20 10 0 20 40

feet

Source : Modified from plan supplied by Exxon

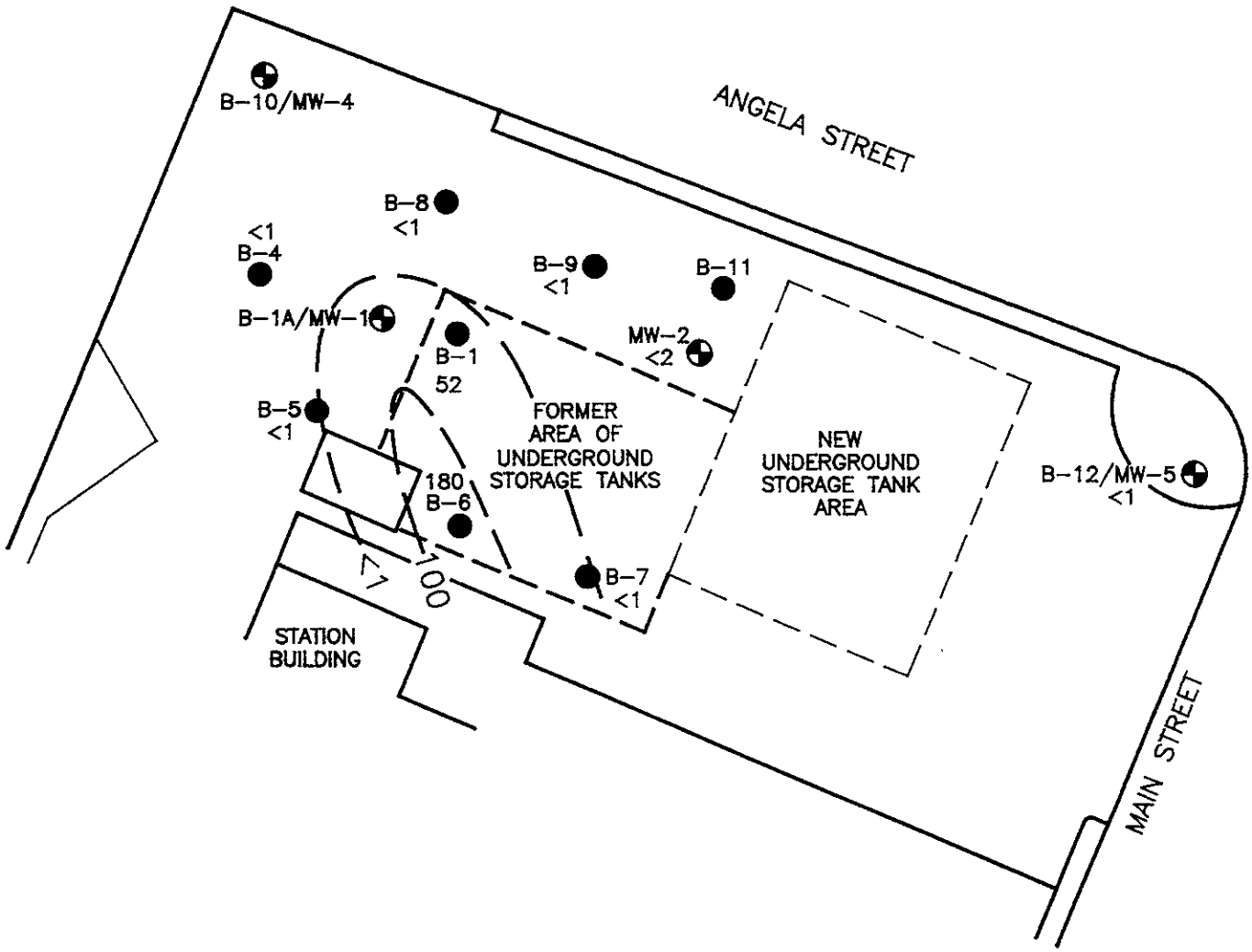
Applied GeoSystems

PROJECT NO. 19025-2

CONCENTRATION OF TPHg IN SOIL AT 20-21 FEET BELOW GRADE
Exxon Service Station 7-7003
349 Main Street
Pleasanton, California

PLATE

P - 8



100 = Line of equal concentration in parts per million

180 = Concentration in parts per million

B–12/MW–5 = Monitoring well

B–11 = Soil boring

TPHg = Total petroleum hydrocarbons as gasoline

N

Approximate Scale

20 10 0 20 40

feet

Source : Modified from plan supplied by Exxon

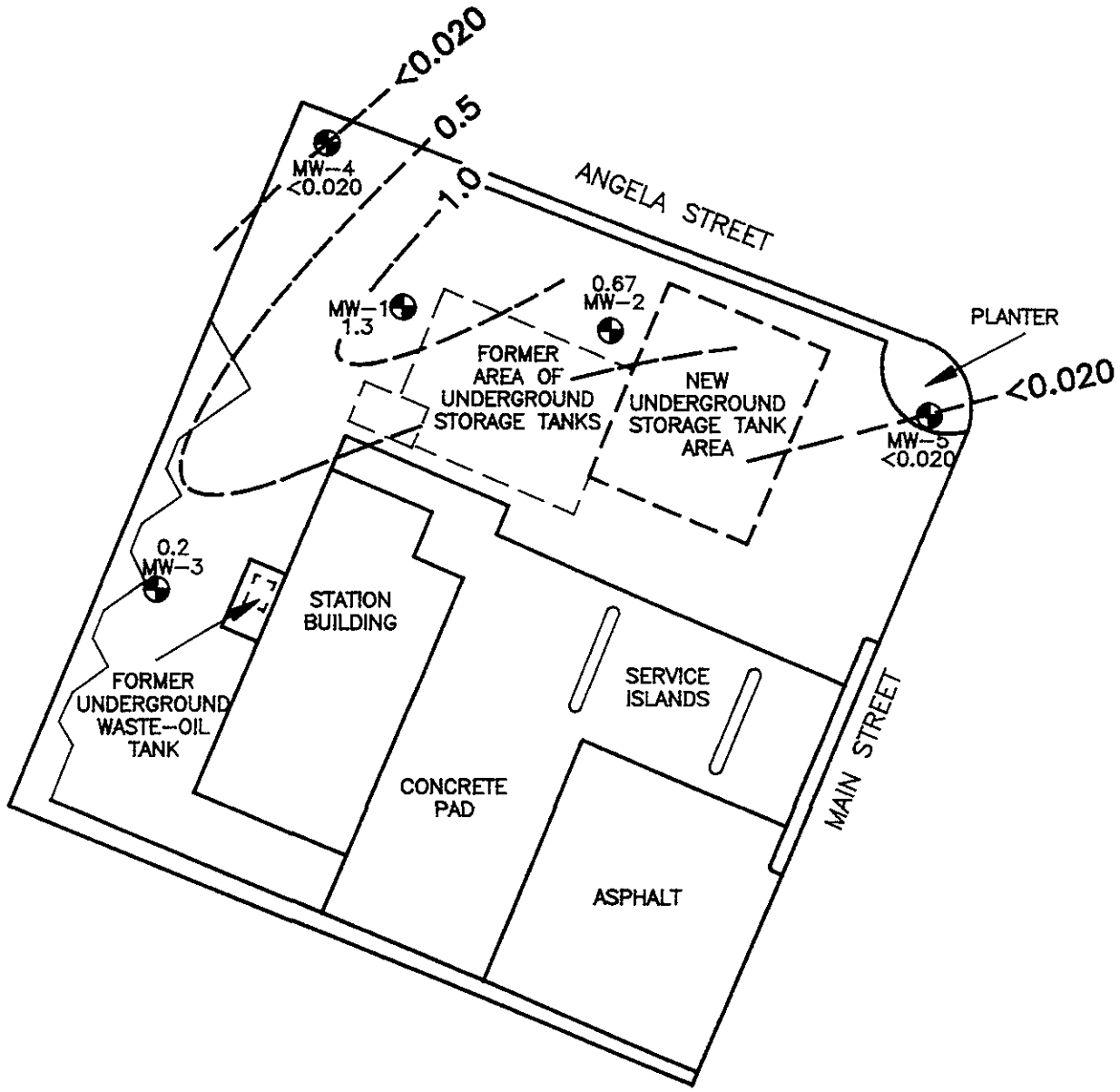
Applied GeoSystems

PROJECT NO. 19025-2

CONCENTRATION OF TPHg IN SOIL AT 25-26 FEET BELOW GRADE
Exxon Service Station 7-7003
349 Main Street
Pleasanton, California

PLATE

P - 9



-1.0 = Lines of equal concentration in parts per million (ppm)

MW-3 = Monitoring well

TPHg = Total petroleum hydrocarbons as gasoline

N

Approximate Scale

30 15 0 30 60

feet

Source : Modified from plan supplied by Exxon

Applied GeoSystems

PROJECT NO. 19025-2

CONCENTRATION OF TPHg IN GROUND-WATER (June 15, 1990)
Exxon Service Station 7-7003
349 Main Street
Pleasanton, California

PLATE
P - 10

APPENDIX A

MONITORING WELL PERMITS

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 Exxon Station 7-7003
349 Main Street
Pleasanton, California

(2) CLIENT
Name Exxon Company USA
Address PO Box 4032 Phone
City Concord, CA Zip 94520

(3) APPLICANT
Name Applied Geosystems AGS# 9025-2
Address 43255 Mission Blvd Phone 415 651-1906
City Fremont, CA Zip 94539

(4) DESCRIPTION OF PROJECT
Water Well Construction ___ Geotechnical ___
Cathodic Protection ___ Well Destruction ___
Contamination X

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

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

WELL PROJECTS
Drill Hole Diameter 10 in. Depth(s) 55 ft.
Casing Diameter 4 in. Number
Surface Seal Depth 40 ft. of Wells #3
Driller's License No. C57-482900

GEOTECHNICAL PROJECTS
Number ___
Diameter ___ in. Maximum Depth ___ ft.

(7) ESTIMATED STARTING DATE February 12, 1990
ESTIMATED COMPLETION DATE February 14, 1990

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

APPLICANT'S SIGNATURE [signature] Date 1/31/90

FOR OFFICE USE

PERMIT NUMBER 90064
LOCATION NUMBER

Approved Wyman Hong Date 2 Feb 90
Wyman Hong

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Notify this office (484-2600) at least one day prior to starting work on permitted work and before placing well seals.
3. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or bore hole logs and location sketch for geotechnical projects. Permitted work is completed when the last surface seal is placed or the last boring is completed.
4. Permit is void if project not begun within 90 days of approval date.

(B.) WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie, or equivalent.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic, irrigation, and monitoring wells unless a lesser depth is specially approved.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie, or equivalent.

E. WELL DESTRUCTION. See attached.

91987

ZONE 7 WATER RESOURCES MANAGEMENT

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

LOCATION OF PROJECT Exxon Station #7-7003
349 Main Street
Pleasanton, California

CLIENT
Name Exxon Company, USA
Address P.O. Box 4032 Phone
City Concord, CA Zip 94520

APPLICANT
Name Applied GeoSystems AGS # 19025-2
Address 4254 Albrae Street Phone (415)651-1906
City Fremont CA Zip 94539

TYPE OF PROJECT
Well Construction
Cathodic Protection ___
Water Supply ___
Monitoring X
Contamination X

Geotechnical Investigation
General ___
Contamination ___
Well Destruction ___

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other ___
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

DRILLER'S LICENSE NO. #563305

WELL PROJECTS
Drill Hole Diameter 10 in. Maximum
Casing Diameter 4 in. Depth 50 ft.
Surface Seal Depth 35 ft. Number 2

GEOTECHNICAL PROJECTS
Number of Borings 7 Maximum
Hole Diameter 6 in. Depth 30 ft.

ESTIMATED STARTING DATE May 29, 1990
ESTIMATED COMPLETION DATE May 31, 1990

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

APPLICANT'S SIGNATURE [signature] Date 5/21/90

FOR OFFICE USE

PERMIT NUMBER 90326
LOCATION NUMBER ___

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as t[o] arrive at the Zone 7 office five days prior t[o] proposed starting date.
2. Submit to Zone 7 within 60 days after completio[n] of permitted work the original Department o[f] Water Resources Water Well Drillers Report o[r] equivalent for well projects, or drilling log and location sketch for geotechnical projects.
3. Permit is void if project not begun within 9[0] days of approval date.

(B.) WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches o[f] cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal an[d] industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth i[s] specially approved. Minimum seal depth fo[r] monitoring wells is the maximum depth practicabl[e] or 20 feet.

(C.) GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspecte[d] contamination, tremied cement grout shall be used i[n] place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concret[e] placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 22 May 90
Wyman Hong

121989

APPENDIX B

FIELD PROCEDURES

FIELD PROCEDURES

Drilling of Borings

The borings for B-1 through B-3 and B-1A were drilled by Kvilhaug Well Drilling and Pump Company of Concord, California, with a Mobil B-61 truck-mounted drill rig. The borings for B-4 through B-12 were drilled by JCON Exploration of Yuba City, California, with a Mobil B-61 truck-mounted drill rig. The borings were drilled with 8-inch outside diameter, hollow-stem augers. Before well construction, the borings for MW-1 through MW-5 were reamed with 10-inch diameter augers.

The augers were steam cleaned prior to drilling of each borehole, and the fluids from the steam cleaning were contained in drums. The cuttings from the borings were stored onsite on plastic sheeting.

Soil Sampling

Soil samples were collected from the borings with a 2-1/2-inch-inside-diameter, California-modified, split-spoon sampler lined with clean brass sleeves. Soil sampling was attempted at 2-1/2- to 5-foot intervals from the ground surface to total depth. Samples were collected by advancing the augers to a point just above the sampling depth and then driving the sampler into the earth material through the hollow center of the auger. The sampler was driven a maximum of 18 inches with a standard 140-pound hammer repeatedly dropped 30 inches. The sampler was retrieved and the soil samples removed. The samples were sealed in their brass sleeves with aluminum foil, plastic caps, and duct tape. The samples were labeled and promptly placed into iced storage for transport to an analytical laboratory for testing. The field geologist initiated a Chain of Custody Record and AGS personnel observed chain-of-custody protocol throughout subsequent handling of the samples.

The Unified Soil Classification System was used to identify soil encountered in the boreholes. A copy of this classification system is shown on Plate C-1 in Appendix C. Descriptions of the earth materials encountered in the borings are presented on the Logs of Borings in Appendix C.

The relative consistency of the earth material encountered in the soil borings at 5-foot intervals was evaluated during sampling. The sampler was driven 18 inches with a standard 140-pound hammer repeatedly dropped 30 inches. The number of blows required to drive the soil sampler each 6-inch increment was counted and is shown on the Logs of Borings.

Photoionization Detector (PID) Analysis

The field geologist performed PID analyses on soil samples collected during borehole drilling using an organic vapor meter (OVM). Soil samples used in the analysis were collected from either the brass sleeves or the shoe of the sampler. Readings were collected by placing the rubber cup skirting the intake probe flush against the end of the soil sample immediately after the brass tube was removed from the sampler. Measurements from instruments such as the OVM are used to indicate the relative organic vapor concentrations in soil; they cannot be used to measure levels of hydrocarbon concentrations with the confidence of laboratory analysis. Results of the analysis are shown on the Logs of Borings (Appendix C).

Monitoring-Well Construction

The wells were completed with 4-inch-inside-diameter, Schedule 40, polyvinyl chloride (PVC) casing. The slotted interval consists of machine-slotted PVC with 0.010-inch-wide slots. Blank PVC casing was set from the top of the screened casing to a few inches below the ground surface. All casing joints are flush threaded, and no glues, chemical cements, or solvents were used in well construction. The top of the well casing is covered with a locking cap and the bottom has a threaded end-plug.

The annular space of the well was backfilled with No. 2 sorted sand from the total depth to approximately 1 foot above the top of the screened casing. A bentonite plug, approximately 1 foot thick, was placed above the sand as a seal against cement entering the sand pack. The remaining annulus was backfilled with a slurry of neat cement and 5 percent bentonite to a few inches below the ground surface. A graphic representation of the well construction is shown in the right column of the Logs of Borings. A key to symbols used to illustrate well construction is shown on Plate C-1 of Appendix C.

An aluminum utility box with a PVC apron was placed over the wellhead and set in place with concrete flush with the surrounding ground surface. The utility box has a watertight seal to prevent surface-water infiltration and, to discourage unauthorized entry, must be opened with a special wrench.

Well Development

At least 24 hours after the last seal was poured, the wells were developed by alternately surging and pumping. The wells were developed until the discharge water was relatively free of silt.

Subjective Evaluation of Ground-Water Samples

Before water samples were collected for subjective evaluation, the depth to static water level was measured 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 deionized water before each use. The samples were retrieved and examined for evidence of floating product, sheen, and emulsion.

Ground-Water Sampling for Laboratory Analyses

Before ground-water samples were collected, each well was purged of approximately 3 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. A disposable bailer certified clean by the manufacturer was used for collecting each water sample. Half the length of the bailer was lowered past the air-water interface to retrieve the water sample. The bailer was retrieved and the water samples slowly decanted into laboratory-cleaned sample containers. For TPHg and BTEX analyses, 40-milliliter, volatile organic analysis glass sample vials with Teflon-lined caps were used. Hydrochloric acid was added to the samples as a preservative. For lead analyses, the ground-water samples were filtered, placed in 500-milliliter glass bottles, and preserved with nitric acid. The sample vials were promptly capped, labeled, and placed in iced storage for transport to a State-certified analytical laboratory for testing.

APPENDIX C

LOGS OF BORINGS

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		LTR	DESCRIPTION	MAJOR DIVISIONS		LTR	DESCRIPTION
Coarse-grained soils	Gravel and gravelly soils	GW	Well-graded gravels or 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 or 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				
		SC	Clayey sands, sand-clay mixtures	Highly organic soils		PT	Peat and other highly organic soils


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. 19025-2

UNIFIED SOIL CLASSIFICATION SYSTEM AND SYMBOL KEY

PLATE

C - 1

Total depth of boring: 46-1/2 feet **Diameter of boring:** 8 inches **Date drilled:** 2-13-90

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

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

Drilling Company: Kvilhaug Well Drilling, Inc. **Driller:** Rod and Paul

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

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt.	
					Sandy clay backfill.	
2						
4						
		5				
		9			Pea gravel backfill.	
6	S-6	10	0		Sand backfill.	
8						
10		7				
		15			Sandy clay backfill.	
	S-11	15	0			
12						
14						
		15				
		25				
16	S-11	35	321		Clayey sand and pea gravel backfill.	
18						
20		20				
		40				
	S-21	40	950		(Section continues downward)	

Applied GeoSystems

PROJECT NO. 19025-2

LOG OF BORING B - 1

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE

C-2

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
					Clayey sand and pea gravel backfill, gray–green mottled, with some free product.	
22						
24						
				GC	Sandy, clayey gravel, brown, moist, very dense.	
26	S–26	50	960			
28						
30						
	S–31	50	1400		Very moist.	
32		50				
	S–33	50	200	ML	Sandy, silt, light brown, moist, low plasticity, hard.	
34		20				
36	S–35.5	50	23		Fine–grained gravel, damp.	
				SP	Gravelly sand, with clay, brown, damp, very dense.	
38				▽		
	S–38.5	50	13			
40	S–40	50	3.6	GC	Clayey gravel, with sand, brown, moist, very dense, with black carbonaceous rings around sand, rip up clasts.	
42		25		CL	Sandy clay, trace gravel, damp, low plasticity, hard.	
		40				
44	S–43.5	50	5.1			
		25				
		40				
46	S–46	50	12.1		Less gravel.	
					Total Depth = 46–1/2 feet.	
48						
50						

Applied GeoSystems

PROJECT NO. 19025-2

LOG OF BORING B - 1

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE C-3

Total depth of boring: 40 feet **Diameter of boring:** 10 inches **Date drilled:** 2-15-90

Casing diameter: 4 inches **Length:** 39 feet **Slot size:** 0.020-inch

Screen diameter: 4 inches **Length:** 15 feet **Material type:** Sch 40 PVC

Drilling Company: Kvilhaug Well Drilling, Inc. **Driller:** Rod and Paul

Method Used: Hollow-Stem Auger **Field Geologist:** Keith and Steve

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (3 inches).	
2				SW	Gravelly sand.	
4				SM	Silty, fine-grained sand, trace gravel, brown, damp, medium dense.	
6	S-6	8 10 8	0.1			
8				ML	Clayey silt, dark brown, moist, medium plasticity, hard.	
10	S-11	20 30 35	0.1			
12						
14						
16	S-16	20 20 25	0.1		Light brown, slight plasticity.	
18						
20	S-21	20 25 31	42		Some gravel, dark gray, very stiff. (Section continues downward)	

Applied GeoSystems

PROJECT NO. 19025-2

LOG OF BORING B-1A/MW-1

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE
C - 4

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
				ML	Clayey silt, some sand, dark gray, moist, slight plasticity, very stiff.	
22				CL	Silty clay, trace sand, green–gray, moist, medium plasticity, hard.	
		20				
	S–23	50	6.1	ML	Clayey silt, with trace gravel.	
24				GC	Sandy, clayey gravel, brown, moist, very dense.	
		35				
26	S–25.5	50	124			
		50				
28	S–27.5	6	35		More sand than clay.	
30		35				
	S–30.5	50	5.1		Very moist to wet.	
32				▽ ML	Clayey silt, with trace sand and gravel, brown, moist, hard.	
		15				
		25				
34	S–33.5	30	0.3			
		10				
36		15				
	S–36	30	0.3		More clay.	
				GP	Clayey, sandy gravel, brown, very moist.	
38		18				
		20		CL	Sandy, silty clay, with trace sand, light brown, moist, medium plasticity, hard, carbonaceous.	
	S–38.5	25	0.3			
40	S–39.5	90			Total Depth = 40 feet.	
42						
44						
46						
48						
50						

Applied GeoSystems

PROJECT NO. 18096-4

LOG OF BORING B-1A/MW-1

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE

C - 5

Total depth of boring: 41 feet **Diameter of boring:** 10 inches **Date drilled:** 2-13-90

Casing diameter: 4 inches **Length:** 40 feet **Slot size:** 0.020-inch

Screen diameter: 4 inches **Length:** 13-1/2 feet **Material type:** Sch 40 PVC

Drilling Company: Kvilhaug Well Drilling, Inc. **Driller:** Rod and Paul

Method Used: Hollow-Stem Auger **Field Geologist:** Keith and Steve

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (3 inches).	
2				SW	Gravelly sand.	
4				SM	Silty sand, trace gravel, brown, damp, dense.	
6	S-6	7 15 20	1.0			
8				ML	Clayey silt, with sand, brown, dry to damp, low plasticity, hard.	
10		25				
12	S-11	35 40	0.6			
14						
16	S-16	15 20 25			Sandy silt, some gravel, damp. Grades less gravel, more sand.	
18						
20	S-20	20 50	0.3			

(Section continues downward)

Applied GeoSystems

PROJECT NO. 19025-2

LOG OF BORING B-2/MW-2

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE
C-6

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
22				ML	Sandy silt, more gravel with 1–2" well rounded cobble, brown, damp, low plasticity, hard.	
24				GC	Clayey sand and gravel, brown, very moist, dense, with visible liquid surrounding gravel grains.	
26	S–25.5	25 50	701			
28	S–28.5	50	7		Well graded angular gravel.	
30		20			▽	
	S–30.5	50	250		More sand, grades from green to brown.	
32		10		ML	Sandy silt, trace gravel and clay, brown, wet, low plasticity, hard.	
		12				
34	S–33.5	25	25			
		40		GP	Sandy gravel, angular, brown, wet, dense.	
36	S–35	50	1.3			
38		15		CL	Gravelly clay, some sand, brown, moist to very moist, low plasticity, hard.	
		25				
	S–38.5	40	1.3			
40						
42					Total Depth = 41 feet.	
44						
46						
48						
50						

Applied GeoSystems

PROJECT NO. 19025-2

LOG OF BORING B-2/MW-2

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE

C-7

Total depth of boring: 40 feet **Diameter of boring:** 10 inches **Date drilled:** 2-14-90

Casing diameter: 4 inches **Length:** 39-1/2 feet **Slot size:** 0.020-inch

Screen diameter: 4 inches **Length:** 15 feet **Material type:** Sch 40 PVC

Drilling Company: Kvilhaug Well Drilling, Inc. **Driller:** Rod and Paul

Method Used: Hollow-Stem Auger **Field Geologist:** Keith and Steve

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (3 inches).	
2				SW	Sand and gravelly sand.	
4				ML	Fine sandy silt, brown, damp, very stiff.	
6	S-6	5 8 10	0			
8				CL	Silty clay, trace gravel, dark brown, damp, slight plasticity, very stiff.	
10	S-11	20 27 30	0.6			
12				GP	Clayey, sandy gravel, dark brown, damp, medium dense.	
14						
16	S-16	15 10 20	0.3	ML	Sandy, clayey silt, some gravel, dark brown, moist, low plasticity, hard.	
18						
20	S-20	12 22 35	0			

(Section continues downward)

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PROJECT NO. 19025-2

LOG OF BORING B-3/MW-3

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE
C-8

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
22		25		ML	Sandy, clayey silt, some gravel, dark brown, moist, low plasticity, hard.	
	S-22.5	30	0		Brown, with clay lens.	
24		25		SM	Clayey, silty sand, trace gravel, brown, moist, very dense.	
	S-25	50	0.3			
26		30		ML	Sandy silt, some clay, brown, damp, low plasticity, hard, with carbonaceous material.	
	S-27	50	0.1			
28				GP	Sandy gravel, some silt, brown, damp, dense.	
30	S-29.5	50	0.1			
32		20		ML	Clayey, sandy silt, brown, moist, low plasticity, hard, with a lens of sandy gravel.	
		30			▽	
	S-33	31	0.1			
34		10		CL	Silty clay, with trace gravel, brown, wet, medium plasticity, hard.	
		20				
36	S-35.5	15	0.1			
		20		GP	Clayey, sandy gravel, brown, very wet, medium plasticity, hard, grades to clayey sand with gravel.	
38		30				
	S-38	50	0.1			
40	S-39.5	50	0.1	CL	Sandy clay, with gravel, very moist.	
					Total Depth = 40-1/2 feet.	
42						
44						
46						
48						
50						

Applied GeoSystems

PROJECT NO. 19025-2

LOG OF BORING B-3/MW-3

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE

C-9

Total depth of boring: 32 feet **Diameter of boring:** 8 inches **Date drilled:** 5-29-90

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

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

Drilling Company: Jcon Exploration **Driller:** Jim and Greg

Method Used: Hollow-Stem Auger **Field Geologist:** Tom Delon

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (3 inches) over road base (3 inches).	
				SM	Silty, fine- to medium-grained sand, with gravel, dark brown, damp, noticeable odor.	
2				SP	Fine- and some coarse-grained sand, trace gravel, light brown, damp, medium dense.	
4						
6	S-6	5 7 10	0			
8						
10		17				
	S-11	23 27	0	CL	Silty clay, trace medium-grained sand and gravel, dark brown, some red-brown staining, damp, medium plasticity, hard, trace rootlets.	
12		21 27				
14	S-13.5	31	0			
		12		SC	Clayey, fine- to medium-grained sand, trace gravel, brown and red-brown mottled, red staining, damp, dense, numerous void spaces.	
16	S-16	20 23	0			
		12				
18	S-18.5	20 26		CL	Silty clay, trace gravel, and medium-grained sand, brown with yellow and red staining, patches of black organic material, damp, medium plasticity, hard.	
20		11				
		14				
	S-21	17	30		(Section continues downward)	

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PROJECT NO. 19025-2

LOG OF BORING B - 4

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE

C-10

Depth	Sample No.	Blows/6"	P.I.D.	USCS Code	Description	Well Const.
22		14		CL	Silty clay, increase in fine- to medium-grained sand and gravel, brown and gray-brown mottled, damp, low to medium plasticity, very stiff, no organic material.	
		19				
24	S-23.5	21	0	ML	Clayey silt, trace fine- to medium-grained sand, yellow-brown, damp, low plasticity, hard, trace organic debris.	
		14				
		24		SC	Clayey, fine- to medium-grained sand, trace gravel, yellow-brown, moist.	
26	S-26	26	0	ML	Clayey silt, trace gravel, brown, wet, low plasticity, hard.	
		18				
28		25				
	S-28.5	33	0	CL	Gravelly clay, tan, damp, low plasticity, hard.	
30	S-30	18	0			
32	S-31.5	24	0		Total Depth = 32 feet.	
34						
36						
38						
40						
42						
44						
46						
48						
50						

Applied GeoSystems

PROJECT NO. 19025-2

LOG OF BORING B - 4

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE C-11

Total depth of boring: 31-1/2 feet **Diameter of boring:** 8 inches **Date drilled:** 5-31-90

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

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

Drilling Company: Jcon Exploration **Driller:** Jim and Greg

Method Used: Hollow-Stem Auger **Field Geologist:** Tom Delon

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (3 inches) over road base (3 inches).	
2				SM	Silty, fine- to medium-grained sand, with gravel, dark brown, damp. Light brown.	
4				CL	Silty clay, trace sand and gravel, brown, damp, low plasticity, soft.	
6	S-6	3 3 4	0			
8						
10		5 10		CH	Silty clay, trace gravel, brown, damp, high plasticity, very stiff.	
12	S-11	11 8 11	0			
14	S-13.5	13	0		Trace of sand, brown and red mottled, some yellow staining.	
16	S-16	7 9 14	0	ML	Clayey silt, trace sand and gravel, brown and tan, damp, very stiff.	
18	S-18.5	5 7 9	0	CH	Silty clay, trace sand and gravel, green.	
20	S-21	9 10 13	700	ML	Clayey silt, trace gravel and sand, green mottled, damp, medium plasticity, very stiff. (Section continues downward)	

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PROJECT NO. 19025-2

LOG OF BORING B - 5

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE

C-12

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
22				ML	Clayey silt, trace gravel and sand, green mottled, damp, medium plasticity, very stiff.	
		7		SM	Silty sand, trace gravel, green, medium dense.	
24	S-23.5	12 16	190			
		20			Color change from green to tan.	
26	S-26	42 45	10	CL	Gravelly clay, tan, damp, high plasticity, hard.	
28	S-28.5	15 16 21	0			
30				ML	Clayey silt, trace gravel and sand, tan, some green, moist.	
	S-31		0			
32					Total Depth = 31-1/2 feet.	
34						
36						
38						
40						
42						
44						
46						
48						
50						

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PROJECT NO. 19025-2

LOG OF BORING B - 5

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE

C-13

Total depth of boring: 31-1/2 feet **Diameter of boring:** 8 inches **Date drilled:** 5-30-90

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

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

Drilling Company: Jcon Exploration **Driller:** Jim and Greg

Method Used: Hollow-Stem Auger **Field Geologist:** Tom Delon

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0						
					Asphalt over base gravel.	
2				SM	Silty, fine- to medium-grained sand, with gravel, dark brown, damp.	
4						
6	S-6	5 7 14	0		Brown, very stiff.	
8						
10		5 7				
12	S-11	14	0		With minute organic inclusions.	
		6 18		CH	Silty clay, trace sand and gravel, trace organic inclusions, dark brown, some brown-yellow mottling, minute yellow stains, damp, high plasticity, very stiff.	
14	S-13.5	13	0			
		8 12		CL	Fine- to medium-grained sandy clay, trace of gravel, trace organic, green, damp, medium plasticity, very stiff.	
16	S-16	12	0			
18		6 8				
	S-18.5	11	0.7	CH	Silty clay, with gravel, green and brown mottled, high plasticity, very stiff.	
20		8 9				
	S-21	12	7.0		(Section continues downward)	

Applied GeoSystems

PROJECT NO. 19025-2

LOG OF BORING B - 6

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE

C-14

Depth	Sample No.	Blows/6"	P.I.D.	USCS Code	Description	Well Const.
				CH	Silty clay, with gravel, green–brown mottled, high plasticity, very stiff.	
~~22~~		6				
		14				
24	S–23.5	9	80		Color change from green to tan.	
				GC	Clayey gravel, some medium– to fine–grained sand, tan and green, damp, very dense.	
		16				
		30				
26	S–26	25	800			
		19				
28		30		SP	Gravelly sand, with gravel inclusions, fine– to medium–grained sand, moist, tan, loose.	
	S–28.5	35	0			
30		39				
		45				
	S–31	37	0		Some red coloring.	
32					Total Depth = 31–1/2 feet.	
34						
36						
38						
40						
42						
44						
46						
48						
50						

Applied GeoSystems

PROJECT NO. 19025-2

LOG OF BORING B - 6

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE

C-15

Total depth of boring: 31-1/2 feet **Diameter of boring:** 8 inches **Date drilled:** 5-30-90

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

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

Drilling Company: Jcon Exploration **Driller:** Jim and Greg

Method Used: Hollow-Stem Auger **Field Geologist:** Tom Delon

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt over base rock.	
2				SC	Clayey, fine- to medium-grained sand, trace gravel, brown, damp, soft.	
4						
6	S-6	7 7 8	0			
8						
10		3 4		CL	Fine- to medium-grained sandy clay, trace gravel, brown with some tan streaks, damp, medium plasticity, medium stiff.	
12	S-11	5 4 6	0			
14	S-13.5	8 9	0		Green, stiff.	
16	S-16	14 15	0		Color change to dark green.	
18	S-18.5	5 10 12	30		Very stiff.	
20	S-21	14 14 24	7.0		(Section continues downward)	

Applied GeoSystems

PROJECT NO. 19025-2

LOG OF BORING B - 7

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE
C-16

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
22		14		CL	Fine– to medium–grained sandy clay, trace gravel, dark green, damp, medium plasticity, very stiff.	
		16			Green.	
24	S–23.5	21	0	ML	Clayey, fine–grained sandy silt, trace gravel, light brown, damp, low plasticity, hard.	
		12	250			
		18	to	CL	Fine– to medium–grained sandy clay, trace gravel,	
26	S–26	22	350		green, moist, medium plasticity, hard.	
		18				
28		24				
	S–28.5	31	0		Green–tan.	
30		31		SP	Gravelly fine– to medium–grained sand, tan with slight	
		36			green mottling, moist, very dense.	
	S–31	45	0			
32					Total Depth = 31–1/2 feet.	
34						
36						
38						
40						
42						
44						
46						
48						
50						

Applied GeoSystems

PROJECT NO. 19025-2

LOG OF BORING B - 7

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE C-17

Total depth of boring: 31-1/2 feet **Diameter of boring:** 8 inches **Date drilled:** 5-31-90

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

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

Drilling Company: Jcon Exploration **Driller:** Jim and Greg

Method Used: Hollow-Stem Auger **Field Geologist:** Tom Delon

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt over road base.	
				SM	Silty, fine-grained sand, trace gravel, tan, very loose.	
2						
4						
		6				
6	S-6	8 11	0		Fine- to medium-grained, light brown, damp, medium dense.	
8						
10		20		ML	Fine-grained sandy silt, trace gravel, brown with yellow staining, damp, no plasticity, hard.	
		20				
	S-11	24	0			
12		7				
		17				
14	S-13.5	22	0		With red staining.	
		19		GM	Silty, fine- to medium-grained sand and gravel, brown with yellow staining, damp, dense.	
		22				
16	S-16	18	0	SM	Silty, fine- to medium-grained sand, damp, medium dense.	
		12				
18		13				
	S-18.5	14	0	CL	Fine- to medium-grained sandy clay, trace organic material, brown with yellow staining, moist, medium plasticity, very stiff.	
20		12				
		18			Silty clay, brown-gray mottled, damp, low plasticity, hard.	
	S-21	26	0		(Section continues downward)	

Applied GeoSystems

PROJECT NO. 19025-2

LOG OF BORING B - 8

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE

C-18

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
22		20		CL	Silty clay, trace organic material, brown–gray mottled, damp, low plasticity, hard.	
		22				
24	S–23.5	24	0			
		12		SC	Clayey, fine– to medium–grained sand, trace gravel, brown–gray mottled, moist, medium dense.	
		12				
26	S–26	13	0			
		19		CL	Silty clay, trace gravel, brown with red and yellow staining, damp, medium plasticity, medium stiff.	
28		20				
	S–28.5	29	0	SC	Clayey, fine– to medium–grained sand, trace gravel, light brown with red–yellow streaks, moist, very dense.	
30		15				
	S–30.5	24		CH	Silty clay, trace fine–grained sand, trace organics and gravel, tan, moist, medium plasticity, hard.	
		27	10			
32					Total Depth = 31–1/2 feet.	
34						
36						
38						
40						
42						
44						
46						
48						
50						

Applied GeoSystems

PROJECT NO. 19025-2

LOG OF BORING B - 8

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE

C-19

Total depth of boring: 31-1/2 feet **Diameter of boring:** 8 inches **Date drilled:** 5-31-90

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

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

Drilling Company: Jcon Exploration **Driller:** Jim and Greg

Method Used: Hollow-Stem Auger **Field Geologist:** Tom Delon

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt over road base.	
				SM	Silty, fine-grained sand, trace gravel, brown, damp, loose.	
2						
4						
		5				
6	S-6	7 12	0		Light brown, medium dense.	
8						
10		14		ML	Fine-grained sandy silt, some gravel, brown with slight yellow staining, damp, no plasticity, hard.	
	S-11	20 20	0			
12		11				
	S-13.5	16 20	0			
14		17				
		20		GM	Silty, fine- to medium-grained sand and gravel, brown with red and yellow staining, trace organic material, damp, dense.	
16	S-16	26	0			
		10				
18		13				
	S-18.5	17	0	CL	Fine- to medium-grained sandy clay, trace gravel, trace organic material, slight red and yellow staining, damp, medium plasticity, very stiff.	
20		11				
		11				
	S-21	14	0		(Section continues downward)	

Applied GeoSystems

PROJECT NO. 19025-2

LOG OF BORING B - 9

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE

C-20

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
22				CL	Silty clay, trace organic material, trace gravel, trace fine-grained sand, brown-green mottled, low plasticity, stiff.	
		16				
		14		ML	Clayey silt, trace gravel, trace sand, light brown, low plasticity, very stiff.	
24	S-23.5	15	1.6			
		12		SC	Clayey, fine- to medium-grained sand, with gravel, gray-tan-brown mottled, damp with moist spots, very dense.	
		27				
26	S-26	36	20			
		20				
28		30				
	S-28.5	34	10		Brown, trace red-yellow streaks.	
30		28				
		40				
	S-31	19	1.7			
32					Total Depth = 31-1/2 feet.	
34						
36						
38						
40						
42						
44						
46						
48						
50						

Applied GeoSystems

PROJECT NO. 19025-2

LOG OF BORING B - 9

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE

C-21

Total depth of boring: 48-1/2 feet **Diameter of boring:** 10 inches **Date drilled:** 5-31-90

Casing diameter: 4 inches **Length:** 47-1/2 feet **Slot size:** 0.010-inch

Screen diameter: 4 inches **Length:** 10 feet **Material type:** Sch 40 PVC

Drilling Company: Jcon Exploration **Driller:** Jim and Greg

Method Used: Hollow-Stem Auger **Field Geologist:** Tom Delon

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Aphalt (3 inches) over road base (3 inches).	
				SM	Silty, fine-grained sand, trace of gravel, brown, damp, loose.	
2					Light brown, more gravel.	
4						
		9				
6		10				
	S-6	12	0		Light brown, medium dense.	
8		21				
		26				
	S-8.5	26	0.5	ML	Fine-grained, sandy, clayey silt, trace gravel, trace organic material, brown with trace yellow staining, damp, no plasticity, hard.	
10		12				
		26				
	S-11	19	0		Trace rootlets	
12						
		18				
		27				
14	S-13.5	32	1.2	SP	Clayey, fine- to medium-grained sand, some gravel, brown, damp, very loose.	
		16				
		18				
16	S-16	23	0.3	CL	Fine- to medium grained sandy clay, trace organic material, brown with red and yellow staining, damp, medium plasticity, hard, rootlets.	
		18				
18		21				
	S-18.5	26				
20		15				
		26				
	S-21		2.5		Color change to green with tan mottling	
					(Section continues downward)	

Applied GeoSystems

PROJECT NO. 19025-2

LOG OF BORING B-10/MW-4

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE

C-22

Depth	Sample No.	Blows/ft	P.I.D.	USCS Code	Description	Well Const.
22		50		CL	Fine– to medium–grained sandy clay, trace organic material, green with tan mottling, damp, medium plasticity, hard, rootlets.	
24	S–23.5		33.4		Some gravel, green–gray mottled.	
26	S–26	26 30 37	0			
28	S–28.5		0			
30	S–31	17 18 27	1.2	CH	Silty clay, trace of fine– to medium–grained sand, trace gravel, tan, brown mottled, damp, high plasticity, hard.	
32						
34	S–33.5	12 26 27	0	CL	Fine– to medium–grained sandy, clayey silt, light brown damp, medium plasticity, hard.	
36	S–36	12 16 30	0	ML	Clayey silt, trace sand and small gravel, light brown, damp medium plasticity, very stiff.	
38	S–38.5	27 30 34	0		Trace organic material, hard	
40	S–38.5	16 18 22	▽ 0		Gravel, gray mottling, moist.	
42		13 18		SP	Gravelly, clayey, fine– to medium–grained sand, brown, wet to moist, dense.	
44	S–38.5	20	0			
46	S–38.5	14 18 28	0			
48	S–38.5	12 16 18	0	CL	Silty clay, trace gravel, light brown, trace organic material, moist, medium plasticity, hard.	
50					Total Depth = 48–1/2 feet.	

Applied GeoSystems

PROJECT NO. 19025-2

LOG OF BORING B-10/MW-4

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE

C-23

Total depth of boring: 31-1/2 feet **Diameter of boring:** 8 inches **Date drilled:** 6-1-90

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

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

Drilling Company: Jcon Exploration **Driller:** Jim and Greg

Method Used: Hollow-Stem Auger **Field Geologist:** Tom Delon

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt over road base.	
2				SM	Silty, gravelly fine-grained sand, dark brown, damp, very loose.	
4					Light brown.	
6	S-6	6 9 9	0		Trace gravel, color change to dark brown.	
8	S-8.5	16 27 23	0	ML	Fine-grained sandy, clayey silt, trace gravel, trace organic material, brown, damp, no plasticity, hard.	
10	S-11	12 14 17	0		Trace yellow and red staining.	
12		16		SP	Gravelly, fine- to medium-grained sand, trace organic material, brown with red-yellow streaks, damp, dense, some gravel, some cobbles, trace rootlets.	
14	S-13.5	22 28	0			
16	S-16	15 20 26	0			
18	S-18.5	12 16 25	0	ML	Fine- to medium-grained sandy, clayey silt, trace organic material, brown with red-yellow streaks, moist, low plasticity, hard.	
20	S-21	13 20 24	6.2		(Section continues downward)	

Applied GeoSystems

PROJECT NO. 19025-2

LOG OF BORING B - 11

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE
C-24

Depth	Sample No.	BLOWS	P.I.D.	USCS Code	Description	Well Const.
22				ML	Fine– to medium–grained sandy, clayey silt, trace organic material, brown with red–yellow streaks, trace green coloring, moist, low plasticity, hard.	
		20		CL	Fine– to medium–grained sandy clay, trace organic material, trace gravel, trace red–yellow stains, damp, medium plasticity, hard.	
24	S–23.5	30 42	5.2			
26	S–26	36	3.7			
28				SC	Clayey sand and gravel, brown, damp, dense.	
	S–28.5	50	0.7		Some gravel, tan and brown mottled, trace red–yellow stains, moist.	
30		30		SP	Gravelly, fine– to medium–grained sand, brown, wet.	
	S–31	36 40	0.3			
32					Total Depth = 31–1/2 feet.	
34						
36						
38						
40						
42						
44						
46						
48						
50						

Applied GeoSystems

PROJECT NO. 19025-2

LOG OF BORING B - 11

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE

C-25

Total depth of boring: 35 feet **Diameter of boring:** 10 inches **Date drilled:** 6-4-90

Casing diameter: 4 inches **Length:** 33-1/2 feet **Slot size:** 0.010-inch

Screen diameter: 4 inches **Length:** 10 feet **Material type:** Sch 40 PVC

Drilling Company: Jcon Exploration **Driller:** Jim and Greg

Method Used: Hollow-Stem Auger **Field Geologist:** Tom Delon

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0						
					Aphalt (3 inches) over road base (3 inches).	
				SM	Silty gravelly fine-grained sand, dark brown, damp, very loose.	
2						
					Light brown, less gravel.	
4						
		6				
		9				
6	S-6	9	0			
8						
10		12				
		15		ML	Fine-grained, sandy, clayey silt, trace gravel, dark brown,	
	S-11	25	0		damp, medium plasticity, hard.	
12						
		10				
		15				
14	S-13.5	21	0		Clayey silt, trace organic material, trace rootlets, trace red streaks.	
		9				
		10				
16	S-16	13	0		Fine-grained sandy, gravelly silt, brown, low plasticity, very stiff.	
		13				
18		15		SP	Gravelly fine- to medium-grained sand, dense.	
	S-18.5	16	0			
20		21		ML	Fine- to medium-grained sandy, gravelly silt, brown,	
		24			some yellow streaks, no plasticity, hard, damp.	
	S-21	26	0		(Section continues downward)	

Applied GeoSystems

PROJECT NO. 19025-2

LOG OF BORING B-12/MW-5

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE

C-26

Depth	Sample No.	Blows/ft	P.I.D.	USCS Code	Description	Well Const.
22	S–21	21 24 26	0	ML	Fine– to medium–grained sandy, gravelly silt, brown, some yellow streaks, no plasticity, hard, damp.	
24	S–23.5	26 26 35	0	SP	Gravelly, fine– to medium–grained sand, light brown and tan mottling, moist, dense.	
26	S–26	14 20 28	0		Some clay, some medium–grained sand, some gravel.	
28	S–28.5	20 28 34	0			
30	S–31	40	0 ▽		Wet	
32	S–33.5	18 22 29	0	CH	Silty clay, trace gravel, light brown, damp, high plasticity, very stiff.	
34						
36					Total Depth = 35 feet.	
38						
40						
42						
44						
46						
48						
50						

Applied GeoSystems

PROJECT NO. 19025-2

LOG OF BORING B-12/MW-5

Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE
C-27

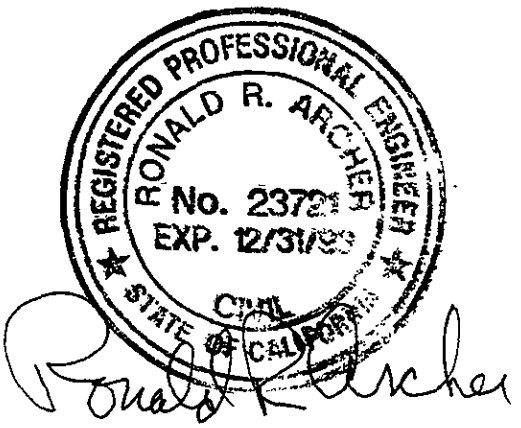
APPENDIX D

SURVEYING REPORT FROM
RON ARCHER CIVIL ENGINEER, INC.

RON ARCHER
CIVIL ENGINEER, INC.

CONSULTING • PLANNING • DESIGN • SURVEYING

4133 Mohr Ave., Suite E • Pleasanton, CA 94566
(415) 462-9372



FEBRUARY 22, 1990
REVISED: JUNE 5, 1990

JOB NO. 1657

ELEVATIONS OF EXISTING MONITOR WELLS AT THE EXXON SERVICE STATION NO. 7-7003, LOCATED AT 349 MAIN STREET AT ANGELA STREET, CITY OF PLEASANTON, ALAMEDA COUNTY, CALIFORNIA.

FOR: APPLIED GEOSYSTEMS.
PROJECT NO. 19025-2

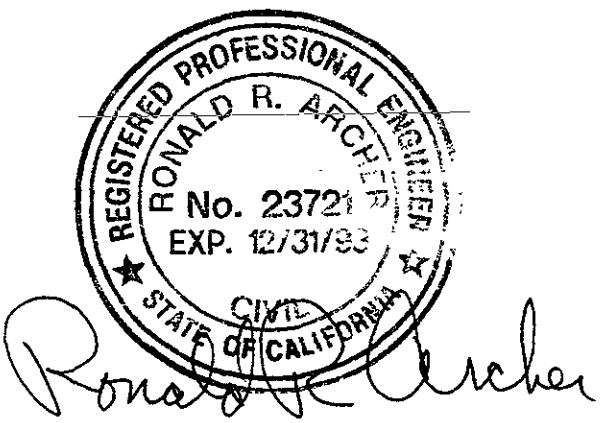
BENCHMARK: (NO.R-1257)
TOP OF BRASS DISK STAMPED R-1257, 1974, SET IN CONCRETE 0.20 BELOW GROUND PROTECTED BY A 4 INCH DIAMETER PLASTIC PIPE, 67.5 FEET SOUTHWEST OF THE CENTERLINE OF EAST ANGELA STREET, 39.0 FEET NORTHWEST OF THE NORTH OF THE NORTHWEST RAIL OF THE SOUTHERN PACIFIC RAILROAD TRACKS, 17.4 FEET SOUTH OF EAST CORNER OF THE EXISTING BUILDING AT #30 EAST ANGELA STREET.
ELEVATION TAKEN AS 345.637, M.S.L., CITY OF PLEASANTON DATUM.

MONITOR WELL DATA TABLE

WELL DESIGNATION	ELEV	DESCRIPTION
MW1	343.83	TOP OF PVC CASING
	344.02	TOP OF BOX
MW2	344.22	TOP OF PVC CASING
	344.67	TOP OF BOX
MW3	342.70	TOP OF PVC CASING
	342.98	TOP OF BOX
MW4	343.38	TOP OF PVC CASING
	343.82	TOP OF BOX
MW5	345.20	TOP OF PVC CASING
	345.60	TOP OF BOX

MONITOR WELL DATA TABLE

WELL DESIGNATION	ELEV	DESCRIPTION
SOIL BORINGS:		
S-13-NPB	344.57	TOP OF PAVEMENT
B-1A	344.18	TOP OF PAVEMENT
B-4	343.75	TOP OF PAVEMENT
B-5	343.93	TOP OF PAVEMENT
B-6	344.21	TOP OF PAVEMENT
B-7	344.40	TOP OF PAVEMENT
B-8	344.16	TOP OF PAVEMENT
B-9	344.34	TOP OF PAVEMENT
B-11	344.68	TOP OF PAVEMENT



FEBRUARY 22, 1990
REVISED: JUNE 5, 1990

JOB NO. 1615

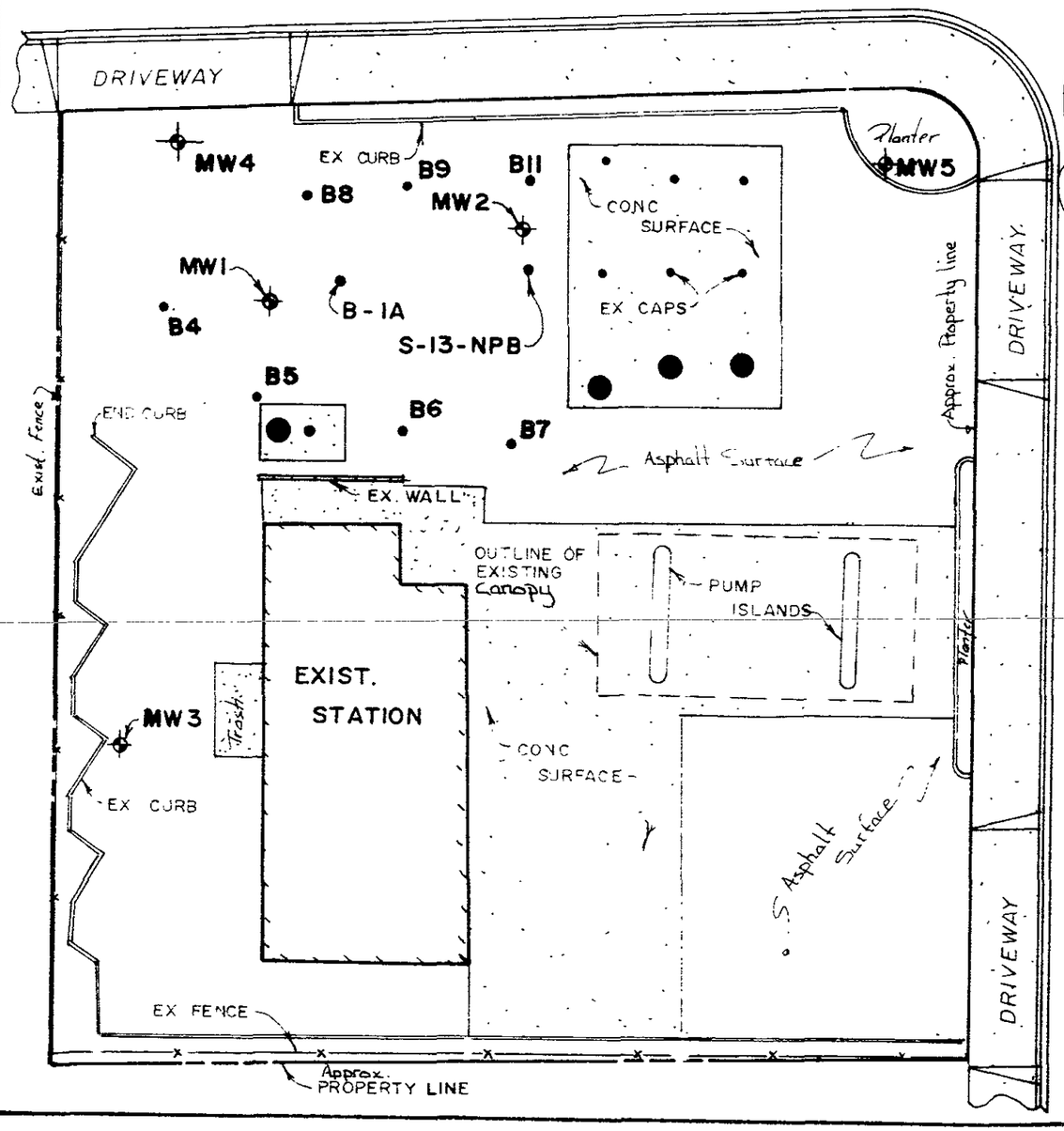
ELEVATIONS OF EXISTING MONITOR WELLS AT THE EXXON SERVICE STATION NO. 7-7003, LOCATED AT 349 MAIN STREET AT ANGELA STREET, CITY OF PLEASANTON, ALAMEDA COUNTY, CALIFORNIA.

FOR: APPLIED GEOSYSTEMS.
PROJECT NO. 19025-2

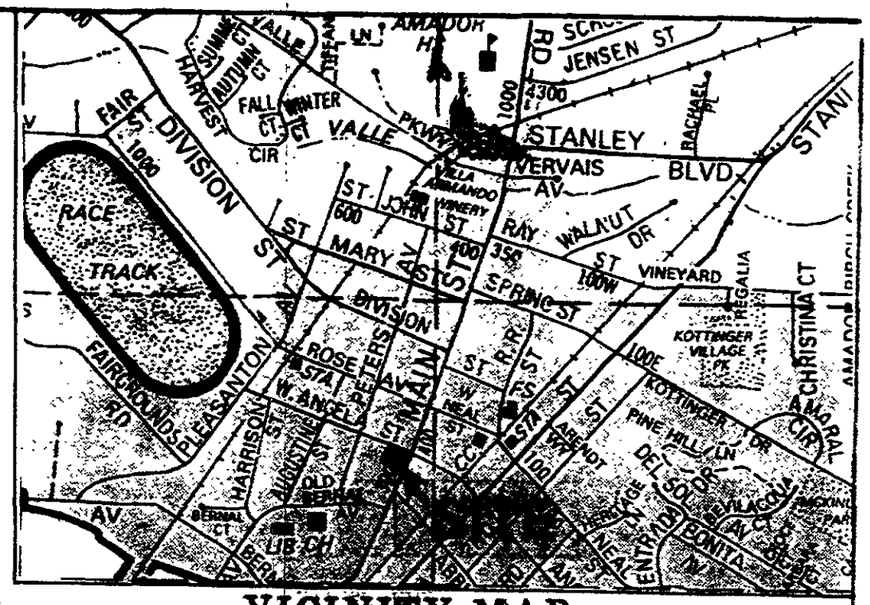
SCALE: 1" = 20'

0 10 20 40 60
GRAPHIC SCALE

WEST ANGELA STREET



MAIN STREET



VICINITY MAP
NO SCALE

REGISTERED PROFESSIONAL ENGINEER
RONALD R. ARCHER
No. 23721
EXP. 12/31/93
CIVIL
STATE OF CALIFORNIA

BENCHMARK: (NO.R-1257)
TOP OF BRASS DISK STAMPED R-1257, 1974, SET IN CONCRETE 0.2Ø BELOW GROUND PROTECTED BY A 4 INCH DIAMETER PLASTIC PIPE, 67.5 FEET SOUTHWEST OF THE CENTERLINE OF EAST ANGELA STREET, 39.Ø FEET NORTHWEST OF THE NORTH OF THE NORTHWEST RAIL OF THE SOUTHERN PACIFIC RAILROAD TRACKS, 17.4 FEET SOUTH OF EAST CORNER OF THE EXISTING BUILDING AT 638 EAST ANGELA STREET.
ELEVATION TAKEN AS 345.637, M.S.L., CITY OF PLEASANTON DATUM.

MONITOR WELL DATA TABLE

WELL DESIGNATION	ELEV	DESCRIPTION
MW1	343.83	TOP OF PVC CASING
	344.Ø2	TOP OF BOX
MW2	344.22	TOP OF PVC CASING
	344.67	TOP OF BOX
MW3	342.7Ø	TOP OF PVC CASING
	342.98	TOP OF BOX
MW4	343.38	TOP OF PVC CASING
	343.82	TOP OF BOX
MW5	345.2Ø	TOP OF PVC CASING
	345.6Ø	TOP OF BOX

SOIL BORINGS:

S-13-NPB	344.57	TOP OF PAVEMENT
B-1A	344.18	TOP OF PAVEMENT
B-4	343.75	TOP OF PAVEMENT
B-5	343.93	TOP OF PAVEMENT
B-6	344.21	TOP OF PAVEMENT
B-7	344.49	TOP OF PAVEMENT
B-8	344.16	TOP OF PAVEMENT
B-9	344.34	TOP OF PAVEMENT
B-11	344.68	TOP OF PAVEMENT

RON ARCHER
CIVIL ENGINEER, INC.
CONSULTING • PLANNING • DESIGN • SURVEYING
1133 Main Ave., Suite E • Pleasanton, CA 94566
(415) 462-5372

APPENDIX E

CHAIN OF CUSTODY RECORDS
AND
ANALYSIS REPORTS FOR SOIL

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

PROJ. NO.	PROJECT NAME
19025-2	EXXON, 349 Main Street Pleasanton, CA
P.O. NO.	SAMPLERS (Signature)

DATE MM/DD/YY	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	Lead					Preserved?	REMARKS	LABORATORY I.D. NUMBER
2/15/90	1400	S-16-B1A	1	X	X							ICED		
"	"	S-25½-B1A	1	X	X		X					"		
"	"	S-30½-B1A	1	X	X							"		
2/14/90	1500	S-11-B1	1	X	X							"		
"	"	S-21-B1	1	X	X		X					"		
"	"	S-33-B1	1	X	X							"		
"	1645	S-20-B2	1	X	X							"		
"	"	S-25½-B2	1	X	X		X					"		
"	"	S-30½-B2	1	X	X							"		
"	1400	S-20-B3	1	X	X							"		
"	"	S-25-B3	1	X	X		X					"		
"	"	S-33-B3	1	X	X							"		

RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
	2/16/90 1700	
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
	2/26/90 1400	
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature):

Laboratory:

Turn Around: 2 week

SEND RESULTS TO:

Applied GeoSystems
43255 Mission Boulevard
Fremont, California 95826

(415) 651-1906

Proj. Mgr.: Bill Short

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

ANALYSIS REPORT

1020lab.frm

Attention: Mr. Bill Short
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Project: AGS 19025-2

Date Sampled: 02-15-90
Date Received: 02-26-90
BTEX Analyzed: 02-27-90
TPHg Analyzed: 02-27-90
TPHd Analyzed: NR
Matrix: Soil

	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd
	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit:	0.050	0.050	0.050	0.050	2.0	10
SAMPLE Laboratory Identification						
S-16-B1A S1002154	ND	ND	ND	ND	ND	NR
S-25.5-B1A S1002155	ND	ND	0.94	1.3	52	NR
S-30.5-B1A S1002156	ND	ND	ND	ND	ND	NR

ppm = parts per million = mg/kg = milligrams per kilogram.
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

1020lab.frm

Attention: Mr. Bill Short
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Project: AGS 19025-2

Date Sampled: 02-14-90
Date Received: 02-26-90
BTEX Analyzed: 02-27-90
TPHg Analyzed: 02-27-90
TPHd Analyzed: NR
Matrix: Soil

	Benzene ppm	Toluene ppm	Ethyl-benzene ppm	Total Xylenes ppm	TPHg ppm	TPHd ppm
Detection Limit:	0.050	0.050	0.050	0.050	2.0	10
SAMPLE Laboratory Identification						
S-11-B1 S1002157	ND	ND	ND	ND	ND	NR
S-21-B1 S1002158	0.061	0.32	9.7	17	320	NR
S-33-B1 S1002159	ND	ND	ND	0.20	4.3	NR
S-20-B2 S1002160	ND	ND	ND	ND	ND	NR
S-25.5-B2 S1002161	ND	ND	ND	ND	ND	NR

ppm = parts per million = mg/kg = milligrams per kilogram.
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

1020lab.frm

Attention: Mr. Bill Short
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Project: AGS 19025-2

Date Sampled: 02-14-90
Date Received: 02-26-90
BTEX Analyzed: 02-27-90
TPHg Analyzed: 02-27-90
TPHd Analyzed: NR
Matrix: Soil

	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd
	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit:	0.050	0.050	0.050	0.050	2.0	10
SAMPLE Laboratory Identification						
S-30.5-B2 S1002162	0.086	0.30	0.066	0.40	17	NR
S-20-B3 S1002163	ND	ND	ND	0.11	ND	NR

ppm = parts per million = mg/kg = milligrams per kilogram.
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 43255 Mission Blvd. Suite B Fremont, CA 94539 (415) 651-1906

ANALYSIS REPORT

1020lab.frm

Attention: Mr. Bill Short
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Project: AGS 19025-2

Date Sampled: 02-14-90
Date Received: 02-26-90
BTEX Analyzed: 02-28-90
TPHg Analyzed: 02-28-90
TPHd Analyzed: NR
Matrix: Soil

	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd
	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit:	0.050	0.050	0.050	0.050	2.0	10
SAMPLE Laboratory Identification						
S-25-B3 S1002164	ND	ND	ND	ND	ND	NR
S-33-B3 S1002165	ND	ND	ND	ND	ND	NR

ppm = parts per million = mg/kg = milligrams per kilogram.
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

KP 16.00.

9003059.

10/23; 10/22

CHAIN-OF-CUSTODY RECORD

PROJ. NO.	PROJECT NAME
19025-2	
P.O. NO.	SAMPLERS (Signature)

	DATE MM/DD/YY	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	Total Lead 7421					Preserved?	REMARKS	LABORATORY I.D. NUMBER
					ANALYSIS										
01	2-15-90	1600	S-25½-B1A	1xBL			X						ICE	3	
02	2-14-90	15:00	S-21-B1	1			X							3 soil	
03	2-14-90	16:45	S-25½-B2	1			X							3	
04	2-14-90	14:00	S-25-B3	1			X							3	
05	2-23-90	16:20	W-28-MW1	1x1Hr			X						HCl pres.	3	
06	2-23-90	14:35	W-29-MW2	1			X							3 H_2O	
07	2-23-90	16:10	W-27-MW3	1			X							3	

RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
	3-1-90 1600	
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
	3-6-90 1350	
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature):

Laboratory: ANAMETRIX

Turn Around: 2 weeks.

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

Proj. Mgr.: Bill Short

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

REPORT

Bill Short
Applied GeoSystems
43255 Mission Boulevard
Suite B
Fremont, CA 94539

March 21, 1990
Anametrix W.O.#: 9003059
Date Received : 03/06/90
Project Number : 19025-2

Dear Mr. Short:

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.

Refaat Mankarious
Inorganics Manager

RM/dmt

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

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

Anametrix W.O.#: 9003059
Date Received : 03/06/90
Purchase Order#: N/A
Project No. : 19025-2
Date Released : 03/21/90

Anametrix I.D.	Sample I.D.	Matrix	Date Sampled	Method	Date Extract	Date Analyzed	Inst I.D.
RESULTS							
9003059-01	S-25.5-B1A	SOIL	02/15/90	7421		03/19/90	AA1
9003059-02	S-21-B1	SOIL	02/14/90	7421		03/19/90	AA1
9003059-03	S-25.5-B2	SOIL	02/14/90	7421		03/19/90	AA1
9003059-04	S-25-B3	SOIL	02/14/90	7421		03/19/90	AA1
9003059-05	W-28-MW1	WATER	02/23/90	7421		03/19/90	AA1
9003059-06	W-29-MW2	WATER	02/23/90	7421		03/19/90	AA1
9003059-07	W-27-MW3	WATER	02/23/90	7421		03/19/90	AA1
QUALITY ASSURANCE (QA)							
MB030790S	METHOD BLANK	SOIL	N/A	7421		03/19/90	AA1
MB030790W	METHOD BLANK	WATER	N/A	7421		03/19/90	AA1

ANALYSIS DATA SHEET - TOTAL LEAD EPA METHOD 7421
ANAMETRIX, INC. - (408) 432-8192

Anametrix I.D.: 9003059
Matrix : SOIL
Date Sampled : 02/14/90 & 02/15/90
Project Number: 19025-2

Date Prepared : 03/07/90
Date Analyzed : 03/19/90
Date Released : 03/21/90
Instrument I.D.: AA1

METALS	EPA Method#	Reporting Limit	Sample I.D.# S-25.5 -B1A	Sample I.D.# S-21 -B1	Sample I.D.# S-25.5 -B2	Sample I.D.# S-25 -B3	Sample I.D.# BLANK
COMPOUNDS		(mg/Kg)	-01	-02	-03	-04	MB0307S
Lead (Pb)	7421	0.1	8.3	6.4	5.2	6.8	ND

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

All Metals by EPA Method 6010/7000, Test Methods for Evaluating Solid Waste, SW-846 3rd Edition November 1986.

MN 3-22-90
Analyst Date

R M 3-22-90
Supervisor Date

ANALYSIS DATA SHEET - TOTAL LEAD EPA METHOD 7421
ANAMETRIX, INC. - (408) 432-8192

Anametrix I.D.: 9003059
Matrix : WATER
Date Sampled : 02/23/90
Project Number: 19025-2

Date Prepared : 03/07/90
Date Analyzed : 03/19/90
Date Released : 03/21/90
Instrument I.D.: AA1

METALS	EPA Method#	Reporting Limit	Sample I.D.# W-28 -MW1	Sample I.D.# W-29 -MW2	Sample I.D.# W-27 -MW3	Sample I.D.# BLANK	Sample I.D.#
COMPOUNDS		(mg/L)	-05	-06	-07	MB0307W	
Lead (Pb)	7421	0.002	0.01	0.008	0.01	ND	

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

All Metals by EPA Method 6010/7000, Test Methods for Evaluating Solid Waste, SW-846 3rd Edition November 1986.

MK 3/22/90
Analyst Date

RM 3/22/90
Supervisor Date

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

PROJ. NO	PROJECT NAME
19025-2	Exxon Pleasanton
P.O. NO	SAMPLERS (Signature)
	Tom DeLon

DATE MM/DD/YY	TIME		No of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	Lead EPA 7421					Preserved?	REMARKS	LABORATORY I.D. NUMBER
				ANALYSIS										
5/29/90		S-18.5-B4	1	X	X									
5/29/90		S-21-B4	1	X	X		X							
5/31/90		S-18.5-B8	1	X	X									
5/31/90		S-26-B8	1	X	X		X							
5/31/90		S-31-B8	1	X	X									
5/31/90		S-21-B9	1	X	X									
5/31/90		S-26-B9	1	X	X		X							
5/31/90		S-31-B9	1	X	X									
5/31/90		S-16-B10	1	X	X									
5/31/90		S-~~24~~ 23.5-B10	1	X	X		X							
5/31/90		S-31-B10	1	X	X									
5/31/90		S-43.5-B10	1	X	X									
6/1/90		S-18.5-B11	1	X	X									
6/1/90		S-21-B11	1	X	X		X							
6/1/90		S-28.5-B11	1	X	X									
6/4/90		S-21-B12	1	X	X		X							
6/4/90		S-28.5-B12	1	X	X									

RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED BY (Signature)
Tom DeLon	6/5 8:00	Jo Ellen Kaufmann
Jo Ellen Kaufmann	6/6 7:30	A. Jankowski
RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED BY (Signature)

Laboratory: Sequoia Analytical

Turn Around: 2 week

SEND RESULTS TO
Applied GeoSystems
42501 Albrae Street
Suite 100
Fremont, California 94639
(415) 651-1906

Proj. Mgr.: Rodger Witham

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

PROJ. NO: 19025-2
PROJECT NAME: Exxon Pleasanton
P.O. NO:
SAMPLERS (Signature): Tom DeLon

DATE MM/DD/YY	TIME			No of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	Lead EPA 7421	Preserved?	REMARKS	LABORATORY I.D. NUMBER
6/5/90		S-0605-1A	composite	1	X	X		X		composite and run as one sample	
		S-0605-1B		1							
		S-0605-1C		1							
		S-0605-1D		1							

RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED BY (Signature)
Tom DeLon	6/6 8:00	JoEllen Kuszmaul
JoEllen Kuszmaul	6/6 2:30pm	A. Jankowiak
RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED BY (Signature)

Laboratory: Sequoia Analytical

Turn Around: 2 week

SEND RESULTS TO:
Applied GeoSystems
42501 Albrae Street
Suite 100
Fremont, California 94639
(415) 651-1906

Proj. Mgr.: Rodger Witham

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Applied GeoSystems	Client Project ID:	#19025-2, Exxon Pleasanton	Sampled:	May 30, 1990
42501 Albrae Street, Suite 100	Matrix Descript:	Soil	Received:	Jun 1, 1990
Fremont, CA 94538	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Jun 15, 1990
Attention: Rodger Witham	First Sample #:	006-0062	Reported:	Jun 18, 1990

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

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
006-0062	S-26-B4	N.D.	N.D.	0.018	N.D.	N.D.
006-0063	S-18.5-B5	2.3	N.D.	0.025	N.D.	N.D.
006-0064	S-21-B5	1,400	5.5	5.3	33	35
006-0065	S-26.5-B5	N.D.	N.D.	0.0088	N.D.	N.D.
006-0066	S-18.5-B6	N.D.	N.D.	0.054	N.D.	N.D.
006-0067	S-26-B6	180	2.1	0.55	1.2	0.86
006-0068	S-28.5-B6	N.D.	0.0054	0.018	0.0039	N.D.
006-0069	S-18.5-B7	3.5	0.0073	0.029	0.0090	0.020
006-0070	S-26-B7	N.D.	0.011	0.050	0.042	0.018
006-0071	S-31.5-B7	N.D.	0.0081	0.028	N.D.	0.015
Detection Limits:		**1.0**	**0.0050**	**0.0050**	**0.0050**	**0.0050**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Victor P. Menon
Project Manager

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Applied GeoSystems	Client Project ID:	#19025-2, Exxon Pleasanton	Sampled:	May 30, 1990
42501 Albrae Street, Suite 100	Sample Descript:	Soil	Received:	Jun 1, 1990
Fremont, CA 94538	Analysis for:	Lead	Analyzed:	Jun 14, 1990
Attention: Rodger Witham	First Sample #:	006-0064	Reported:	Jun 18, 1990

LABORATORY ANALYSIS FOR: Lead

Sample Number	Sample Description	Detection Limit mg/kg	Sample Result mg/kg
006-0064	S-21-B5	0.10	14
006-0067	B-26-B6	0.10	12
006-0070	S-26-B7	0.10	14

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Victor P. Menon
Project Manager

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Applied GeoSystems	Client Project ID:	Exxon Pleasanton, 19025-2	Sampled:	May 29-Jun 5, 1990
42501 Albrae Street, Suite 100	Matrix Descript:	Soil	Received:	Jun 6, 1990
Fremont, CA 94538	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Jun 20-26, 1990
Attention: Rodger Witham	First Sample #:	006-0713	Reported:	Jun 26, 1990

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

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
006-0713	S-18.5-B4	N.D.	N.D.	0.0067	N.D.	N.D.
006-0714	S-21-B4	13	0.020	0.016	0.066	1.1
006-0715	S-18.5-B8	N.D.	N.D.	0.027	N.D.	N.D.
006-0716	S-26-B8	N.D.	0.0058	0.011	N.D.	N.D.
006-0717	S-31-B8	N.D.	0.016	0.038	N.D.	N.D.
006-0718	S-21-B9	N.D.	N.D.	0.014	N.D.	0.0058
006-0719	S-26-B9	N.D.	N.D.	0.012	N.D.	N.D.
006-0720	S-31-B9	N.D.	N.D.	0.034	N.D.	0.0057
006-0721	S-16-B10	N.D.	N.D.	N.D.	N.D.	0.013
006-0722	S-23.5-B10	N.D.	N.D.	0.0055	N.D.	N.D.
Detection Limits:		***1.0***	***0.0050***	***0.0050***	***0.0050***	***0.0050***

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Victor P. Menon
Project Manager

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Applied GeoSystems	Client Project ID:	Exxon Pleasanton, 19025-2	Sampled:	May 29-Jun 5, 1990
42501 Albrae Street, Suite 100	Matrix Descript:	Soil	Received:	Jun 6, 1990
Fremont, CA 94538	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Jun 20-26, 1990
Attention: Rodger Witham	First Sample #:	006-0723	Reported:	Jun 26, 1990

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

Sample Number	Sample Description	Low/Medium B.P. Hydrocarbons mg/kg (ppm)	Benzene mg/kg (ppm)	Toluene mg/kg (ppm)	Ethyl Benzene mg/kg (ppm)	Xylenes mg/kg (ppm)
006-0723	S-31-B10	N.D.	N.D.	0.033	N.D.	0.014
006-0724	S-43.5-B10	N.D.	N.D.	0.036	N.D.	0.0062
006-0725	S-18.5-B11	N.D.	N.D.	0.022	N.D.	N.D.
006-0726	S-21-B11	N.D.	N.D.	N.D.	N.D.	N.D.
006-0727	S-28.5-B11	N.D.	N.D.	0.014	N.D.	N.D.
006-0728	S-21-B12	N.D.	N.D.	N.D.	N.D.	0.026
006-0729	S-28.5-B12	N.D.	N.D.	N.D.	N.D.	0.015
0060730 A-D	S-0605-1	N.D.	N.D.	N.D.	N.D.	0.021
Detection Limits:		**1.0**	**0.0050**	**0.0050**	**0.0050**	**0.0050**

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Victor P. Menon
Project Manager

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Applied GeoSystems	Client Project ID:	Exxon Pleasanton, 19025-2	Sampled:	May 29-Jun 5, 1990
42501 Albrae Street, Suite 100	Sample Descript:	Soil	Received:	Jun 6, 1990
Fremont, CA 94538	Analysis for:	Lead		
Attention: Rodger Witham	First Sample #:	006-0714	Analyzed:	Jun 20, 1990
			Reported:	Jun 26, 1990

LABORATORY ANALYSIS FOR: Lead

Sample Number	Sample Description	Detection Limit mg/kg	Sample Result mg/kg
006-0714	S-21-B4	0.25	6.4
006-0716	S-26-B8	0.25	5.7
006-0719	S-26-B9	0.25	4.9
006-0722	S-23.5-B10	0.25	7.2
006-0728	S-21-B12	0.25	3.8
006-0726	S-21-B11	0.25	5.5
0060730 A-D	S-0605-1	0.25	4.9

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Victor P. Menon
Project Manager

APPENDIX F

CHAIN OF CUSTODY RECORDS
AND
ANALYSIS REPORTS FOR GROUND WATER

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

PROJ. NO.	PROJECT NAME
19025-2	EXXON 7-7003, 349 Main Street, Pleasanton, CA
P.O. NO.	SAMPLERS (Signature)
	Russell Blake

DATE MM/DD/YY	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	Lead					Preserved?	REMARKS	LABORATORY I.D. NUMBER
2/23/90	1620	W-28-MW1	4	X	X							ICED HCl		
	1435	W-29-MW2	4	X	X									
	1610	W-27-MW3	4	X	X									
	1620	W-28-MW1	2				X					ICED		
	1435	W-29-MW2	2				X							
	1610	W-27-MW3	1				X							

RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):	Laboratory:	SEND RESULTS TO:
Russell Blake	3-1-90 3:25			Applied GeoSystems 43255 Mission Boulevard Fremont, California 95826 (415) 651-1906
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):		
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature):	Turn Around: 1 week	Proj. Mgr.: Bill Short
		3-1-90 at 1600		

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

ANALYSIS REPORT

1020lab.frm

Attention: Mr. Bill Short
Applied GeoSystems
43255 Mission Boulevard
Fremont, CA 94539
Project: AGS 19025-2

Date Sampled: 02-23-90
Date Received: 03-01-90
BTEX Analyzed: 03-02-90
TPHg Analyzed: 03-02-90
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-28-MW1 W1003007	21	9.2	59	190	3300	NR
W-29-MW2 W1003008	3.0	2.0	0.98	6.5	65	NR
W-27-MW3 W1003009	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

KW 16.00.

4003059.

10/23; 10/22

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

PROJ. NO.	PROJECT NAME
19025-2	
P.O. NO.	**SAMPLERS (Signature)**

	DATE MM/DD/YY	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	Total Lead (7421)					Preserved?	REMARKS	LABORATORY I.D. NUMBER
01	2-15-90	1600	S-25½-B1A	1xBL				X					Iced		
02	2-14-90	15:00	S-21-B1	1				X						Soil	
03	2-14-90	16:45	S-25½-B2	1				X							
04	2-14-90	14:00	S-25-B3	1				X							
05	2-23-90	16:20	W-28-MW1	1x1 liter				X					HCl iced		
06	2-23-90	14:35	W-29-MW2	1				X						H_2O	
07	2-23-90	16:10	W-27-MW3	1				X							

RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
[signature]	3-1-90 1600	
RELINQUISHED BY (Signature):	**DATE / TIME**	**RECEIVED BY (Signature):**
[signature]	3-6-90 13:50	[signature]
RELINQUISHED BY (Signature):	**DATE / TIME**	**RECEIVED FOR LABORATORY BY (Signature):**

Laboratory: ANAMETRIX

Turn Around: 2 weeks

SEND RESULTS TO:

Applied GeoSystems
43255 Mission Boulevard
Fremont, California 95826

(415) 651-1906

Proj. Mgr.: Bill Short

ANAMETRIX INC
Environmental & Analytical Chemistry
1961 Concourse Drive Suite E San Jose CA 9513
(408) 432-8192 • Fax (408) 432-8198

REPORT

Bill Short
Applied GeoSystems
43255 Mission Boulevard
Suite B
Fremont, CA 94539

March 21, 1990
Anametrix W.O.#: 9003059
Date Received : 03/06/90
Project Number : 19025-2

Dear Mr. Short:

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.

Refaat Mankarious

Refaat Mankarious
Inorganics Manager

RM/dmt

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

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

Anametrix W.O.#: 9003059
Date Received : 03/06/90
Purchase Order#: N/A
Project No. : 19025-2
Date Released : 03/21/90

Anametrix I.D.	Sample I.D.	Matrix	Date Sampled	Method	Date Extract	Date Analyzed	Inst I.D.
RESULTS							
9003059-01	S-25.5-B1A	SOIL	02/15/90	7421		03/19/90	AA1
9003059-02	S-21-B1	SOIL	02/14/90	7421		03/19/90	AA1
9003059-03	S-25.5-B2	SOIL	02/14/90	7421		03/19/90	AA1
9003059-04	S-25-B3	SOIL	02/14/90	7421		03/19/90	AA1
9003059-05	W-28-MW1	WATER	02/23/90	7421		03/19/90	AA1
9003059-06	W-29-MW2	WATER	02/23/90	7421		03/19/90	AA1
9003059-07	W-27-MW3	WATER	02/23/90	7421		03/19/90	AA1
QUALITY ASSURANCE (QA)							
MB030790S	METHOD BLANK	SOIL	N/A	7421		03/19/90	AA1
MB030790W	METHOD BLANK	WATER	N/A	7421		03/19/90	AA1

ANALYSIS DATA SHEET - TOTAL LEAD EPA METHOD 7421
ANAMETRIX, INC. - (408) 432-8192

Anametrix I.D.: 9003059
Matrix : SOIL
Date Sampled : 02/14/90 & 02/15/90
Project Number: 19025-2

Date Prepared : 03/07/90
Date Analyzed : 03/19/90
Date Released : 03/21/90
Instrument I.D.: AA1

METALS	EPA Method#	Reporting Limit	Sample I.D.# S-25.5 -B1A	Sample I.D.# S-21 -B1	Sample I.D.# S-25.5 -B2	Sample I.D.# S-25 -B3	Sample I.D.# BLANK
COMPOUNDS		(mg/Kg)	-01	-02	-03	-04	MB0307S
Lead (Pb)	7421	0.1	8.3	6.4	5.2	6.8	ND

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

All Metals by EPA Method 6010/7000, Test Methods for Evaluating Solid Waste, SW-846 3rd Edition November 1986.

MN 3-22-90
Analyst Date

R M 3-22-90
Supervisor Date

ANALYSIS DATA SHEET - TOTAL LEAD EPA METHOD 7421
ANAMETRIX, INC. - (408) 432-8192

Anametrix I.D.: 9003059
Matrix : WATER
Date Sampled : 02/23/90
Project Number: 19025-2

Date Prepared : 03/07/90
Date Analyzed : 03/19/90
Date Released : 03/21/90
Instrument I.D.: AA1

METALS	EPA Method#	Reporting Limit	Sample I.D.# W-28 -MW1	Sample I.D.# W-29 -MW2	Sample I.D.# W-27 -MW3	Sample I.D.# BLANK	Sample I.D.#
COMPOUNDS		(mg/L)	-05	-06	-07	MB0307W	
Lead (Pb)	7421	0.002	0.01	0.008	0.01	ND	

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

All Metals by EPA Method 6010/7000, Test Methods for Evaluating Solid Waste, SW-846 3rd Edition November 1986.

MK 3/22/90
Analyst Date

[signature] 3/22/90
Supervisor Date

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

PROJ. NO.	PROJECT NAME
19025-2	Exxon Pleasanton
P.O. NO.	SAMPLERS (Signature)
	Tom Ostrom

DATE MM/DD/YY	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	LEAD (EPA 7421)					Preserved?	REMARKS	LABORATORY I.D. NUMBER
				ANALYSIS										
5-15-90	1530	W-27 -MW1	5	X	X		X					HCl 40ml	Iced HNO3 in lab	
	1600	W-27 -MW2	5	X	X		X							
	1545	W-27 -MW3	5	X	X		X							
	1630	W-34 -MW4	5	X	X		X							
	1700	W-26 -MW5	4	X	X		X							

RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):	Laboratory:	SEND RESULTS TO:
Tom Ostrom			Applied GeoSystems	**Applied GeoSystems** 43255 Mission Boulevard Fremont, California 95826 (415) 651-1906
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):		
RELINQUISHED BY (Signature):	DATE / TIME 6-18-90 1500	RECEIVED FOR LABORATORY BY (Signature):	Turn Around: 2wk	Proj. Mgr.: Jo Ellen K.

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
Applied GeoSystems
42501 Albrae Street
Fremont, CA 94538
Project: AGS 19025-2

Date Sampled: 06-15-90
Date Received: 06-18-90
BTEX Analyzed: 06-27-90
TPHg Analyzed: 06-27-90
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-27-MW1 W1006578	7.9	5.9	32	58	1300	NR
W-27-MW2 W1006579	ND	2.6	ND	ND	670	NR
W-27-MW3 W1006580	ND	ND	ND	ND	200	NR
W-34-MW4 W1006581	ND	ND	ND	ND	ND	NR
W-26-MW5 W1006582	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

07-05-90
Date Reported

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

PROJ. NO.	PROJECT NAME
19025-2	
P.O. NO.	SAMPLERS (Signature)

CHROMALAB FILE # 690184

DATE MM/DD/YY	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	Lead (7421)					Preserved?	REMARKS	LABORATORY I.D. NUMBER
6-15-90		W-27-MW1	1				✓							
↓		W-27-MW2	1				✓							
		W-27-MW3	1				✓							
		W-34-MW4	1				✓							
↓		W-26-MW5	1				✓							

RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):	Laboratory:	SEND RESULTS TO:
[signature]	6/20 1100	[signature] Express it	Chromalab	Applied Analytical 3459 Edison Way Fremont, CA 94538 (415) 623-0775
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):		
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature):	Turn Around: Normal	Proj. Mgr.: Jo Ellen K.
	6/20 1130	[signature]		

CHROMALAB, INC.

Analytical Laboratory
Specializing in GC-GC/MS

- Environmental Analysis
- Hazardous Waste (#E694)
- Drinking Water (#955)
- Waste Water
- Consultation

June 26, 1990 ChromaLab File No.: 0690184

APPLIED GEOSYSTEMS, INC.

Attn: Jo Ellen

RE: Five water samples for Total Lead analysis

Project Number: 19025-2
Date Sampled: June 20, 1990 Date Submitted: June 20, 1990
Date Extracted: June 24-26, 1990 Date Analyzed: June 24-26,1990

RESULTS:

Sample No.	Lead (mg/L)
W-27-MW1	N.D.
W-27-MW2	N.D.
W-27-MW3	N.D.
W-34-MW4	N.D.
W-26-MW5	0.06
BLANK	N.D.
SPIKE RECOVERY	94.9%
DUPLICATED SPIKE RECOVERY	108.2%
DETECTION LIMIT	0.05
METHOD OF ANALYSIS	7420

ChromaLab, Inc.

David Duong
Senior Chemist

Eric Tam
Laboratory Director

2239 Omega Road, #1 • San Ramon, California 94583
415/831-1788 • Facsimile 415/831-8798
Federal ID #68-0140157