RESNA
Environmental Solutions
Through Applied Science,
Engineering & Construction

41674 Christy Street
Fremont, CA 94538
Phone: (510) 659-0404
Fax: (510) 651-4677

REPORT
SUPPLEMENTAL SUBSURFACE ENVIRONMENTAL INVESTIGATION AND QUARTERLY MONITORING

at

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

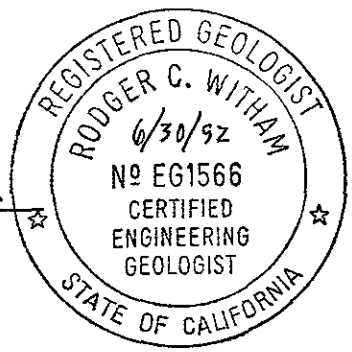
AGS Job No. 19025-2 10-24-91

Prepared for
Exxon Company U.S.A.
P.O. Box 4032
2300 Clayton Road
Concord, California 94520

by
RESNA/Applied GeoSystems

Clark A. Robertson
Project Geologist

Rodger C. Witham
Project Manager



October 24, 1991

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1.0 INTRODUCTION

At the request of Exxon Company U.S.A. (Exxon), Applied GeoSystems (AGS) conducted a supplemental subsurface environmental investigation at Exxon Station No. 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 groundwater, as recommended in AGS Report No. 19025-2, dated August 1, 1990.

During this investigation, the tasks performed included: (1) drilling six borings; (2) installing two groundwater monitoring wells and one vapor extraction well in three of the borings; (3) collecting soil and groundwater samples for laboratory analyses; and (4) evaluating the groundwater flow direction and gradient at the site.

1.1 Description of Site and Vicinity

Exxon Station No. 7-7003 is at the southwest corner of Angela and Main Streets in Pleasanton, California (Plate 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. Three gasoline underground storage tanks (USTs) are located to the northeast of the station building (Plate 2). These tanks include a 12,000-gallon unleaded, a 10,000-gallon premium unleaded, and a 10,000-gallon leaded gasoline UST. In addition, a waste-oil UST is adjacent to the northwest corner of the service station building.

1.2 Previous Environmental Investigations

Two previous environmental investigations were performed at the site. Results of these investigations are discussed in the following sections.

1.2.1 Soil Vapor Survey

In June 1989, 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 onsite locations. 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 USTs, a total of 23 soil samples from the tank pits were collected for laboratory analyses. In August 1989, three new fiberglass gasoline USTs were installed east of the former tank pit and a new fiberglass waste-oil UST was installed west of the former tank pit.

Results of the laboratory analyses indicated nondetectable hydrocarbon levels in many of the soil samples collected from the tank pit. However, the results from samples collected at an approximate depth of 23 feet near the northern side of the tank pit indicated levels of TPHg up to 150 parts per million (ppm). 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); however, there were low concentrations of chromium, zinc, and lead detected in the sample. Based on these analytical results, AGS recommended the installation of three groundwater monitoring wells to assess the impact of gasoline hydrocarbons on the groundwater beneath the site (AGS Report No. 19025-1, dated October 1, 1989).

1.2.3 Preliminary Environmental Investigation

An initial subsurface investigation was performed by AGS in two phases. The investigation included drilling 13 soil borings in the vicinity of the former USTs, installing groundwater monitoring wells MW-1 through MW-5 in five of the borings, evaluating the concentrations of hydrocarbons in the soil and groundwater beneath the site, evaluating the groundwater gradient at the site, and conduct a records review of wells within a 1/2-mile radius of the site. The first phase was performed between January 13 and 15, 1990. Borings B-1, B-1A, B-2, and B-3 were drilled and soil was sampled at 2-1/2- to 5-foot intervals. Boring B-1 was drilled to a depth of 46-1/2 feet and borings B-1A, B-2, and B-3 were drilled to approximate depths of 40 feet. Groundwater was encountered at 30 to 33 feet below grade and

groundwater monitoring wells MW-1, MW-2, and MW-3 were installed in borings B-1A, B-2, and B-3, respectively. The second phase was conducted between May 29 and June 4, 1990, in which borings B-4 through B-12 were drilled and sampled. Borings B-4 through B-9 and B-11 were drilled to approximate depths of 31-1/2 feet; borings B-10 and B-12 were drilled to 48-1/2 and 35 feet in depth, respectively. Groundwater was encountered in B-10 at 32 feet and in B-12 at 42 feet; monitoring wells MW-4 and MW-5 were installed in B-10 and B-12, respectively (AGS Report No. 19025-2, dated August 1, 1990).

Analytical results of soil samples showed that elevated levels of TPHg were present at concentrations up to 1,400 ppm southwest of the former gasoline USTs. Total lead concentrations did not exceed 14 ppm and the highest values were found southwest of the UST pit.

Groundwater analyses showed that relatively higher concentrations of TPHg were found in the groundwater beneath the site northwest of the former UST pit. In June 1990, the highest hydrocarbon concentrations were present in MW-1; TPHg was detected at 1,300 parts per billion (ppb), and benzene was detected at 7.9 ppb. Total lead was not detectable except in the sample from MW-5, which contained 0.06 ppm. Based upon an evaluation of these data, hydrocarbons in the subsurface soil and groundwater were not delineated west and northwest of the site.

A review of available well records from the Alameda County Flood Control and Water Conservation District (ACFCWCD), Zone 7, in Pleasanton, California, revealed there were 10 wells within 1/2-mile of the site. Of these, only one well was an active water supply well, located 1/2-mile northeast of the site.

2.0 FIELD INVESTIGATION

This subsurface investigation included (1) drilling six soil borings; (2) collecting soil samples from the borings and a composite sample from the drill cuttings for laboratory analyses;

(3) constructing two groundwater monitoring wells and a vapor extraction well in three of the borings; and (4) collecting groundwater samples from seven groundwater monitoring wells for laboratory analyses. Field work was performed in accordance with guidelines established by the RWQCB and ACFCWCD. The following sections describe the work performed during this investigation. A detailed discussion of the field procedures is presented in Appendix A.

2.1 Drilling and Monitoring Well Installation

A Groundwater Protection Ordinance Permit for well construction was acquired from the ACFCWCD prior to beginning field work. A copy of the permit is in Appendix B. Additionally, AGS notified Underground Service Alert to request delineation of public underground utilities; onsite utilities were delineated by a private locator service. As a further precaution, each boring was probed to a depth of 5 feet with a hand auger before drilling. Field work was conducted in accordance with the AGS Site Safety Plan (AGS Report No. 19025-3S, February 26, 1991) and in accordance with the field procedures outlined in Appendix A.

Borings B-13 through B-18 were drilled and groundwater monitoring wells MW-6, MW-7, and vapor extraction well VE-1 were installed in B-15, B-16, and B-18, respectively. Soil samples were collected from the borings at 2-1/2 to 5-foot intervals. Borings not completed as monitoring wells were backfilled with tremied neat cement to minimize a potential conduit to groundwater. Boring locations are presented on Plate 2. The Unified Soil Classification System was used to classify soils encountered in the borings as shown in Appendix C (Plate C-1). Descriptions of the soils encountered in the borings are presented on the Logs of Borings (Appendix C), which also show the organic vapor meter (OVM) readings under the column entitled "P.I.D." (photoionization detector).

On February 27, 1991, borings B-13 and B-14 were drilled to total depths of 34 and 31-1/2 feet, respectively. Boring B-13 was drilled approximately 20 feet west of the former UST

pit, in an area that was believed to contain elevated levels of TPHg in the soil, based upon data from the previous investigation (AGS Report No. 19025-2, dated August 1, 1990). The OVM readings in B-13 were greater than 1,000 ppm from soil samples evaluated between the depths of 23-1/2 and 26 feet. Groundwater was encountered at approximately 28 feet below the ground surface.

Boring B-14 was drilled approximately 30 feet southwest of the former UST pit to delineate the inferred southern extent of hydrocarbons in the soil. In this location, OVM readings from 32 to 163 ppm were observed between the depths of 20-1/2 to 24 feet. Groundwater was encountered approximately 25-1/2 feet below the ground surface.

On February 28, 1991, boring B-15 was drilled offsite, approximately 60 feet northwest of the former UST pit, to a total depth of 58 feet and groundwater monitoring well MW-6 was installed to the drilled depth. No OVM readings above 0 ppm were observed from the soil samples. Groundwater was encountered during drilling at a depth of approximately 41 feet and later was measured at a static level of approximately 34.4 feet below grade. Monitoring well MW-6 was constructed with 4-inch-diameter polyvinyl chloride (PVC) casing. The screen interval was set from 38 to 58 feet below the ground surface and the slot size of the screen is 0.010 inch. On March 4, 1991, MW-6 was developed using the pump and surge technique. The static water level was measured to be approximately 37.2 feet below the top of the casing following development of the well.

On March 1, 1991, boring B-16 was drilled offsite approximately 25 feet north of the former UST pit to a total depth of 46-1/2 feet, and monitoring well MW-7 was installed to 45 feet in depth. An OVM reading of 46 ppm was observed from a soil sample at 23-1/2 feet. Groundwater was encountered during drilling at a depth of approximately 35 feet; the static water level was later measured at approximately 24.7 feet below grade. Monitoring well MW-7 was constructed with 4-inch-diameter PVC casing. The screen was set from 28 to 45 feet below the ground surface and the slot size of the screen is 0.010 inch. On March 3,

1991, MW-7 was developed using the pump and surge technique. Following development, the static water level was measured to be approximately 27.87 feet below the top of casing.

On [redacted], borings B-17 and B-18 were drilled to total depths of 26-1/2 and 27 feet, respectively. Boring B-17 was drilled approximately 30 feet west of the former UST pit. OVM readings ranged from 110 ppm at 21 feet to over 1,000 ppm at 23-1/2 feet. Groundwater was encountered at approximately 26 feet below the ground surface.

Boring B-18 was drilled approximately 5 feet north of B-13 and 20 feet west of the former UST pit for the purpose of installing a vadose zone monitoring well because OVM readings exceeded 1,000 ppm in B-13. Vadose-zone monitoring well VE-1 was constructed in B-18 with 2-inch-diameter PVC casing. The screen interval was set from 17 to 27 feet below the ground surface. No soil samples were taken because the boring was drilled only 5 feet away from B-13 and the subsurface conditions are inferred to be relatively unchanged. Ron Archer Civil Engineer, Inc., of Pleasanton, California surveyed the locations and elevations of MW-6, MW-7, and VE-1, and the locations of B-13, B-14, and B-17. Elevations were surveyed relative to mean sea level. The survey results are presented in Appendix D.

2.2 Monitoring and Sampling of Groundwater

On [redacted] water level measurements and subjective evaluations were performed by AGS and groundwater samples were collected from MW-1 through MW-7. No product or sheen have been observed in water samples during previous episodes. A discussion of sampling procedures is include in Appendix A.

3.0 LABORATORY ANALYTICAL METHODS

Both soil and groundwater samples were submitted for analyses. The types, rationale, methods of analyses, and laboratory locations are discussed in this section.

3.1 Soil

Two soil samples from borings B-13, B-14, B-16, and B-17, and one sample from B-15 were analyzed for TPHg by modified Environmental Protection Agency (EPA) Method 8015 and benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8020. Samples from B-13 through B-16 were analyzed for organic lead by the method described in the Leaking Underground Fuel Tank Field Manual (State of California, May 1988).

Rationale for submitting samples for laboratory analyses was based upon OVM readings, depth of the former UST pit, and lithology. The sample in boring B-13 collected at a depth of 21 feet was selected for analysis because an OVM reading of 91 ppm was observed and a green discoloration was present in the soil. The sample at [redacted] from [redacted] (inadvertently labeled 23-1/2 feet) was selected for analysis because an [redacted] and a change in lithology from gravelly clay to sand were observed. Boring B-14 was sampled at a depth of 21 feet because discoloration and elevated OVM readings were observed at this depth in boring B-13. The sample from B-14 at 23-1/2 feet was selected for analyses because an OVM reading of 163 ppm and green discoloration of the soil were observed. The sample at a depth of 25-1/2 feet from boring B-15 (inadvertently labeled 26 feet) was selected to evaluate if hydrocarbons had migrated to this depth offsite. The sample from boring B-16 at a depth of 22-1/2 feet (inadvertently labeled 23-1/2 feet) was selected for analysis because an OVM reading of 46 ppm, the highest in the boring, was observed. A sample was also collected at a depth of 30-1/2 feet (inadvertently labeled 31 feet) to evaluate if hydrocarbons had migrated to the top of the sand unit where water was first encountered. In boring [redacted] the sample at a depth of 16 feet was selected for analysis because it approximates the depth of the former UST pit, 30 feet to the east, and was from the top of a clay unit, where hydrocarbons may concentrate. The sample at a depth of [redacted] was also selected because the [redacted]

To evaluate disposal options, four samples from the drill cuttings stockpile were composited in the laboratory and analyzed for TPHg, BTEX, and total lead. The total lead analysis was performed using EPA Method 7241.

Analyses for TPHg and BTEX were performed at Applied Analytical Environmental Laboratories (Applied Analytical) of Fremont, California (Hazardous Waste Testing Laboratory Certification No. 1211). The organic lead analysis was performed by Mobile Chem Labs Inc., (Mobile Chem) of Martinez, California (Hazardous Waste Testing Laboratory Certification No. 358). Analyses for total lead were performed at Chromalab, Inc., (Chromalab) of San Ramon, California (Hazardous Waste Testing Laboratory Certification No. E694). Copies of Chain of Custody Records and laboratory analytical reports for the soil samples are included in Appendix E.

3.2 Groundwater

Groundwater samples were analyzed for TPHg by modified EPA Method 8015, BTEX by EPA Method 602, VOCs by EPA Method 601, total oil and grease (TOG) by Standard Method 5520 B/F, and organic lead by the method described in the Leaking Underground Fuel Tank Field Manual (State of California, May 1988). The TPHg and BTEX analyses were performed by Applied Analytical. The VOC analyses were performed by Chromalab and the lead analyses were performed by Mobile Chem. Copies of Chain of Custody Records and laboratory analytical reports for the groundwater samples are included in Appendix F.

4.0 RESULTS OF SUBSURFACE INVESTIGATION

This section begins with a description of the regional geology and is followed by a discussion on site geology and hydrogeology. Included in this section are discussions on results of the field investigative efforts and analytical results of soil and groundwater samples.

4.1 Regional Geology

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 generally flow toward the east-west-trending axis of the valley and then to the west. Arroyo Del Valle Creek lies approximately 2,200 feet north of the site.

The Livermore Valley groundwater system consists of an unconfined saturated zone overlying a sequence of leaky or semiconfined aquifers. 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 (California Department of Water Resources, 1974).

Exxon Station No. 7-7003 is located near the inferred trace of the Pleasanton Fault on the eastern boundary of the Bernal groundwater subbasin of the Livermore Valley (California Department of Water Resources, 1974). The valley-fill materials in this subbasin are in excess of 700 feet thick and are composed of unconsolidated gravel, sand, silt, and clay. Within the valley-fill sediments, the water-bearing layers up to 100 feet thick are separated by relatively impermeable beds up to 30 feet thick. Both the aquifers and the confining units appear to be laterally continuous across the subbasin (Alameda County Flood Control and Water Conservation District, 1986). The groundwater in the Livermore Valley occurs within an unconfined upper aquifer and an underlying series of semiconfined aquifers. Groundwater within the Livermore Valley flows downslope toward the longitudinal axis of the valley where the Arroyo Del Valle Creek channel is located.

4.2 Site Geology and Hydrogeology

Soil encountered during drilling to a depth of 58 feet consists of a 5-foot-thick layer of silty fine to medium sand, which overlies alternating layers of silty to sandy clay, silt, sandy silt,

silty sand, gravelly sand, and gravel. Plate 3 (cross section A-A') shows the relationship of sediments between groundwater monitoring wells MW-5, MW-6, and MW-7 and the subsurface materials encountered to the north of the former gasoline USTs. Plate 4 (cross section B-B') illustrates the distribution of subsurface materials in the vicinity of the former gasoline USTs. Plate 5 (cross section C-C') shows the stratigraphy between wells MW-3 and MW-4 which includes borings B-13, B-14, and vadose-zone monitoring well VE-1. Plate 6 (cross section D-D') shows the relationship of subsurface materials near the southern edge and west of the former UST pit. The cross sections show relatively discontinuous sand and gravel units separated by more continuous silt and clay units. The locatons of the four cross sections are presented on Plate 2.

Groundwater elevations in monitoring wells MW-1 through MW-7 vary by more than 13 feet. On March 18, 1991, groundwater elevations ranged from 320.20 to 321.22 feet above mean sea level in wells MW-1 through MW-3 and MW-5. The elevation of groundwater near the northwest corner of the site was 316.62 to 318.94 in wells MW-4 and MW-7, respectively; and was 307.83 feet in MW-6, which is northwest of the site. The water level differences encountered in the wells may be due in part to sloping sand and gravel units as interpreted on cross sections A-A' (Plate 3) and B-B' (Plate 4). As interpreted from Plates 3 and 4, a semiconfined aquifer may exist beneath the northwest portion of the site, because the groundwater level in March 1991 rose above the point it was first encountered beneath the clay. A pump test may be performed to evaluate further the aquifer characteristics.

4.3 Results of Groundwater Monitoring

The first quarter groundwater monitoring and sampling was performed following the development of offsite wells MW-6 and MW-7. No floating product or sheen was observed in any of the onsite or offsite wells in March (Table 1). The groundwater elevations were calculated using the depth-to-water data and the surveyed well-head elevations (Appendix D) for the March monitoring results (Table 1). The groundwater elevations were used to construct a Groundwater Elevation Map, as shown on Plate 7. The data indicate

the groundwater flow direction is toward the northwest with a groundwater gradient between MW-1 and MW-6 of approximately 0.125 foot vertical per foot horizontal.

4.4 Results of Analyses

Laboratory results of soil and groundwater samples submitted for analyses are presented below. Included in this section are discussions on the nature and extent of hydrocarbons.

4.4.1 Soil

A concentration of TPHg at [redacted] (ppm) was found in a soil sample from boring B-13 from a depth of 23 feet. In boring B-17, TPHg was detected at 15 ppm from a soil sample collected at a depth of 23 feet. In B-14 through B-16, and at the 16- and 21-foot depths of B-17 and B-13 respectively, no detectable concentrations of TPHg were found. A review of these and previous laboratory results indicate that detectable concentrations of TPHg appear to be limited to depths between 21 and 26 feet below the ground surface in the vicinity of the western portion of the former gasoline UST pit (Plate 8). The analytical data from soil samples are also presented on Plates 3 through 6. The laboratory results, which include cumulative data, are presented in Table 2. Copies of the laboratory analysis reports are in Appendix E.

4.4.2 Groundwater

In March 1991, the highest TPHg concentration [redacted] was detected in the groundwater sample from MW-1, an increase from the results in December 1990. The groundwater samples from MW-2 and MW-4 also showed an increase in TPHg concentrations from [redacted] and [redacted] respectively. Samples from MW-3 and MW-5contained no detectable TPHg. The sample from MW-6 contained no detectable TPHg, and the sample from MW-7 contained [redacted] TPHg. Plate 9 shows the concentration of TPHg in groundwater is highest northwest of the former UST pit.

Benzene concentrations increased between December 1990 and March 1991 in MW-1, MW-2, and MW-4. No detectable BTEX was found in MW-3, and MW-5 through MW-7. In the March 1991 results of organic lead analyses, no detectable concentrations were found in waters samples from wells MW-1 through MW-7.

Low VOC concentrations were detected in water samples from MW-1, MW-5, and MW-7. In MW-1, chloroform was detected at 12 ppb; in MW-5 chloroform and bromodichloromethane were detected at 0.5 and 1 ppb, respectively; and in MW-7 chloroform and bromodichloromethane were detected at 0.7 and 0.8 ppb, respectively. No VOCs were detected in samples from MW-2 through MW-4 and MW-6. No TOG was detected in a sample from MW-3. The cumulative laboratory results of water analyses are presented in Table 3. Copies of the laboratory analysis reports are presented in Appendix F.

5.0 SUMMARY AND CONCLUSIONS

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

- The groundwater in the shallowest saturated zone beneath the site appears to be semiconfined and has a flow direction to the northwest with a gradient of 0.125 foot vertical per foot horizontal. The steep gradient may be related to steep sloping sand and gravel units.

- The groundwater gradient in monitoring wells MW-4, MW-6, and MW-7 appears to be steeper than the gradient in monitoring wells MW-1 through MW-3 and MW-5.

- Soil with TPHg concentrations greater than 100 ppm appears to be limited an area generally west of the former gasoline USTs at depths between 21 and 26 feet below grade. Hydrocarbons in the soil appear to be adequately delineated to the north, south, east, and west of the former gasoline USTs.

- Results of groundwater analyses indicate the presence of gasoline hydrocarbons in the groundwater beneath the site, with the highest concentrations in MW-1 to the west (approximately downgradient) of the former gasoline USTs. The dissolved hydrocarbon plume extends offsite to the north of and possibly west of the former gasoline USTs. The extent of hydrocarbons in groundwater is approximately delineated.

6.0 REFERENCES

Alameda County Flood Control and Water Conservation District (Zone 7). 1986. Water Level Contour 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. August 1, 1990. Report on Supplemental Subsurface Environmental Investigation at Exxon Station No. 7-7003, 349 Main Street, Pleasanton, California. Job No. 19025-2.

Applied GeoSystems. February 26, 1991. Site Safety Plan for Exxon Service Station, 349 Main Street, Pleasanton, California. Job No. 19025-3S.

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

TABLE 1
RESULTS OF SUBJECTIVE EVALUATIONS AND ELEVATIONS OF GROUNDWATER

Date	Depth to Water (ft)	Groundwater 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
8/90	26.47	317.36	None	None
12/90	28.00	315.83	None	None
3/91	23.63	320.20	None	None
MW-2	(Wellhead Elevation = 344.22 ft)			
2/90	26.31	317.31	None	None
6/90	26.25	317.97	None	None
8/90	26.15	318.07	None	None
12/90	27.94	316.28	None	None
3/91	23.41	320.81	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
8/90	25.40	317.50	None	None
12/90	26.84	316.06	None	None
3/91	22.13	320.77	None	None
MW-4	(Wellhead Elevation = 343.38 ft)			
6/90	30.94	312.44	None	None
8/90	31.21	312.17	None	None
12/90	32.86	310.52	None	None
3/91	26.76	316.62	None	None
MW-5	(Wellhead Elevation = 345.20 ft)			
6/90	26.94	318.26	None	None
8/90	26.90	318.30	None	None
12/90	28.31	316.89	None	None
3/91	23.98	321.22	None	None
MW-6	(Wellhead Elevation = 342.25 ft)			
3/91	34.42	307.83	None	None
MW-7	(Wellhead Elevation = 343.62 ft)			
3/91	24.68	318.94	None	None

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

TABLE 2
RESULTS OF SOIL ANALYSES
(page 1 of 2)

Sample	B	T	E	X	TPHg	Pb
Boring						
S-11-B1	<0.050	<0.050	<0.050	<0.050	<2.0	NA
S-21-B1	0.061	0.32	9.7	17	320.0	6.4*
S-33-B1	<0.050	<0.050	<0.050	0.20	4.3	NA
S-16-B1A	<0.050	<0.050	<0.050	<0.050	<2.0	NA
S-25.5-B1A	<0.050	<0.050	0.94	1.3	52.0	8.3*
S-30.5-B1A	<0.050	<0.050	<0.050	<0.050	<2.0	NA
S-20-B2	<0.050	<0.050	<0.050	<0.050	<2.0	NA
S-25.5-B2	<0.050	<0.050	<0.050	<0.050	<2.0	5.2*
S-30.5-B2	0.086	0.30	0.066	0.40	17.0	NA
S-20-B3	<0.050	<0.050	<0.050	<0.050	<2.0	NA
S-25-B3	<0.050	<0.050	<0.050	<0.050	<2.0	6.8*
S-33-B3	<0.050	<0.050	<0.050	<0.050	<2.0	NA
S-18.5-B4	<0.0050	0.0067	<0.0050	<0.0050	<1.0	NA
S-21-B4	0.020	0.016	0.066	1.1	13	6.4*
S-26-B4	<0.0050	0.018	<0.0050	<0.0050	<1.0	NA
S-18.5-B5	<0.0050	0.025	<0.0050	<0.0050	2.3	NA
S-21-B5	5.5	5.3	33	35	1,400	14*
S-26.5-B5	<0.0050	0.0088	<0.0050	<0.0050	<1.0	NA
S-18.5-B6	<0.0050	0.054	<0.0050	<0.0050	<1.0	NA
S-26-B6	2.1	0.55	1.2	0.86	180	12*
S-28.5-B6	0.0054	0.018	0.0039	<0.0050	<1.0	NA
S-18.5-B7	0.0073	0.029	0.0090	0.020	3.5	NA
S-26-B7	0.011	0.050	0.042	0.018	<1.0	14*
S-31.5-B7	0.0081	0.028	<0.0050	0.015	<1.0	NA
S-18.5-B8	<0.0050	0.027	<0.0050	<0.0050	<1.0	NA
S-26-B8	0.0058	0.011	<0.0050	<0.0050	<1.0	5.7*
S-31-B8	0.018	0.038	<0.0050	<0.0050	<1.0	NA
S-21-B9	<0.0050	0.014	<0.0050	0.0058	<1.0	NA
S-26-B9	<0.0050	0.012	<0.0050	<0.0050	<1.0	4.9*
S-31-B9	<0.0050	0.034	<0.0050	0.0057	<1.0	NA
S-16-B10	<0.0050	<0.0050	<0.0050	0.013	<1.0	NA
S-23.5-B10	<0.0050	0.0055	<0.0050	<0.0050	<1.0	7.2*
S-31-B10	<0.0050	0.033	<0.0050	0.014	<1.0	NA
S-43.5-B10	<0.0050	0.036	<0.0050	0.0062	<1.0	NA
S-18.5-B11	<0.0050	0.022	<0.0050	<0.0050	<1.0	NA
S-21-B11	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	5.5*
S-28.5-B11	<0.0050	0.014	<0.0050	<0.0050	<1.0	NA
S-21-B12	<0.0050	<0.0050	<0.0050	0.026	<1.0	3.8*
S-28.5-B12	<0.0050	<0.0050	<0.0050	0.015	<1.0	NA
Stockpile						
S-0605-1ABCD	<0.0050	<0.0050	<0.0050	0.021	<1.0	4.9*

See notes on page 2 of 2.

RESNA

TABLE 2
RESULTS OF SOIL ANALYSES
(page 2 of 2)

Sample	B	T	E	X	TPHg	Pb
Boring						
S-21-B13	<0.005	<0.005	<0.005	<0.005	<1.0	<0.5
S-23.5-B13♦	<0.005	<0.005	5.3	3.9	580	<0.5
S-21-B14	<0.005	<0.005	<0.005	<0.005	<1.0	<0.5
S-23.5-B14	<0.005	<0.005	<0.005	<0.005	<1.0	<0.5
S-26-B15♦	<0.005	<0.005	<0.005	0.007	<1.0	<0.5
S-23.5-B16♦♦	<0.005	<0.005	<0.005	<0.005	<1.0	<0.5
S-31-B16♦	<0.005	<0.005	<0.005	<0.005	<1.0	<0.5
S-16-B17	<0.005	<0.005	<0.005	0.011	<1.0	<0.5
S-23-B17	0.041	0.075	0.041	0.053	15	<0.5
Stockpile						
S-0307-SP1(A-D)	<0.005	<0.005	<0.005	0.008	<1.0	5.4*

Results in milligrams/kilogram (mg/kg), or parts per million (ppm)
TPHg = total petroleum hydrocarbons as gasoline
BTEX = benzene, toluene, ethylbenzene, and total xylene isomers
Pb = tetraethyl lead
* = total lead
♦ = depth to top of sample is 1/2 foot shallower (e.g., 30-1/2 feet instead of 31 feet).
♦♦ = depth to top of sample is 1 foot shallower (e.g., 22-1/2 feet instead of 23-1/2 feet).
< = below detection limits for analytical method used

Sample Identification: S-23-B17

- S — Soil sample
- 23 — Sample depth or date sampled
- B — Soil boring or
- 17 — stock pile number

TABLE 3
CUMULATIVE RESULTS OF WATER ANALYSES
(Page 1 of 2)

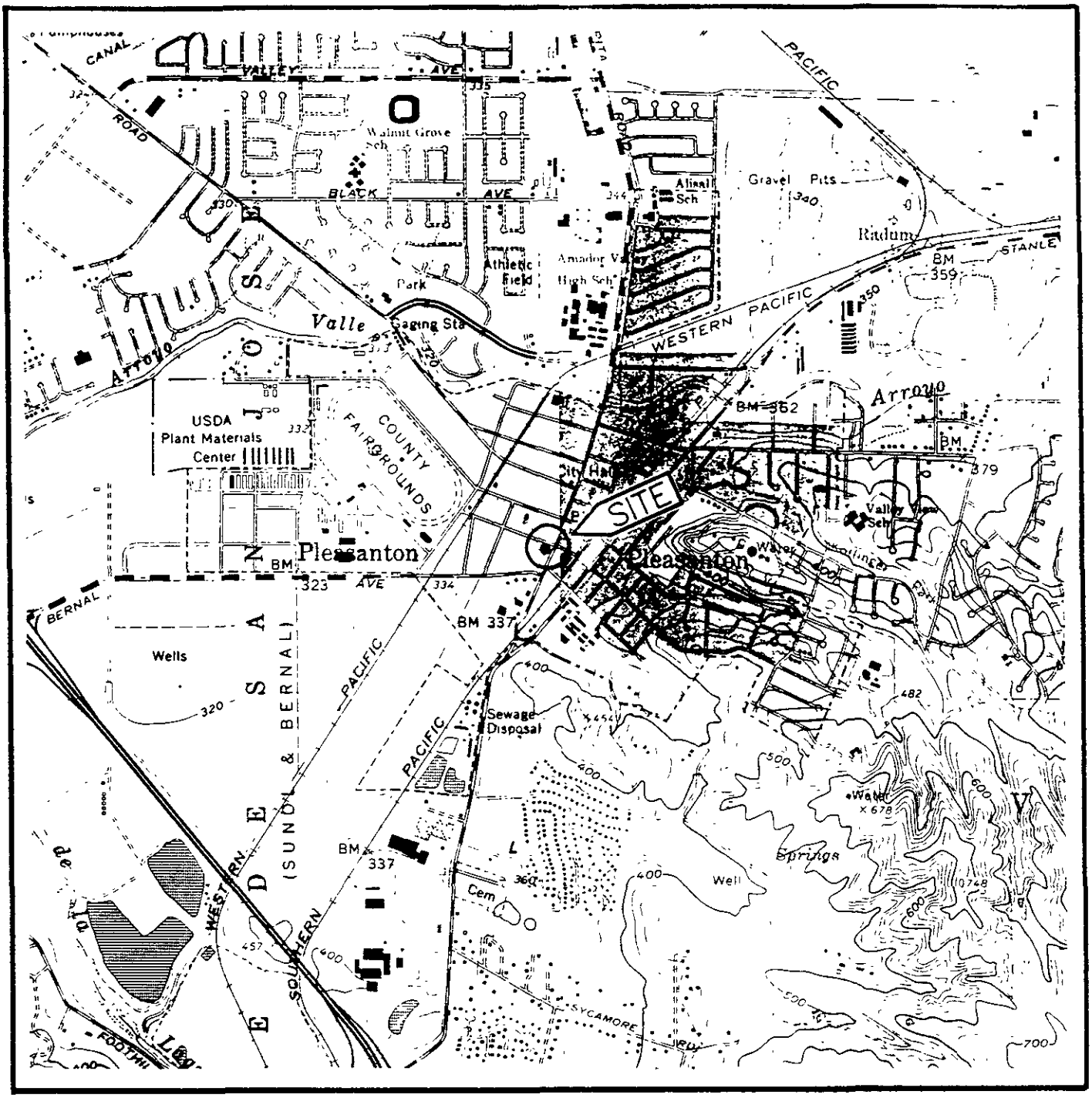
Date	TPHg	Benzene	Toluene	Ethylbenzene	Total Xylenes	VOCs	TOG	Pb
MW-1								
03/90	3,300	21	9.2	59	19	NA	NA	0.01
06/90	1,300	7.9	5.9	32	58	NA	NA	<0.05
08/90	2,500	77	280	50	250	NA	NA	<0.05
12/90	390	9	2	43	40	NA	NA	<0.1*
03/91	4,500	45	12	240	300	[redacted]	NA	<0.1*
MW-2								
03/90	65	3	2	9.8	6.5	NA	NA	0.008
06/90	670	<0.5	2.6	<0.5	<0.5	NA	NA	<0.05
08/90	1,300	24	130	37	170	NA	NA	<0.05
12/90	470	<0.3	0.5	1	3	NA	NA	<0.1*
03/91	700	10	3.4	6.1	3.8	<0.5	NA	<0.1*
MW-3								
03/90	<20	<0.5	<0.5	<0.5	<0.5	NA	NA	0.01
06/90	200	<0.5	<0.5	<0.5	<0.5	NA	NA	<0.05
08/90	3,200	54	380	23	400	NA	NA	<0.05
12/90	200	8	12	6	24	[redacted]	<5	<0.1*
03/91	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<0.1*
MW-4								
06/90	<20	<0.5	<0.5	<0.5	<0.5	NA	NA	<0.05
08/90	120	5.2	5.4	5.4	9.9	NA	NA	<0.05
12/90	50	0.7	1	<0.3	2	NA	NA	<.1*
03/91	160	1.8	0.8	2.2	11	<0.5	NA	<0.1*
MW-5								
06/90	<20	<0.5	<0.5	<0.5	<0.5	NA	NA	0.06
08/90	210	9.7	12	7.6	17	NA	NA	<0.05
12/90	190	2	3.5	2	8	NA	NA	<0.1*
03/91	<50	<0.5	<0.5	<0.5	<0.5	0.5[1] 1[2]	NA	<0.1*

See notes on page 2 of 2

TABLE 3
CUMULATIVE RESULTS OF WATER ANALYSES
(Page 2 of 2)

Date	TPHg	Benzene	Toluene	Ethylbenzene	Total Xylenes	VOCs	TOG	Pb
MW-6								
3/91	<50	<0.5	<0.5	<0.5	<0.5	<0.5	NA	<0.1*
MW-7								
03/91	140	<0.5	<0.5	<0.5	<0.5	0.7[1] 0.8[2]	NA	<0.1*

Results are in parts per billion (ppb), except lead which is in parts per million (ppm)
TPHg = Total petroleum hydrocarbons as gasoline
< = Less than method detection limit
[1] = Chloroform
[2] = Bromodichloromethane
TOG = Total oil and grease
* = Organic lead
VOCs = Volatile organic compounds (EPA Method 601)
NA = Sample not analyzed for this compound
[3] = Tetrachloroethene

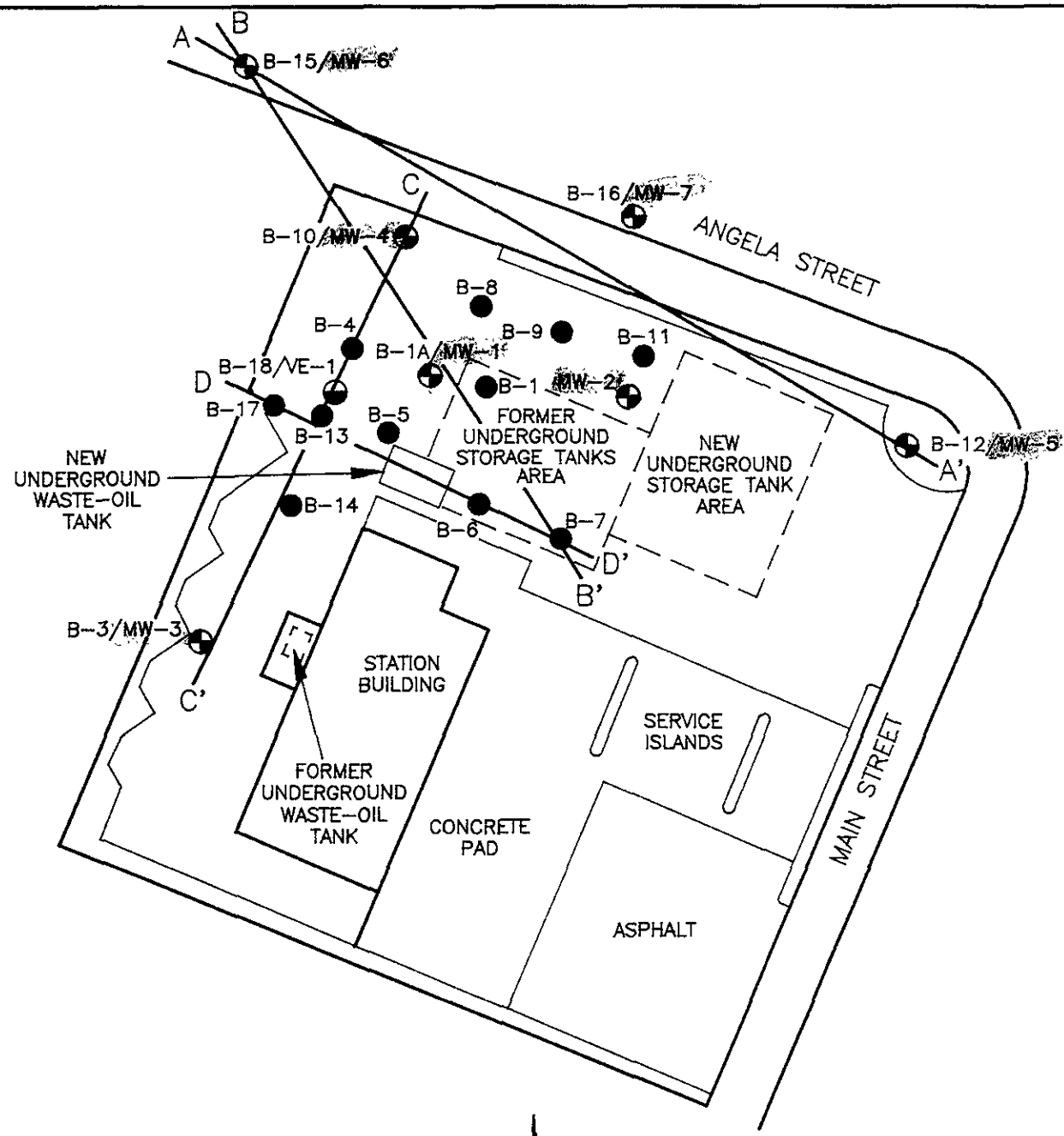


Source: U.S. Geological Survey
7.5-Minute Quadrangle
Dublin/Livermore, California
Photorevised 1980

N

Approximate Scale
2000 1000 0 2000 4000
feet

Applied GeoSystems	**SITE VICINITY MAP** Exxon Service Station 7-7003 349 Main Street Pleasanton, California	PLATE 1
PROJECT NO. 19025-2		



D—D' = Cross section line

B-12/MW-5 = Monitoring well

VE-1 = Vapor extraction well

B-11 = Soil boring

N

Approximate Scale

30 15 0 30 60

feet

Source: Surveyed by Ron Archer Civil Engineer, Inc., 1990 and 1991

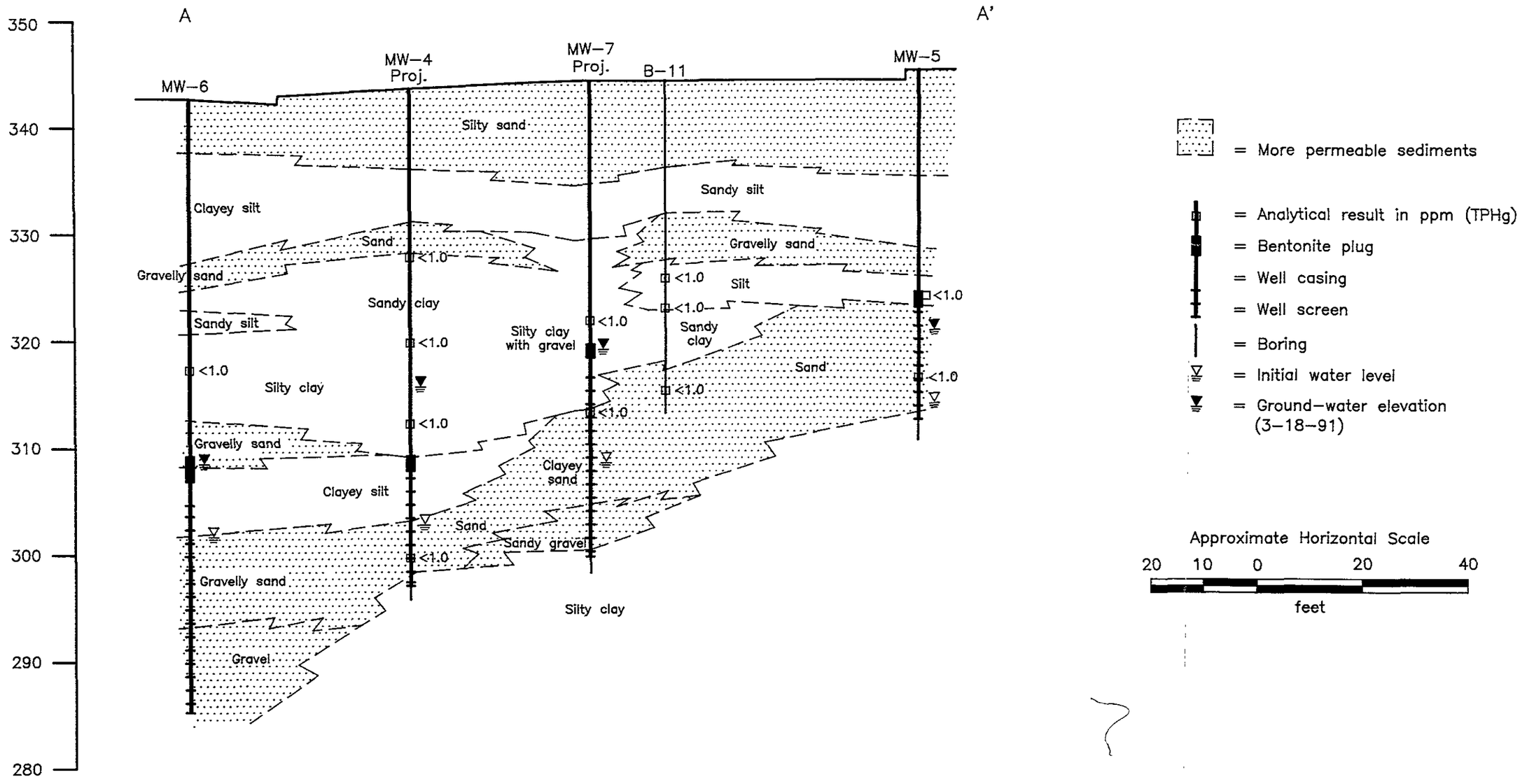
Applied GeoSystems

PROJECT NO. 19025-2

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

PLATE 2

190252CA



= More permeable sediments

= Analytical result in ppm (TPHg)

= Bentonite plug

= Well casing

= Well screen

= Boring

= Initial water level

= Ground–water elevation (3–18–91)

Approximate Horizontal Scale

20 10 0 20 40

feet

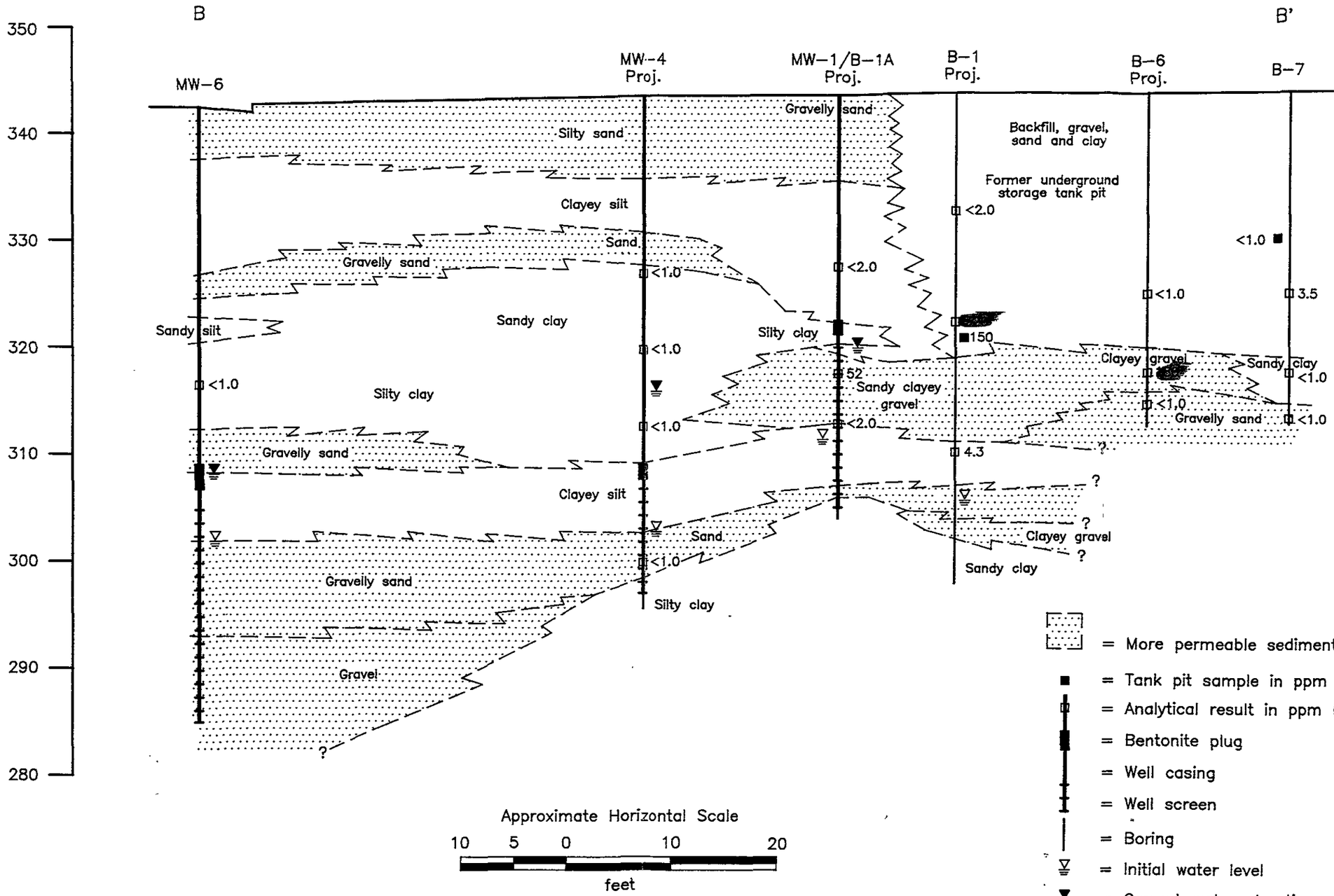
Applied GeoSystems

PROJECT NO. 19025–2

GEOLOGIC CROSS SECTION A – A'
Exxon Station No. 7–7003
349 Main Street
Pleasanton, California

PLATE 3

190252CB



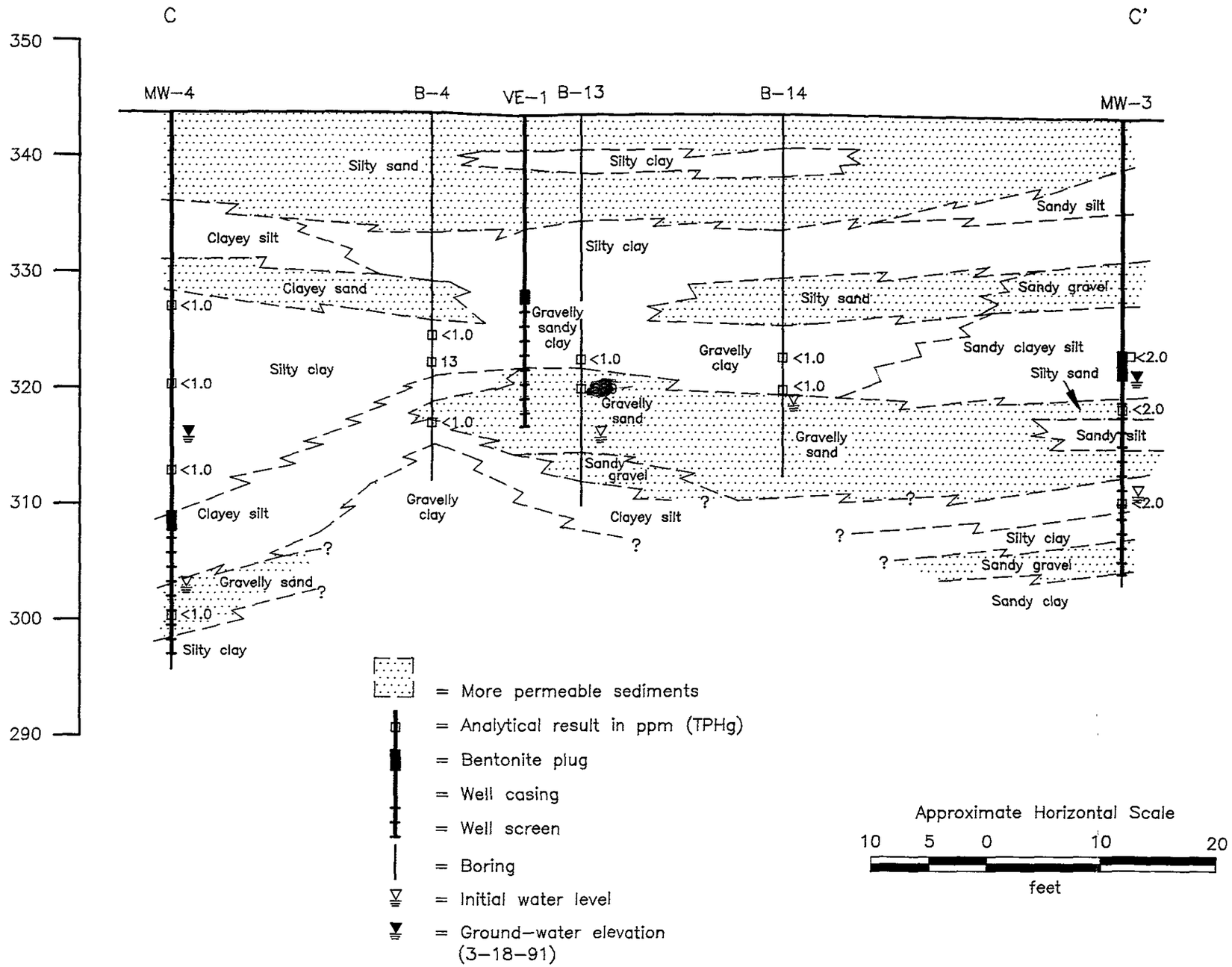
Applied GeoSystems

PROJECT NO. 19025-2

GEOLOGIC CROSS SECTION B – B'
Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE
4

190252CC



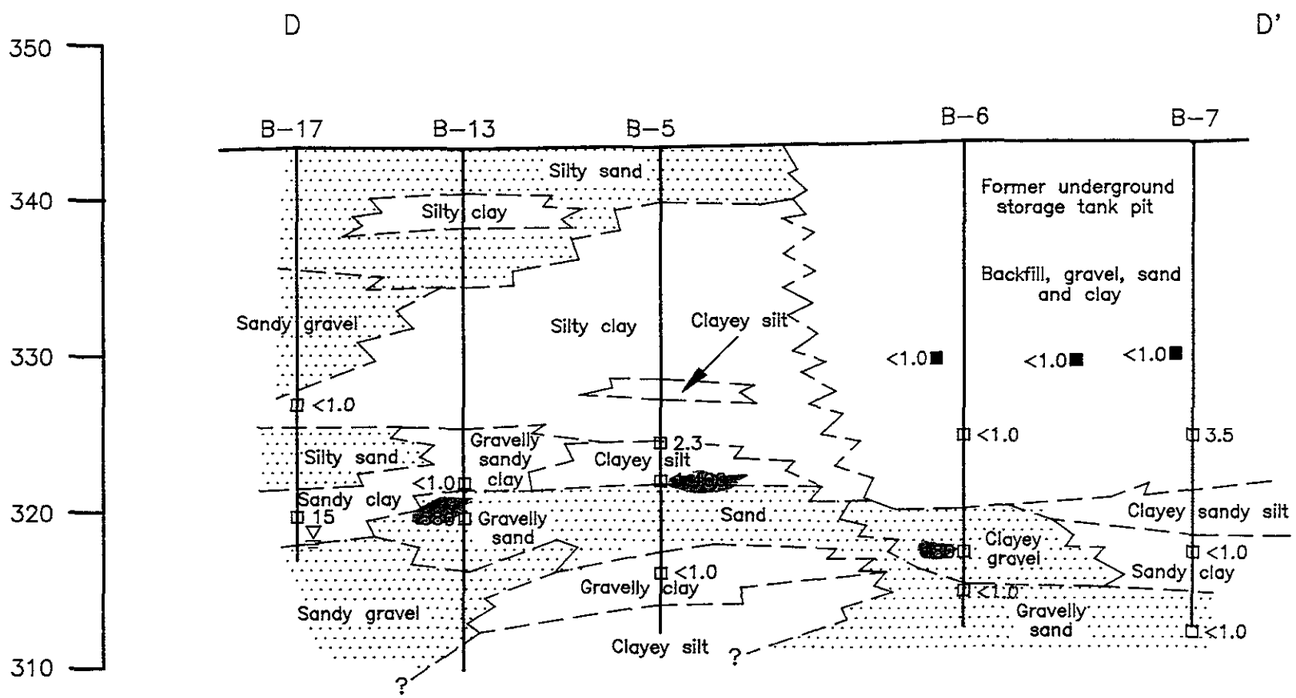
Applied GeoSystems

PROJECT NO. 19025-2

GEOLOGIC CROSS SECTION C – C'
Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE
5

190252CD



= More permeable sediments

■ = Tank pit sample in ppm (TPH)

□ = Analytical result in ppm (TPHg)

= Bentonite plug

= Well casing

= Well screen

= Boring

▽ = Initial water level

▼ = Ground–water elevation (3–18–91)

Approximate Horizontal Scale

10 5 0 10 20

feet

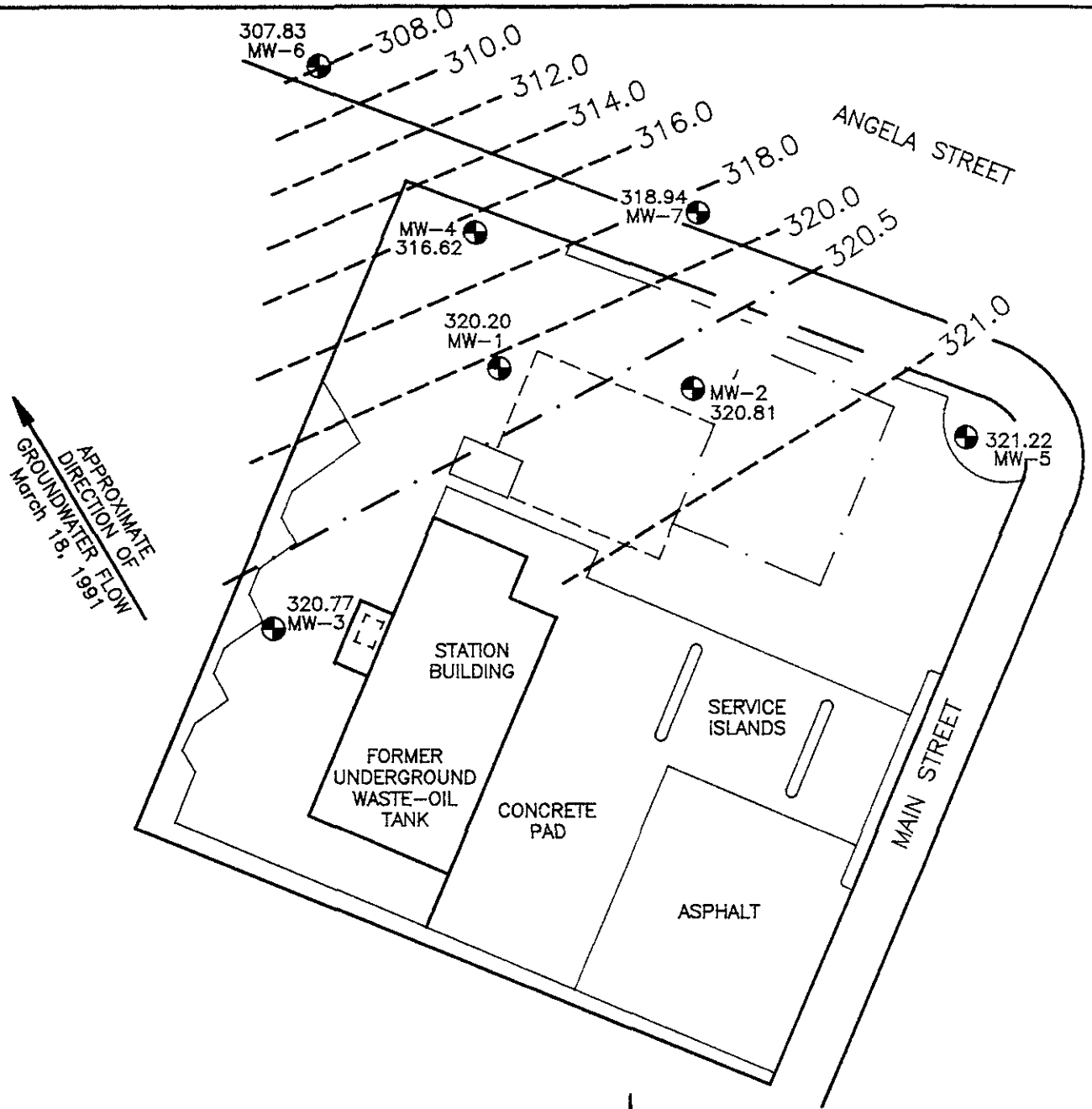
Applied GeoSystems

PROJECT NO. 19025–2

GEOLOGIC CROSS SECTION D – D'
Exxon Station No. 7–7003
349 Main Street
Pleasanton, California

PLATE

6



321.0 = Line of equal elevation of ground water in shallow saturated zone in feet above mean sea level
Note scale change at elevation 320.0

MW-7 = Monitoring well

Approximate Scale

30 15 0 30 60

feet

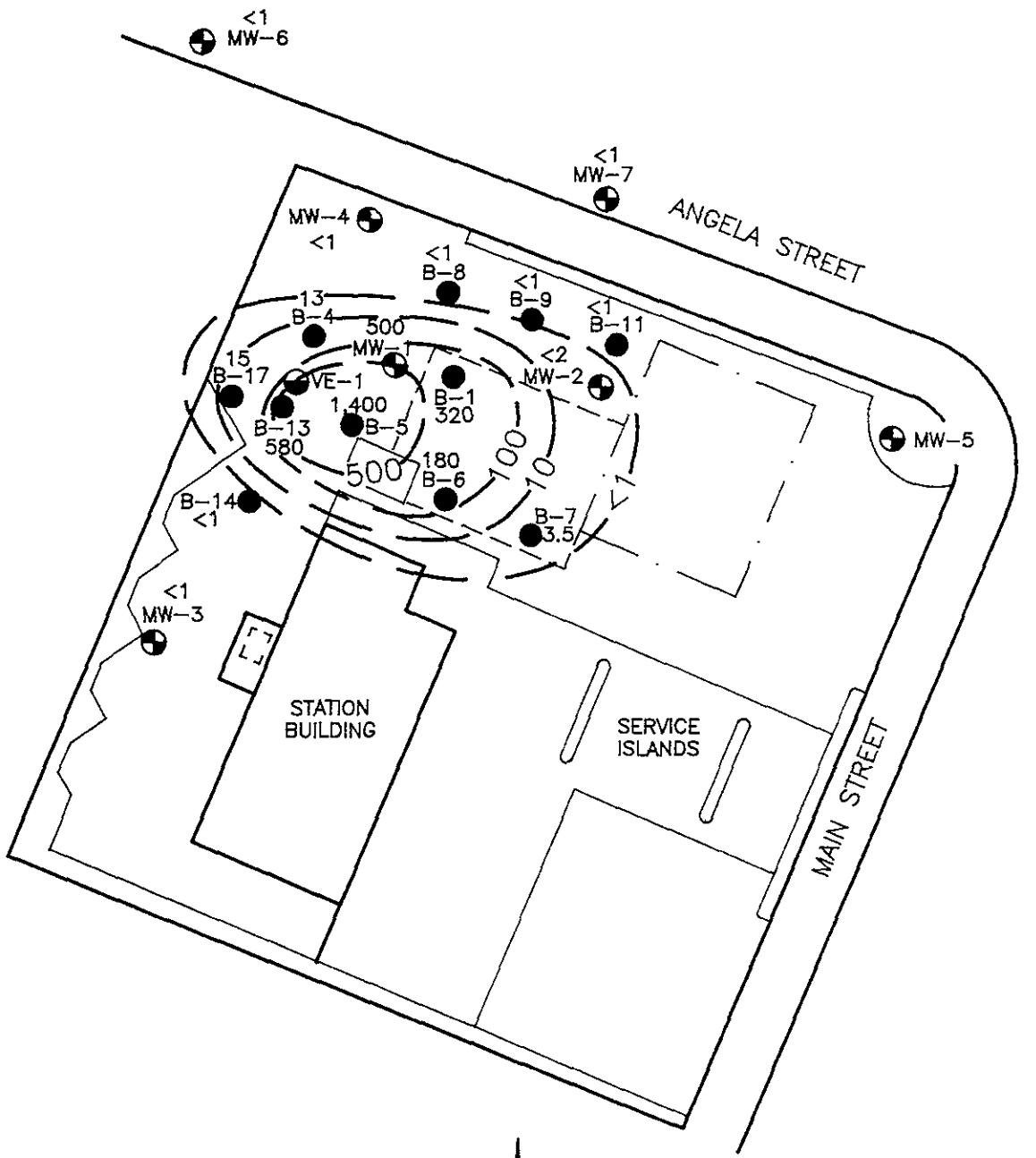
Source: Surveyed by Ron Archer
Civil Engineer, Inc.

Applied GeoSystems

PROJECT NO. 19025-2

GROUNDWATER ELEVATION MAP
March 18, 1991
Exxon Service Station 7-7003
349 Main Street
Pleasanton, California

PLATE 7



500 = Line of equal concentration in parts per million

1,400 = Concentration in parts per million

MW-5 = Ground-water monitoring well

VE-1 = Vadose zone monitoring well

B-11 = Soil boring

TPHg = Total petroleum hydrocarbons as gasoline

N

Approximate Scale

30 15 0 30 60

feet

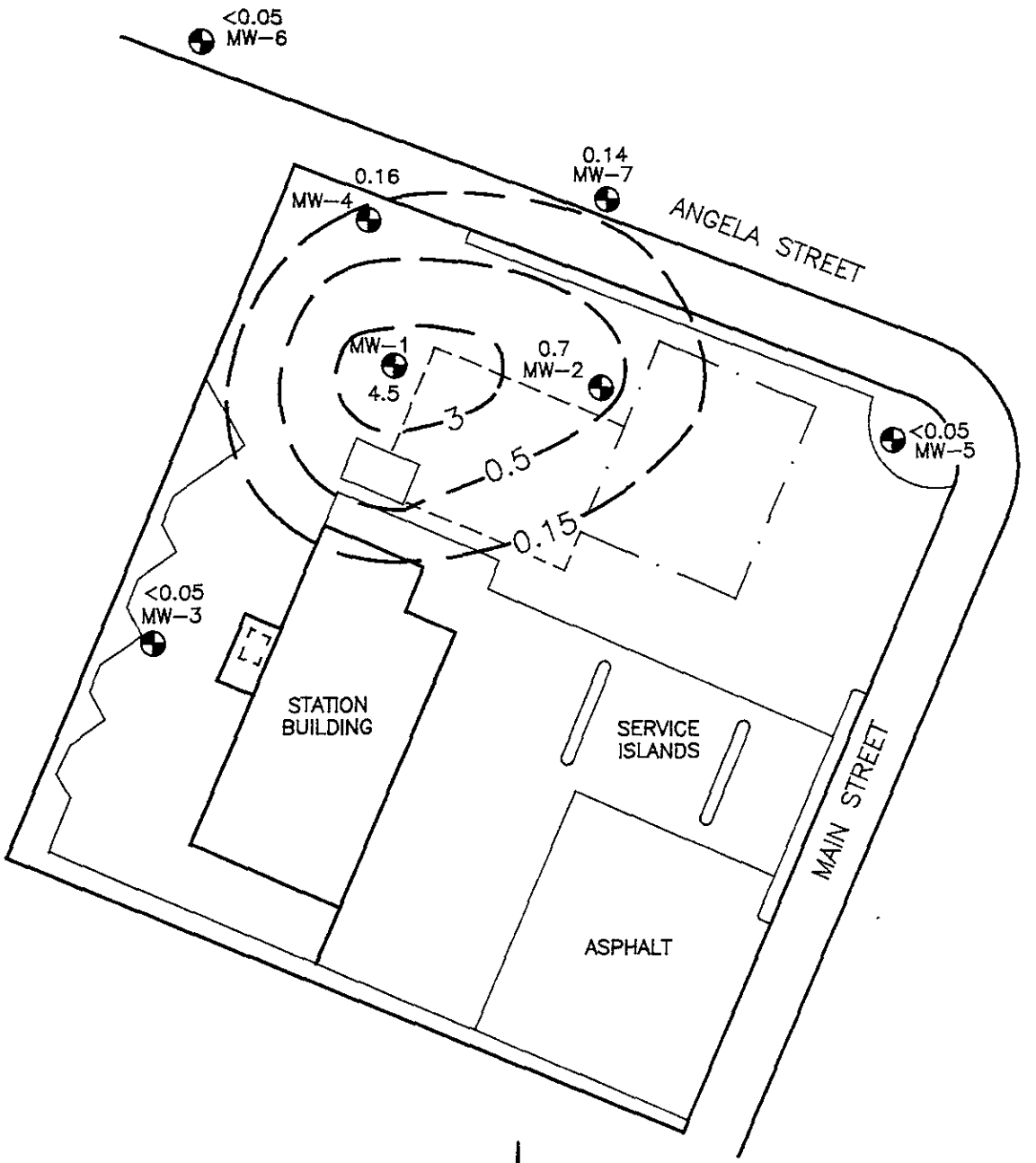
Source: Surveyed by Ron Archer Civil Engineer, Inc., 1990 and 1991

Applied GeoSystems

PROJECT NO. 19025-2

CONCENTRATION OF TPHg IN SOIL AT 21-26 FEET BELOW GRADE
Exxon Service Station 7-7003
349 Main Street
Pleasanton, California

PLATE 8



3 = Line of equal concentration in parts per million

4.5 = Concentration in parts per million

MW–5 = Ground–water monitoring well

TPHg = Total petroleum hydrocarbons as gasoline

N

Approximate Scale

30 15 0 30 60

feet

Source: Surveyed by Ron Archer Civil Engineer, Inc., 1990 and 1991

Applied GeoSystems

PROJECT NO. 19025–2

CONCENTRATION OF TPHg IN GROUNDWATER (March 18, 1991)
Exxon Service Station 7–7003
349 Main Street
Pleasanton, California

PLATE 9

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, CA

(2) CLIENT
Name Exxon Company U.S.A
Address 2300 Clayton Rd. Phone (415) 246-8768
City Concord, CA Zip 94520

(3) APPLICANT
Name Rodger C. Witham
Applied GeoSystems
Address 42501 Albrae St. Phone (415) 651-1906
City Fremont, CA Zip 94538

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

DRILLER'S LICENSE NO. 563305

WELL PROJECTS
Drill Hole Diameter 10 in. Maximum
Casing Diameter 4 in. Depth 40 ft.
Surface Seal Depth 20 ft. Number 2

GEOTECHNICAL PROJECTS
Number of Borings 2 Maximum
Hole Diameter 8 in. Depth 40 ft.

(7) ESTIMATED STARTING DATE 11/5/90
ESTIMATED COMPLETION DATE 11/7/90

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

APPLICANT'S SIGNATURE Rodger C. Witham Date 10/23/90

FOR OFFICE USE

PERMIT NUMBER 90645
LOCATION NUMBER

PERMIT CONDITIONS

Circled Permit Requirements Apply

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

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

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

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

E. WELL DESTRUCTION. See attached.

Approved Todd N. Wendler Date 25 Oct 90

2198

PLANNING 484-8023 | STREETS 484-8066 | ENGINEERING 484-8041 | WATER 484-8071

CITY OF PLEASANTON

P.O. BOX 520 • PLEASANTON, CALIFORNIA 94566-0802

PUBLIC WORKS 484-8195 | FIRE 484-8114 | BUILDING INSPECTION (415) 484-8015 (Office)

STREET ADDRESS: 19 MAIN	SUITE: ST	RECEIPT NO: 0021372	DATE: 02/21/91	PROJECT: 00116070
PLEASANTON	STATE: CA	TRACT NAME: DOWNTOWN		
USE OF PERMIT/APPLICATION: ENCROACHMENT FOR WELL		APN: 094- 015-60070	BLDGS-UNITS: 01	STORIES
OCCUPANT NAME: MAIN STREET EXXON		MAP #	BLOCK-LOT	MOD #: 005,13-N
APPLICANT NAME: APPLIED GEOSYSTEMS	APPLICANT PHONE: 415-651-1906			
CONTRACTOR: APPLIED GEOSYSTEMS	STATE LICENSE	ENCROACHMENT Per		$22.00
STREET ADDRESS: 3255 MISSION	SUITE: BL	CITY LICENSE		
CITY: FREMONT	STATE: CA ZIP: 945390000	CONTRACTOR PHONE: 415-651-1906		
BLDG OWNER				
STREET ADDRESS	SUITE			
CITY	STATE ZIP	OWNER PHONE		
ZONING: C-C	GEN PLAN: C/O	TRS	PUD	
LOT SIZE	F/A	CENS TRACT: 4506.07	SIC	CRIPS	GEO REF
FSR	LSB	RSB	BSB	PLANNING INT	ENGINEERING INT	PLANS RECEIVED INT	PAID BY: CK 2582	FEES: $22.00

ENCROACHMENT PERMIT

P R O J E C T C O M M E N T S

Date	Department	Comment
02/21/91	ENGINEERING	PERMISSION IS HEREBY GRANTED TO DRILL 2 MONITORING WELLS
02/21/91	ENGINEERING	WITH TRAFFIC COVERS PER PLAN SUBMITTED TO CITY SUBJECT T
02/21/91	ENGINEERING	THE FOLLOWING: 1)WELLS TO BE LOCATED IN STREET AREA.
02/21/91	ENGINEERING	8'TO 10'FROM FACE OF CURB. 2)WELL COVER TO BE INSTALLED
02/21/91	ENGINEERING	PREVENT FUTURE SETTLEMENT. 3)DRILLING HOURS ARE 9AM TO 4
02/21/91	ENGINEERING	4)SAMPLES TO BE TAKEN FROM 9AM TO 11AM. 5)TRAFFIC CONTRC
02/21/91	ENGINEERING	TO BE THE RESPONSIBILITY OF CONTRACTOR. 6)ANY DAMAGE TO
02/21/91	ENGINEERING	EX. IMPROVEMENTS SHALL BE REPLACED TO THE SATISFACTION C
02/21/91	ENGINEERING	THE CITY ENGINEER. 7)AREA TO BE KEPT CLEAN AND SAFE.

ALL WORK TO BE PERFORMED TO CITY OF PLEASANTON STANDARD DETAILS AND SPECIFICATIONS. NOTIFY PUBLIC WORKS INSPECTION DIV 24 HRS PRIOR TO STARTING ANY WORK AT (415) 484-8195.

ENCROACHMENT

TOTAL FEE	22.00
Appl/Permit Fee	22.00

THIS PERMIT IS ISSUED PURSUANT TO ALL PROVISIONS OF PLEASANTON MUNICIPAL CODE CHAPT 13.04-ENCROACHMENTS.

1 OTHER FEE 22.00

...de work indicated hereon

EXXON COMPANY, U.S.A.

POST OFFICE BOX 4032 • CONCORD, CA 94524-2032

ENVIRONMENTAL ENGINEERING

W. Y. WANG
SENIOR ENVIRONMENTAL ENGINEER

12 November, 1991

Exxon RAS 7-7003
349 Main Street
Pleasanton, California

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

Dear Mr. Mueller:

Attached for your review and comment is the **Supplemental Subsurface Environmental Investigation and Quarterly Sampling Report** for the above referenced Exxon station in Pleasanton. The report, prepared by RESNA/Applied GeoSystems of Fremont, California, details subsurface soils and ground water investigation performed in February-March, 1991 as well as the results of the March, 1991 ground water sampling event.

This supplemental investigation included the drilling of six soil borings, constructing two ground water monitoring and one soil vapor extraction wells from three of the borings, and analyzing soil and ground water samples obtained from the borings and the monitoring wells.

Should you have any questions, comments, or require additional information, please do not hesitate to contact me at (510) 246-8768.

Sincerely,

William Y. Wang

WYW:ss
0331E.2
Attachment

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

w/o attachment:
Mr. D. J. Bertoch
Mr. P. J. Brininstool
Mr. G. DeMarzo
Mr. J. R. Hastings
Mr. M. Detterman - RESNA/Applied GeoSystems, Fremont

APPENDIX B

FIELD PROCEDURES

FIELD PROCEDURES

Drilling of Borings

The borings B-13 through B-18 were drilled by Kvilhaug Well Drilling and Pump Company of Concord, 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-6 and MW-7 were reamed with 10-inch diameter augers. Borings that were not completed as wells were backfilled from total depth to the ground surface with a slurry of neat cement.

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 materials 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 chain-of-custody protocol was observed 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 was evaluated during sampling. During sampling, 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 OVM analyses are shown on the Logs of Borings (Appendix C).

Monitoring-Well Construction

The groundwater monitoring wells were completed with 4-inch-inside-diameter, Schedule 40, polyvinyl chloride (PVC) casing. The vapor monitoring well was completed with 2-inch-inside-diameter, Schedule 40 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 each 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 groundwater monitoring wells were developed by alternately surging and pumping. The wells were developed until the discharge water was relatively free of silt.

Subjective Evaluation of Groundwater 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 groundwater 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 and sheen.

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 OVM analyses are shown on the Logs of Borings (Appendix C).

Monitoring-Well Construction

The groundwater monitoring wells were completed with 4-inch-inside-diameter, Schedule 40, polyvinyl chloride (PVC) casing. The vapor monitoring well was completed with 2-inch-inside-diameter, Schedule 40 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 each 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 groundwater monitoring wells were developed by alternately surging and pumping. The wells were developed until the discharge water was relatively free of silt.

Subjective Evaluation of Groundwater 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 groundwater 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 and sheen.

Groundwater Sampling for Laboratory Analyses

Prior to collecting groundwater samples, each well was purged of approximately 3 well volumes of water, or until pH, conductivity and temperature had stabilized. A water sample was collected from each well after the well had recharged to more than 80 percent of the static level. The samples were collected with a Teflon bailer that was cleansed with Alconox and rinsed with distilled water prior to each use. 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 organic lead and TOG analyses, the groundwater samples were collected in 1-liter glass bottles and sulfuric acid was added to the TOG sample until pH was less than 2. The sample containers were promptly capped, labeled, and placed in iced storage for transport to state certified analytical laboratories for analysis.

APPENDIX C

LOGS OF BORINGS

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		LTR	DESCRIPTION
Coarse-grained soils	Gravel and gravelly soils	GW	Well-graded gravels or gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	Sand and sandy soils	SW	Well-graded sand or gravelly sands, little or no fines
		SP	Poorly-graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures

MAJOR DIVISIONS		LTR	DESCRIPTION
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
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silt-clays of low plasticity
	Silts and clays LL>50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils. Elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silts
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.

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PROJECT NO. 19025-2

UNIFIED SOIL CLASSIFICATION SYSTEM AND SYMBOL KEY
Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE
C-1

Total depth of boring: 34 feet **Diameter of boring:** 8 inches **Date drilled:** 2-27-91

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:** Rodney and Brian

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

Depth	Sample No.	Blows	OVM	USCS Code	Description	Well Const.
0					Asphalt (3 inches) over road base (3 inches).	
				SM	Silty, fine to medium sand, with gravel, brown, damp.	
2						
				CL	Silty clay, trace sand and gravel, brown, low plasticity, soft.	
4						
				SM	Silty, fine sand, trace gravel, light brown, damp, dense.	
		10				
		14				
6	S-6	17	0			
8						
				CL	Silty clay, trace gravel, brown with trace iron staining, damp, medium plasticity, hard.	
10		16				
		40				
	S-11	50	0			
12						
14						
		35				
16	S-16	50	0		Grades to more gravel.	
		18				
		28			Sandy, gravelly clay, mottled gray and brown, medium plasticity, rootlets.	
18	S-18.5	25	0			
20		25				
		25				
	S-21	40	91		With green discoloration. (Section continues downward)	

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PROJECT NO. 19025-2

LOG OF BORING B-13

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

PLATE C-2

Depth	Sample No.	BLOWS	OVM	USCS Code	Description	Well Const.
				CL	Gravelly sandy clay, mottled gray and brown with green discoloration, damp, medium plasticity, hard, rootlets.	
22		35		SP	Gravelly, fine to medium sand, trace silt, green–brown mottled, damp, very dense.	
	S–23	50	>1000			
24						
	S–25	50	>1000			
26						
				GW	Clayey, sandy gravel, some cobbles, green and red–brown mottled, wet, very dense.	
28		40				
	S–28.5	50	245			
30	S–30	50	95			
32		28		ML	Clayey silt, trace sand, trace gravel, tan, moist, medium plasticity, hard, rootlets.	
		32				
34	S–33.5	40	0		Total Depth = 34 feet.	
36						
38						
40						
42						
44						
46						
48						
50						

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PROJECT NO. 19025–2

LOG OF BORING B–13

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

PLATE C–3

Total depth of boring: 31-1/2 feet **Diameter of boring:** 8 inches **Date drilled:** 2-27-91

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:** Rodney and Brian

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

Depth	Sample No.	Blows	OVM	USCS Code	Description	Well Const.
0						
2				SM	Silty, fine to medium sand, brown, damp.	
4				CL	Silty clay, brown, damp, medium plasticity, medium stiff.	
6	S-6	7 8 9	0	SM	Silty, fine sand, trace gravel, light brown, damp, medium dense.	
8						
10		8				
12	S-11	14 25	0	CL	Silty clay, trace sand and gravel, damp, brown, medium plasticity, hard.	
14				SM	Silty, fine to medium sand, trace gravel, tan with rust streaks and iron staining, damp, hard.	
16	S-16	18 25 40	0			
18	S-18.5	14 18 20	0	CL	Gravelly clay, with organic material, gray and brown mottled, with yellow streaks, damp, hard.	
20	S-21	15 20 40	0		(Section continues downward)	

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PROJECT NO. 19025-2

LOG OF BORING B-14

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

PLATE C-4

Depth	Sample No.	BLOWS	OVM	USCS Code	Description	Well Const.
22				CL	Gravelly clay, with organic material, gray and brown mottled, with yellow streaks, damp, hard.	
		12				
	S-23	20			Grades more sand, with green discoloration.	
24		30	163			
				SW	Gravelly, fine to coarse sand, tan, wet, loose.	
		30				
26	S-26	50	0			
28		25				
	S-28.5	50	0			
30						
		24				
	S-31	50	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-14

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

PLATE C-5

Total depth of boring: 58 feet **Diameter of boring:** 10 inches **Date drilled:** 2-28-91

Casing diameter: 4 inches **Length:** 58 feet **Slot size:** 0.010-inch

Screen diameter: 4 inches **Length:** 20 feet **Material type:** Sch 40 PVC

Drilling Company: Kvilhaug Well Drilling Inc. **Driller:** Rodney and Brian

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

Depth	Sample No.	Blows	OVM	USCS Code	Description	Well Const.
0					Asphalt over road base.	
2				SM	Silty, fine to medium sand, some gravel, brown, damp, loose.	
4		8				
6	S-5.5	7 10	0	ML	Clayey silt, trace fine sand, brown, very damp, low plasticity, medium stiff.	
8						
10		10				
12	S-11	12 20	0		Grades to more gravel, hard.	
14						
16	S-16	18 25 35	0	SW	Gravelly fine to coarse sand, brown, damp, very dense.	
18	S-18.5	35 35 45	0	CL	Fine sandy clay, some gravel, trace organic material, brown with red and yellow staining, damp, hard.	
20	S-21	25 40 45	0	ML	Fine sandy silt, some gravel, some cobbles, brown with yellow and red staining, damp, medium plasticity, hard. (Section continues downward)	

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PROJECT NO. 19025-2

LOG OF BORING B-15/MW-6

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

PLATE C-6

Depth	Sample No.	BLOWS	OVM	USCS Code	Description	Well Const.
22				ML	Fine sandy silt, some gravel, some cobbles, brown with yellow and red staining, damp, medium plasticity, hard.	
		30				
	S-23	50	0	CL	Silty clay, trace sand, trace gravel, tan, damp, medium plasticity, hard.	
24						
		26				
26	S-25.5	50	0			
28						
30	S-30	50	0	SP	Gravelly, fine to medium sand, brown, damp, very dense.	
32						
34					▼	
		24		ML	Clayey silt, some fine to medium sand, tan and brown, damp, low plasticity, hard.	
		38				
36	S-36	45	0			
38						
40		36			▽	
		40				
	S-41	50	0	SW	Gravelly sand, tan, wet, very dense.	
42						
		27				
44		32				
	S-44.5	40	0		Trace gravel.	
46						
48						
50		15		GW	Gravel, trace silt and clay, tan, wet, very dense.	
	S-50.5	50	0		(Section continues downward)	

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PROJECT NO. 19025-2

LOG OF BORING B-15/MW-6

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

PLATE C-7

Depth	Sample No.	BLOWS	OVM	USCS Code	Description	Well Const.
52				GW	Gravel, trace silt and clay, tan, wet, very dense.	
54						
56						
58					Total Depth = 58 feet.	
60						
62						
64						
66						
68						
70						
72						
74						
76						
78						
80						

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PROJECT NO. 19025-2

LOG OF BORING B-15/MW-6

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

PLATE C-8

Total depth of boring: 46-1/2 feet **Diameter of boring:** 10 inches **Date drilled:** 3-1-91

Casing diameter: 4 inches **Length:** 45 feet **Slot size:** 0.010-inch

Screen diameter: 4 inches **Length:** 17 feet **Material type:** Sch 40 PVC

Drilling Company: Kvilhaug Well Drilling, Inc. **Driller:** Rodney and Brian

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

Depth	Sample No.	Blows	OVM	USCS Code	Description	Well Const.
0					Asphalt over road base.	
2				SM	Silty, fine to medium sand, some gravel, brown, damp, loose.	
4		12				
		20				
6	S-5.5	20	0		Grades to light brown, dense.	
8						
10		20				
		35		ML	Fine sandy silt, some gravel, light brown with iron staining, damp, hard.	
12	S-11	35	0			
14						
		30				
16		5		CL	Silty clay, some gravel, light brown, trace red and yellow staining, damp, medium plasticity, hard.	
	S-16	50	0			
18	S-17.5	50	0		Less gravel.	
20	S-20	50	0			

(Section continues downward)

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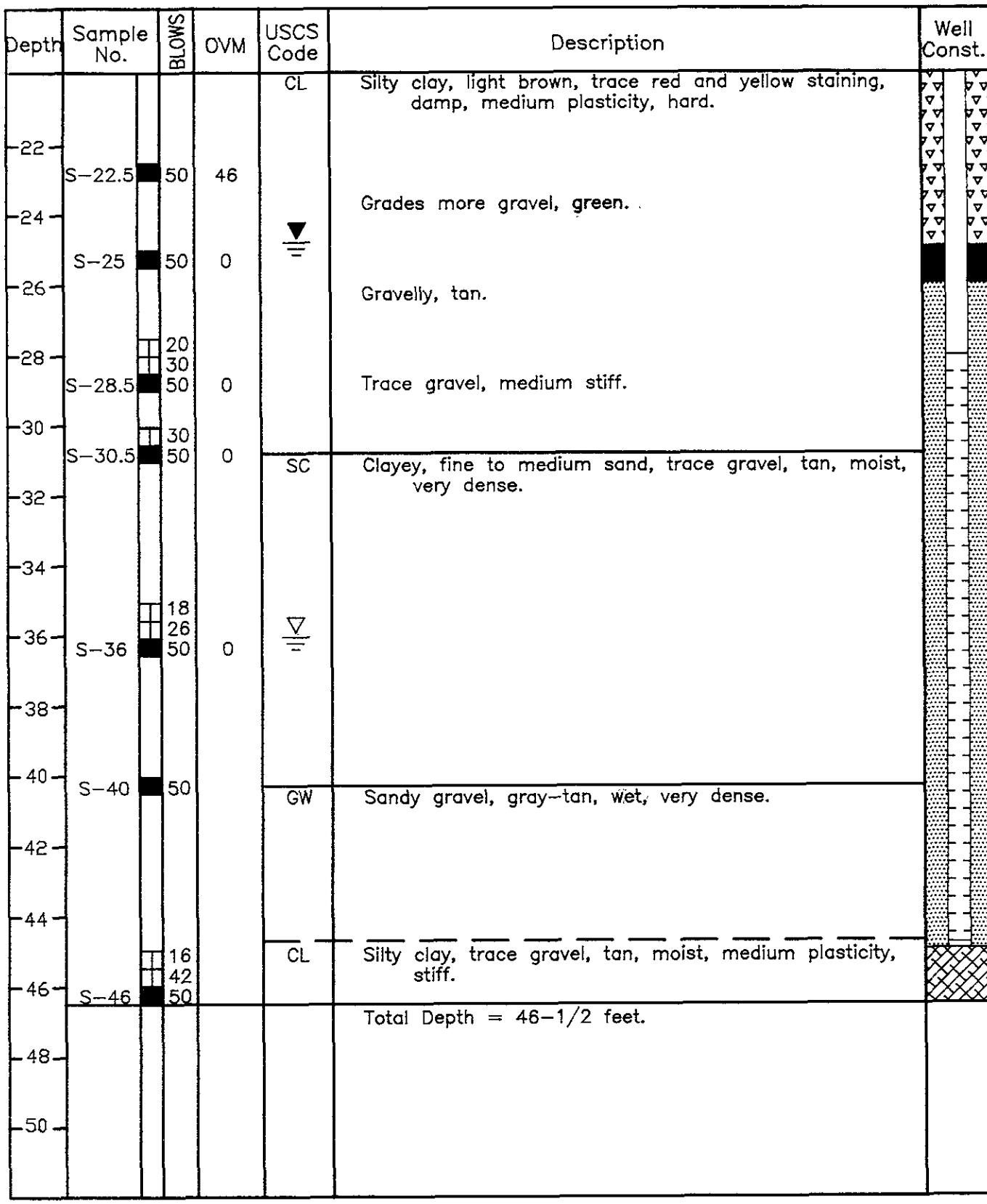
PROJECT NO. 19025-2

LOG OF BORING B-16/MW-7

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

PLATE C-9



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PROJECT NO. 19025-2

LOG OF BORING B-16/MW-7

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

PLATE
C-10

Total depth of boring: 26-1/2 feet **Diameter of boring:** 8 inches **Date drilled:** 3-7-91

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:** Rodney and Brian

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

Depth	Sample No.	Blows	OVM	USCS Code	Description	Well Const.
0					Asphalt.	
				SM	Silty, fine to medium sand, some gravel, brown, moist, loose.	
2						
4						
		2				
6	S-6	2 4	0		Grades more gravel.	
8				GP	Sandy gravel, moist, loose.	
10		4				
		4				
	S-11	5	0			
12						
14						
		12				
		18				
16	S-16	18	0	CL	Silty clay, some gravel, tan, moist, medium plasticity, hard.	
		12				
18		14				
	S-18.5	12	0	SM	Silty, fine to medium sand, some gravel, some clay, gray, moist, medium dense.	
20		8				
		18				
	S-21	28	110		Green; dense.	

(Section continues downward)

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PROJECT NO. 19025-2

LOG OF BORING B-17

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

PLATE C-11

Depth	Sample No.	BLOWS	OVM	USCS Code	Description	Well Const.
				SM	Silty, fine to medium sand, some gravel and clay, green, moist, dense.	
22		14		CL	Fine to medium sandy clay, some gravel, green, some gray, damp, moist in spots, medium plasticity, hard.	
	S-23	25				
24	S-23.5	35	>1000			
	S-25			▽		
26				⧦ GW	Sandy gravel, gray-green, wet.	
					Total Depth = 26-1/2 feet.	
28						
30						
32						
34						
36						
38						
40						
42						
44						
46						
48						
50						

Applied GeoSystems

PROJECT NO. 19025-2

LOG OF BORING B-17

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

PLATE
C-12

Total depth of boring: 27 feet **Diameter of boring:** 8 inches **Date drilled:** 3-7-91

Casing diameter: 2 inches **Length:** 27 feet **Slot size:** 0.010-inch

Screen diameter: 2 inches **Length:** 10 feet **Material type:** Sch 40 PVC

Drilling Company: Kvilhaug Well Drilling, Inc. **Driller:** Rodney and Brian

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

Depth	Sample No.	Blows	OVM	USCS Code	Description	Well Const.
0					Asphalt (3 inches) over road base (3 inches).	
2				SM	Silty, fine to medium sand, some gravel, brown, damp.	
4				CL	Silty clay, trace sand and gravel, brown, low plasticity, soft.	
6				SM	Silty, fine sand, trace gravel, light brown, damp.	
8				CL	Silty clay, trace gravel, brown with trace iron staining, damp, high plasticity.	
10						
12						
14						
16					Grades to more gravel.	
18					Gravelly, sandy, gray and brown mottled, damp, medium plasticity, rootlets.	
20					With green discoloration. (Section continues downward)	

PROJECT NO. 19025-2

LOG OF BORING B-18/VE-1

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

PLATE C-13

Depth	Sample No.	BLOWS	OVM	USCS Code	Description	Well Const.
				CL	Gravelly, sandy clay, gray and brown mottled with green discoloration, damp, medium plasticity, rootlets.	
22				SP	Gravelly, fine to medium sand, trace silt, green and brown mottled, damp.	
24						
26						
					Total Depth = 27 feet.	
28						
30						
32						
34						
36						
38						
40						
42						
44						
46						
48						
50						

Applied GeoSystems

PROJECT NO. 19025-2

LOG OF BORING B-18/VE-1

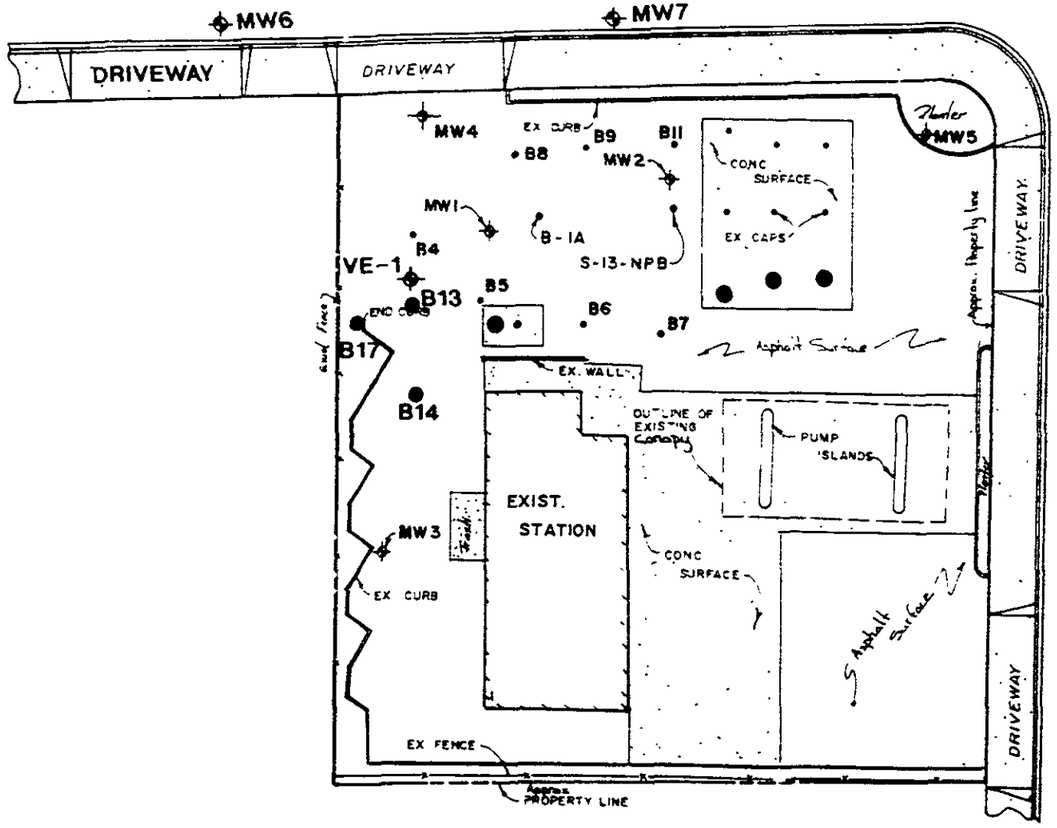
Exxon Station No. 7-7003
349 Main Street
Pleasanton, California

PLATE
C-14

APPENDIX D

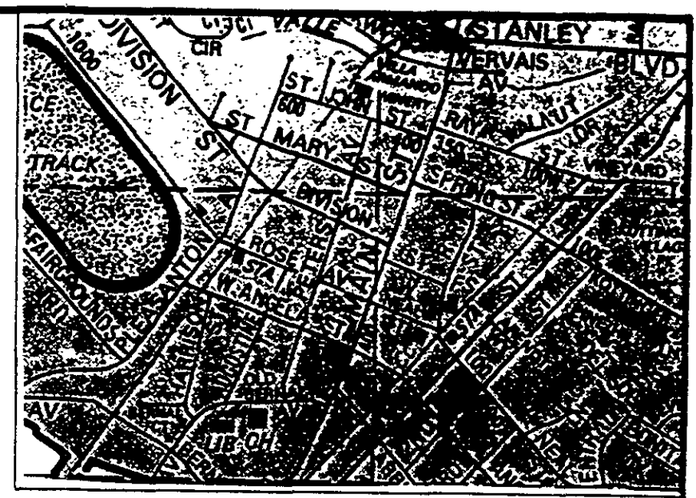
SURVEYING REPORT FROM RON ARCHER CIVIL ENGINEER, INC.

WEST ANGELA STREET



MAIN STREET

SCALE: 1" = 30'



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

Ronald R. Archer

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	342.78	TOP OF PVC CASING
	342.98	TOP OF BOX
MW4	343.38	TOP OF PVC CASING
	343.82	TOP OF BOX
MW5	345.78	TOP OF PVC CASING
	345.68	TOP OF BOX
* MW6	342.25	TOP OF PVC CASING
	342.66	TOP OF BOX
* MW7	343.62	TOP OF PVC CASING
	343.98	TOP OF BOX
* VE-1	343.38	TOP OF PVC CASING

SCALE IN FEET

0 15 30 60 90

GRAPHIC SCALE

BENCHMARK: (NO.R-1257)
TOP OF BRASS DISK STAMPED R 1257, 1974, SET IN CONCRETE 0.2@ BELOW GROUND PROTECTED BY A 4 INCH DIAMETER PLASTIC PIPE, 67.5 FEET SOUTHWEST OF THE CENTERLINE OF EAST ANGELA STREET, 39.@ 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 #3@ EAST ANGELA STREET.
ELEVATION TAKEN AS 345.63?, M.S.L., CITY OF PLEASANTON DATUM.

FEBRUARY 22, 199@
REVISED: JUNE 5, 199@
*REVISED: APRIL 9, 1991

JOB NO. 1657

PLAT SHOWING EXISTING MONITOR WELLS AT THE EXXON SERVICE STATION (NO. 7-7@@3), LOCATED AT 349 MAIN STREET AT ANGELA STREET, CITY OF PLEASANTON, ALAMEDA COUNTY, CALIFORNIA.

FOR: APPLIED GEOSYSTEMS.
PROJECT NO. 19@25-2

RON ARCHER
CIVIL ENGINEER, INC.
CONSULTING • PLANNING • DESIGN • SURVEYING
4133 Mohr Ave., Suite E • Pleasanton, CA 94566
(415) 469-6578

APPENDIX E

CHAIN OF CUSTODY RECORDS
AND
ANALYSIS REPORTS FOR SOIL

CHAIN-OF-CUSTODY RECORD

PROJ. NO.	PROJECT NAME
190253	EXXON Pleasanton
P.O. NO.	SAMPLERS (Signature)

DATE MM/DD/YY	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	ORGANIC LEAD					Preserved?	REMARKS	LABORATORY I.D. NUMBER
2/27/91		S-21-B13					X							B031018
		S-23 1/2-B13					X							019
		S-21-B14					X							020
		S-23 1/2-B14					X							021
		S-26-B15					X							022
		S-23 1/2-B16					X							023
↓		S-31-B16					X							024

RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
[signature]	3/6/91 9:30	[signature]
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature):

Laboratory: Mobile Chem.

Turn Around: 1 week

SEND RESULTS TO:
Applied Analytical
42501 Albrae Street
Fremont, California

(415) 623-0775

Proj. Mgr.: LAURA [illegible]

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

PROJ. NO.	PROJECT NAME
19025-3	Exxon Pleasanton
P.O. NO.	SAMPLERS (Signature)
	Clark A. Roberts

DATE MM/DD/YY	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	Organic Lead				Preserved?	REMARKS	LABORATORY I.D. NUMBER
02/27/91		S-21 - B13	1	X	X		X					1 week turnaround	
02/27/91		S-23½ - B13	1	X	X		X						
02/27/91		S-21 - B14	1	X	X		X						
02/27/91		S-23½ B14	1	X	X		X						
02/28/91		S-26 - B15	1	X	X		X						
03/1/91		S-23½ - B16	1	X	X		X					2-week turnaround	
03/1/91		S-31 - B16	1	X	X		X						

RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
Clark A. Roberts	03/04/91	
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature):
		Anthony Evans 11:40 3/4/91

Laboratory:

Turn Around: 2 weeks

SEND RESULTS TO:
Applied GeoSystems
42501 Albrae Street
Fremont, CA 94538
(415) 651-1906

Proj. Mgr.:

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

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

DATE MM/DD/YY	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	total lead					Preserved?	REMARKS	LABORATORY I.D. NUMBER
3/7/91		S-16-B17	1	X	X							iced		
		S-23-B17	1	X	X									
		Composite S-0307-SP1A	1	X	X		X						composite	
		Composite S-0307-SP1B	1	X	X		X							
		Composite S-0307-SP1C	1	X	X		X							
		Composite S-0307-SP1D	1	X	X		X							

RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
	3/7/91 5:00	Jo Ellen Kuszmaul
RELINQUISHED BY (Signature): Jo Ellen Kuszmaul	DATE / TIME	RECEIVED BY (Signature):
RELINQUISHED BY (Signature):	DATE / TIME 3-8 9:05	RECEIVED FOR LABORATORY BY (Signature): Anthony Ellis

Laboratory: Applied Analytical

Turn Around: 2 week

SEND RESULTS TO:
Applied GeoSystems
42501 Albrae Street
Fremont, CA 94538
(415) 651-1906

Proj. Mgr.: Clark Robertson

CHAIN-OF-CUSTODY RECORD

CHROMALAB FILE # 391054

1772

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

DATE MM/DD/YY	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	Total lead					Preserved?	REMARKS	LABORATORY I.D. NUMBER
3-7-91		S-0307-SP1(A,B,C,D)	1				X							

RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
Anthony Ceneiro	3/11 12:45	T. Donovan 3-12-91
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature):
	3-12 3.45	T. Donovan

Laboratory: Chromalab

Turn Around: 1 wk

SEND RESULTS TO:
Applied Analytical
42501 Albrae Street
Fremont, California

(415) 623-0775

Proj. Mgr.: Laura Tuck

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:	Mr. Clark Robertson	Date Sampled:	03-01-91
	Applied GeoSystems	Date Received:	03-04-91
	42501 Albrae Street	BTEX Analyzed:	03-14-91
	Fremont, CA 94538	TPHg Analyzed:	03-14-91
Project:	AGS 19025-3	TPHd Analyzed:	NR
		Matrix:	Soil

	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd
	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit:	0.005	0.005	0.005	0.005	1.0	10
SAMPLE Laboratory Identification						
S-23 1/2-B16 S1103065	ND	ND	ND	ND	ND	NR
S-31-B16 S1103061	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

March 15, 1991
Date Reported

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: Mr. Clark Robertson
Applied GeoSystems
42501 Albrae Street
Fremont, CA 94538
Project: AGS 19025-2

Date Sampled: 03-07-91
Date Received: 03-08-91
BTEX Analyzed: 03-15-91
TPHg Analyzed: 03-15-91
TPHd Analyzed: NR
Matrix: Soil

	Benzene ppm	Toluene ppm	Ethyl-benzene ppm	Total Xylenes ppm	TPHg ppm	TPHd ppm
Detection Limit:	0.005	0.005	0.005	0.005	1.0	10
SAMPLE Laboratory Identification						
S-16-B17 S1103138	ND	ND	ND	0.011	ND	NR
S-23-B17 S1103139	0.041	0.075	0.041	0.053	15	NR
S-0307-SP1A-D S1103140	ND	ND	ND	0.008	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

March 20, 1991
Date Reported

MOBILE CHEM LABS INC.

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

19025-3/011699

Applied GeoSystems, Inc.
42501 Albrae Street, Suite 100
Fremont, CA 94639
ATTN: Laura Kuck
Project Manager

Date Sampled: 02-27-91
Date Received: 03-06-91
Date Reported: 03-07-91

ORGANIC LEAD

Sample Number	Sample Description	Detection Limit ppm	SOIL RESULTS ppm
	Project No.: 19025-3 EXXON - Pleasanton		
B031018	S-21-B13	0.5	<0.5
B031019	S-23 1/2-B13	0.5	<0.5
B031020	S-21-B14	0.5	<0.5
B031021	S-23 1/2-B14	0.5	<0.5
B031022	S-26-B15	0.5	<0.5
B031023	S-23 1/2-B16	0.5	<0.5
B031024	S-31-B16	0.5	<0.5

Note: California LUFT 12/87
(ppm) = (mg/kg)

MOBILE CHEM LABS

Ronald G. Evans
Lab Director

CHROMALAB, INC.

Analytical Laboratory
Specializing in GC-GC/MS

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

March 19, 1991 ChromaLab File No.: 0391054

APPLIED ANALYTICAL, INC.

Attn: Laura Kuck

RE: One composited soil sample for total Lead analysis

Project Name: EXXON - PLEASANTON
Project Number: 19025-2
Date Sampled: March 7, 1991 Date Submitted: March 12, 1991
Date Extracted: March 18, 1991 Date Analyzed: March 18, 1991

RESULTS:

Sample No.	Total Lead (mg/Kg)
S-0207-SP1 (ABCD)	5.4
BLANK	N.D.
SPIKED RECOVERY	96.8%
DETECTION LIMIT	0.05
METHOD OF ANALYSIS	7420

ChromaLab, Inc.

David Duong
Chief Chemist

Eric Tam (by DD)
Eric Tam
Laboratory Director

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

APPENDIX F

CHAIN OF CUSTODY RECORDS
AND
ANALYSIS REPORTS FOR GROUNDWATER

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

PROJ. NO.	PROJECT NAME
19025-3	EXXON MAIN ST PROJ.
P.O. NO.	SAMPLERS (Signature)
	[signature]

DATE (MM/DD/YY)	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	VOC 601*	ORGANIC LEAD	TOG			Preserved?	REMARKS	LABORATORY I.D. NUMBER
3/19/91	11:15	W-34-MW6	6	✓	✓		✓	✓				HCl Ice	*except for MW-3 only analyze for EDB on MW-3 do all VOA. 100 HCl in VOC OR TOG 1+NO3 in ORGANIC LEAD	
	11:25	W-26-MW4	6	✓	✓		✓	✓						
	11:35	W-24-MW7	6	✓	✓		✓	✓						
	11:45	W-23-MW5	6	✓	✓		✓	✓						
	11:55	W-22-MW3	8	✓	✓		✓	✓	✓					
	12:05	W-23-MW1	6	✓	✓		✓	✓						
↓	12:15	W-23-MW2	6	✓	✓		✓	✓				↓		

RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
[signature]	3/19/91 14:00	
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature):
	3/19/91 14:00	[signature]

Laboratory: Applied Analytical

Turn Around: 2W

SEND RESULTS TO:
Applied GeoSystems
42501 Albrae Street
Fremont, CA 94538
(415) 651-1906
Proj. Mgr.: Clark Roberton

CHAIN-OF-CUSTODY RECORD

CHROMALAB FILE # 391117

1874

PROJ. NO.	PROJECT NAME
1905-3	Exxon Main St. Pleasanton
P.O. NO.	SAMPLERS (Signature)

DATE MM/DD/YY	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	VOC 601					Preserved?	REMARKS	LABORATORY I.D. NUMBER
3-19-91		W-34-MW6					X							
		W-26-MW4					X							
		W-24-MW7					X							
		W-23-MW5					X							
		W-22-MW3					X							
		W-23-MW1					X							
		W-23-MW2					X							

RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
[signature]	3/22 3:50	T. Donovan
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature):
	3-22 4:05	T Donovan

Laboratory: ChromaLab

Turn Around: 10 day

SEND RESULTS TO:
Applied Analytical
42501 Albrae Street
Fremont, California

(415) 623-0775

Proj. Mgr.: Tanna Lamb

CHAIN-OF-CUSTODY RECORD

PROJ. NO.	PROJECT NAME
19025-3	Exxon Main St Plaza
P.O. NO.	SAMPLERS (Signature)

DATE MM/DD/YY	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	Oxygenates				Preserved?	REMARKS	LABORATORY I.D. NUMBER
				ANALYSIS									
3-19-91		W-34-MW6											
		W-26-MW4											
		W-24-MW7											
		W-23-MW5											
		W-22-MW3											
		W-23-MW1											
		W-23-MW2											

RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
	3/22 11:45	
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED BY (Signature):
RELINQUISHED BY (Signature):	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature):

Laboratory: Mobile Chem

Turn Around: 10 d

SEND RESULTS TO:
Applied Analytical
42501 Albrae Street
Fremont, California

(415) 623-0775

Proj. Mgr.:

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: Mr. Clark Robertson
Applied GeoSystems
42501 Albrae Street
Fremont, CA 94538
Project: AGS 19025-3

Date Sampled: 03-19-91
Date Received: 03-19-91
BTEX Analyzed: 03-30-91
TPHg Analyzed: 03-30-91
TPHd Analyzed: NR
Matrix: Water

	Benzene ppb	Toluene ppb	Ethyl-benzene ppb	Total Xylenes ppb	TPHg ppb	TPHd ppb
Detection Limit:	0.5	0.5	0.5	0.5	50	100
SAMPLE Laboratory Identification						
W-34-MW6 W1103510	ND	ND	ND	ND	ND	NR
W-26-MW4 W1103511	1.8	0.8	2.2	11	160	NR
W-24-MW7 W1103512	ND	ND	ND	ND	140	NR
W-23-MW5 W1103513	ND	ND	ND	ND	ND	NR
W-22-MW3 W1103514	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

April 2, 1991
Date Reported

APPLIED ANALYTICAL LABORATORY IS CERTIFIED BY THE STATE OF CALIFORNIA
DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY
(Certification No. 1211)

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: Mr. Clark Robertson
Applied GeoSystems
42501 Albrae Street
Fremont, CA 94538
Project: AGS 19025-3

Date Sampled: 03-19-91
Date Received: 03-19-91
BTEX Analyzed: 03-30-91
TPHg Analyzed: 03-30-91
TPHd Analyzed: NR
Matrix: Water

	Benzene	Toluene	Ethyl-benzene	Total Xylenes	TPHg	TPHd
	ppb	ppb	ppb	ppb	ppb	ppb
Detection Limit:	0.5	0.5	0.5	0.5	50	100
SAMPLE Laboratory Identification						
W-23-MW1 W1103515	45	12	240	300	4500	NR
W-23-MW2 W1103516	10	3.4	6.1	3.8	700	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

April 2, 1991
Date Reported

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:	Mr. Clark Robertson	Date Sampled:	03-19-91
	Applied GeoSystems	Date Received:	03-19-91
	42501 Albrae Street	TOG Analyzed:	04-03-91
	Fremont, CA 94538	Matrix:	Water
Project:	AGS 19025-3	Detection Limit:	5000 µg/L

SAMPLE Laboratory Identification	TOG (µg/L)
W-22-MW3 W1103514	ND

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

ANALYTICAL PROCEDURES

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

Laboratory Representative

April 3, 1991
Date Reported

APPLIED ANALYTICAL LABORATORY IS CERTIFIED BY THE STATE OF CALIFORNIA DEPARTMENT OF HEALTH SERVICES AS A HAZARDOUS WASTE TESTING LABORATORY
(Certification No. 1211)

CHROMALAB, INC.

Analytical Laboratory (E694)

5 DAYS TURNAROUND

March 29, 1991 ChromaLab File # 0391117 A

Client: Applied Analytical Attn: Laura Kuck
Date Sampled: Mar. 19, 1991 Date Submitted: Mar. 22, 1991
Date of Analysis: Mar. 28, 1991

Project Name: Exxon Main St. Pleasanton
Project No.: 19025-3
Sample I.D.: W-34-MW6
Method of Analysis: EPA 601 Detection Limit: 0.5 µg/L

COMPOUND NAME	µg/L	Spike Recovery
CHLOROMETHANE	N.D.	---
VINYL CHLORIDE	N.D.	---
BROMOMETHANE	N.D.	---
CHLOROETHANE	N.D.	---
TRICHLOROFLUOROMETHANE	N.D.	---
1,1-DICHLOROETHENE	N.D.	82.8% 90.1%
METHYLENE CHLORIDE	N.D.	---
1,2-DICHLOROETHENE (TOTAL)	N.D.	---
1,1-DICHLOROETHANE	N.D.	---
CHLOROFORM	N.D.	---
1,1,1-TRICHLOROETHANE	N.D.	---
CARBON TETRACHLORIDE	N.D.	---
1,2-DICHLOROETHANE	N.D.	---
TRICHLOROETHENE	N.D.	91.3% 88.7%
1,2-DICHLOROPROPANE	N.D.	---
BROMODICHLOROMETHANE	N.D.	---
2-CHLOROETHYLVINYLETHER	N.D.	---
TRANS-1,3-DICHLOROPROPENE	N.D.	---
CIS-1,3-DICHLOROPROPENE	N.D.	---
1,1,2-TRICHLOROETHANE	N.D.	---
TETRACHLOROETHENE	N.D.	89.8% 85.4%
DIBROMOCHLOROMETHANE	N.D.	---
CHLOROBENZENE	N.D.	---
BROMOFORM	N.D.	---
1,1,2,2-TETRACHLOROETHANE	N.D.	86.7% 88.2%
1,3-DICHLOROBENZENE	N.D.	---
1,4-DICHLOROBENZENE	N.D.	---
1,2-DICHLOROBENZENE	N.D.	---

ChromaLab, Inc.

David Duong
Senior Chemist

Eric Tam
Lab Director

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

CHROMALAB, INC.

Analytical Laboratory (E694)

5 DAYS TURNAROUND

March 29, 1991 — ChromaLab File # 0391117 B

Client: Applied Analytical — Attn: Laura Kuck
Date Sampled: Mar. 19, 1991 — Date Submitted: Mar. 22, 1991
Date of Analysis: Mar. 28, 1991

Project Name: Exxon Main St. Pleasanton
Project No.: 19025-3
Sample I.D.: W-26-MW4
Method of Analysis: EPA 601 — Detection Limit: 0.5 µg/L

COMPOUND NAME	µg/L	Spike Recovery
CHLOROMETHANE	N.D.	---
VINYL CHLORIDE	N.D.	---
BROMOMETHANE	N.D.	---
CHLOROETHANE	N.D.	---
TRICHLOROFLUOROMETHANE	N.D.	---
1,1-DICHLOROETHENE	N.D.	82.8% 90.1%
METHYLENE CHLORIDE	N.D.	---
1,2-DICHLOROETHENE (TOTAL)	N.D.	---
1,1-DICHLOROETHANE	N.D.	---
CHLOROFORM	N.D.	---
1,1,1-TRICHLOROETHANE	N.D.	---
CARBON TETRACHLORIDE	N.D.	---
1,2-DICHLOROETHANE	N.D.	---
TRICHLOROETHENE	N.D.	91.3% 88.7%
1,2-DICHLOROPROPANE	N.D.	---
BROMODICHLOROMETHANE	N.D.	---
2-CHLOROETHYLVINYLETHER	N.D.	---
TRANS-1,3-DICHLOROPROPENE	N.D.	---
CIS-1,3-DICHLOROPROPENE	N.D.	---
1,1,2-TRICHLOROETHANE	N.D.	---
TETRACHLOROETHENE	N.D.	89.8% 85.4%
DIBROMOCHLOROMETHANE	N.D.	---
CHLOROBENZENE	N.D.	---
BROMOFORM	N.D.	---
1,1,2,2-TETRACHLOROETHANE	N.D.	86.7% 88.2%
1,3-DICHLOROBENZENE	N.D.	---
1,4-DICHLOROBENZENE	N.D.	---
1,2-DICHLOROBENZENE	N.D.	---

ChromaLab, Inc.

David Duong
Senior Chemist

Eric Tam
Lab Director

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

CHROMALAB, INC.

Analytical Laboratory (E694)

5 DAYS TURNAROUND

March 29, 1991 — ChromaLab File # 0391117 C

Client: Applied Analytical — Attn: Laura Kuck
Date Sampled: Mar. 19, 1991 — Date Submitted: Mar. 22, 1991
Date of Analysis: Mar. 28, 1991

Project Name: Exxon Main St. Pleasanton
Project No.: 19025-3
Sample I.D.: W-24-MW7
Method of Analysis: EPA 601 — Detection Limit: 0.5 µg/L

COMPOUND NAME	µg/L	Spike Recovery
CHLOROMETHANE	N.D.	---
VINYL CHLORIDE	N.D.	---
BROMOMETHANE	N.D.	---
CHLOROETHANE	N.D.	---
TRICHLOROFLUOROMETHANE	N.D.	---
1,1-DICHLOROETHENE	N.D.	82.8% 90.1%
METHYLENE CHLORIDE	N.D.	---
1,2-DICHLOROETHENE (TOTAL)	N.D.	---
1,1-DICHLOROETHANE	N.D.	---
CHLOROFORM	0.7	---
1,1,1-TRICHLOROETHANE	N.D.	---
CARBON TETRACHLORIDE	N.D.	---
1,2-DICHLOROETHANE	N.D.	---
TRICHLOROETHENE	N.D.	91.3% 88.7%
1,2-DICHLOROPROPANE	N.D.	---
BROMODICHLOROMETHANE	0.8	---
2-CHLOROETHYLVINYLETHER	N.D.	---
TRANS-1,3-DICHLOROPROPENE	N.D.	---
CIS-1,3-DICHLOROPROPENE	N.D.	---
1,1,2-TRICHLOROETHANE	N.D.	---
TETRACHLOROETHENE	N.D.	89.8% 85.4%
DIBROMOCHLOROMETHANE	N.D.	---
CHLOROBENZENE	N.D.	---
BROMOFORM	N.D.	---
1,1,2,2-TETRACHLOROETHANE	N.D.	86.7% 88.2%
1,3-DICHLOROBENZENE	N.D.	---
1,4-DICHLOROBENZENE	N.D.	---
1,2-DICHLOROBENZENE	N.D.	---

ChromaLab, Inc.

David Duong
Senior Chemist

Eric Tam
Lab Director

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

CHROMALAB, INC.

Analytical Laboratory (E694)

5 DAYS TURNAROUND

March 29, 1991 — ChromaLab File # 0391117 D

Client: Applied Analytical — Attn: Laura Kuck
Date Sampled: Mar. 19, 1991 — Date Submitted: Mar. 22, 1991
Date of Analysis: Mar. 28, 1991

Project Name: Exxon Main St. Pleasanton
Project No.: 19025-3
Sample I.D.: W-23-MW5
Method of Analysis: EPA 601 — Detection Limit: 0.5 µg/L

COMPOUND NAME	µg/L	Spike Recovery
CHLOROMETHANE	N.D.	---
VINYL CHLORIDE	N.D.	---
BROMOMETHANE	N.D.	---
CHLOROETHANE	N.D.	---
TRICHLOROFLUOROMETHANE	N.D.	---
1,1-DICHLOROETHENE	N.D.	82.8% 90.1%
METHYLENE CHLORIDE	N.D.	---
1,2-DICHLOROETHENE (TOTAL)	N.D.	---
1,1-DICHLOROETHANE	N.D.	---
CHLOROFORM	0.5	---
1,1,1-TRICHLOROETHANE	N.D.	---
CARBON TETRACHLORIDE	N.D.	---
1,2-DICHLOROETHANE	N.D.	---
TRICHLOROETHENE	N.D.	91.3% 88.7%
1,2-DICHLOROPROPANE	N.D.	---
BROMODICHLOROMETHANE	1.0	---
2-CHLOROETHYLVINYLETHER	N.D.	---
TRANS-1,3-DICHLOROPROPENE	N.D.	---
CIS-1,3-DICHLOROPROPENE	N.D.	---
1,1,2-TRICHLOROETHANE	N.D.	---
TETRACHLOROETHENE	N.D.	89.8% 85.4%
DIBROMOCHLOROMETHANE	N.D.	---
CHLOROBENZENE	N.D.	---
BROMOFORM	N.D.	---
1,1,2,2-TETRACHLOROETHANE	N.D.	86.7% 88.2%
1,3-DICHLOROBENZENE	N.D.	---
1,4-DICHLOROBENZENE	N.D.	---
1,2-DICHLOROBENZENE	N.D.	---

ChromaLab, Inc.

David Duong
Senior Chemist

Eric Tam
Lab Director

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

CHROMALAB, INC.

Analytical Laboratory (E694)

5 DAYS TURNAROUND

March 29, 1991 ChromaLab File # 0391117 E

Client: Applied Analytical Attn: Laura Kuck
Date Sampled: Mar. 19, 1991 Date Submitted: Mar. 22, 1991
Date of Analysis: Mar. 28, 1991

Project Name: Exxon Main St. Pleasanton
Project No.: 19025-3
Sample I.D.: W-22-MW3
Method of Analysis: EPA 601 Detection Limit: 0.5 µg/L

COMPOUND NAME	µg/L	Spike Recovery
CHLOROMETHANE	N.D.	---
VINYL CHLORIDE	N.D.	---
BROMOMETHANE	N.D.	---
CHLOROETHANE	N.D.	---
TRICHLOROFLUOROMETHANE	N.D.	---
1,1-DICHLOROETHENE	N.D.	82.8% 90.1%
METHYLENE CHLORIDE	N.D.	---
1,2-DICHLOROETHENE (TOTAL)	N.D.	---
1,1-DICHLOROETHANE	N.D.	---
CHLOROFORM	N.D.	---
1,1,1-TRICHLOROETHANE	N.D.	---
CARBON TETRACHLORIDE	N.D.	---
1,2-DICHLOROETHANE	N.D.	---
TRICHLOROETHENE	N.D.	91.3% 88.7%
1,2-DICHLOROPROPANE	N.D.	---
BROMODICHLOROMETHANE	N.D.	---
2-CHLOROETHYLVINYLETHER	N.D.	---
TRANS-1,3-DICHLOROPROPENE	N.D.	---
CIS-1,3-DICHLOROPROPENE	N.D.	---
1,1,2-TRICHLOROETHANE	N.D.	---
TETRACHLOROETHENE	N.D.	89.8% 85.4%
DIBROMOCHLOROMETHANE	N.D.	---
CHLOROBENZENE	N.D.	---
BROMOFORM	N.D.	---
1,1,2,2-TETRACHLOROETHANE	N.D.	86.7% 88.2%
1,3-DICHLOROBENZENE	N.D.	---
1,4-DICHLOROBENZENE	N.D.	---
1,2-DICHLOROBENZENE	N.D.	---

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CHROMALAB, INC.

Analytical Laboratory (E694)

5 DAYS TURNAROUND

March 29, 1991 — ChromaLab File # 0391117 F

Client: Applied Analytical — Attn: Laura Kuck
Date Sampled: Mar. 19, 1991 — Date Submitted: Mar. 22, 1991
Date of Analysis: Mar. 28, 1991

Project Name: Exxon Main St. Pleasanton
Project No.: 19025-3
Sample I.D.: W-23-MW1
Method of Analysis: EPA 601 — Detection Limit: 0.5 µg/L

COMPOUND NAME	µg/L	Spike Recovery
CHLOROMETHANE	N.D.	---
VINYL CHLORIDE	N.D.	---
BROMOMETHANE	N.D.	---
CHLOROETHANE	N.D.	---
TRICHLOROFLUOROMETHANE	N.D.	---
1,1-DICHLOROETHENE	N.D.	82.8% 90.1%
METHYLENE CHLORIDE	N.D.	---
1,2-DICHLOROETHENE (TOTAL)	N.D.	---
1,1-DICHLOROETHANE	N.D.	---
CHLOROFORM	12	---
1,1,1-TRICHLOROETHANE	N.D.	---
CARBON TETRACHLORIDE	N.D.	---
1,2-DICHLOROETHANE	N.D.	---
TRICHLOROETHENE	N.D.	91.3% 88.7%
1,2-DICHLOROPROPANE	N.D.	---
BROMODICHLOROMETHANE	N.D.	---
2-CHLOROETHYLVINYLETHER	N.D.	---
TRANS-1,3-DICHLOROPROPENE	N.D.	---
CIS-1,3-DICHLOROPROPENE	N.D.	---
1,1,2-TRICHLOROETHANE	N.D.	---
TETRACHLOROETHENE	N.D.	89.8% 85.4%
DIBROMOCHLOROMETHANE	N.D.	---
CHLOROBENZENE	N.D.	---
BROMOFORM	N.D.	---
1,1,2,2-TETRACHLOROETHANE	N.D.	86.7% 88.2%
1,3-DICHLOROBENZENE	N.D.	---
1,4-DICHLOROBENZENE	N.D.	---
1,2-DICHLOROBENZENE	N.D.	---

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CHROMALAB, INC.

Analytical Laboratory (E694)

5 DAYS TURNAROUND

March 29, 1991 — ChromaLab File # 0391117 G

Client: Applied Analytical — Attn: Laura Kuck
Date Sampled: Mar. 19, 1991 — Date Submitted: Mar. 22, 1991
Date of Analysis: Mar. 28, 1991

Project Name: Exxon Main St. Pleasanton
Project No.: 19025-3
Sample I.D.: W-23-MW2
Method of Analysis: EPA 601 — Detection Limit: 0.5 µg/L

COMPOUND NAME	µg/L	Spike Recovery
CHLOROMETHANE	N.D.	---
VINYL CHLORIDE	N.D.	---
BROMOMETHANE	N.D.	---
CHLOROETHANE	N.D.	---
TRICHLOROFLUOROMETHANE	N.D.	---
1,1-DICHLOROETHENE	N.D.	82.8% 90.1%
METHYLENE CHLORIDE	N.D.	---
1,2-DICHLOROETHENE (TOTAL)	N.D.	---
1,1-DICHLOROETHANE	N.D.	---
CHLOROFORM	N.D.	---
1,1,1-TRICHLOROETHANE	N.D.	---
CARBON TETRACHLORIDE	N.D.	---
1,2-DICHLOROETHANE	N.D.	---
TRICHLOROETHENE	N.D.	91.3% 88.7%
1,2-DICHLOROPROPANE	N.D.	---
BROMODICHLOROMETHANE	N.D.	---
2-CHLOROETHYLVINYLETHER	N.D.	---
TRANS-1,3-DICHLOROPROPENE	N.D.	---
CIS-1,3-DICHLOROPROPENE	N.D.	---
1,1,2-TRICHLOROETHANE	N.D.	---
TETRACHLOROETHENE	N.D.	89.8% 85.4%
DIBROMOCHLOROMETHANE	N.D.	---
CHLOROBENZENE	N.D.	---
BROMOFORM	N.D.	---
1,1,2,2-TETRACHLOROETHANE	N.D.	86.7% 88.2%
1,3-DICHLOROBENZENE	N.D.	---
1,4-DICHLOROBENZENE	N.D.	---
1,2-DICHLOROBENZENE	N.D.	---

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Federal ID #68-0140157

MOBILE CHEM LABS INC.

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

19025-3/011710

Applied GeoSystems, Inc.
42501 Albrae Street, Suite 100
Fremont, CA 94639
ATTN: Laura Kuck
Project Manager

Date Sampled: 03-19-91
Date Received: 03-22-91
Date Reported: 03-26-91

ORGANIC LEAD

Sample Number	Sample Description	Detection Limit ppm	WATER RESULTS ppm
	Project No.: 19025-3 EXXON - Main St. - Pleasant Hill		
B031058	W-34-MW6	0.1	<0.1
B031059	W-26-MW4	0.1	<0.1
B031060	W-24-MW7	0.1	<0.1
B031061	W-23-MW5	0.1	<0.1
B031062	W-22-MW3	0.1	<0.1
B031063	W-23-MW1	0.1	<0.1
B031064	W-23-MW2	0.1	<0.1

Note: California LUFT 12/87
(ppm) = (mg/kg)

MOBILE CHEM LABS

for Ronald G. Evans
Lab Director