Texaco Refining and Marketing Inc
10 Universal City Plaza
Universal City CA 91608

91 JUN 12 AM 11:10

June 9, 1991

Mr. Ariu Levi
ALAMEDA COUNTY DEPARTMENT OF
ENVIRONMENTAL PROTECTION
80 Swan Way, Room 200
Oakland, CA 95621

6/9/91

SUBJECT: INITIAL SUBSURFACE ENVIRONMENTAL INVESTIGATION
Site: 1127 Lincoln Avenue
Alameda, California

Dear Mr. Levi:

Enclosed please find a report (" Initial Subsurface Environmental Investigation " dated May 7, 1991) for the above-referenced site. As you may or may not know, Texaco Refining and Marketing Inc. is assessing this property for Mr. Leo Pagano.

Texaco Environmental Services (TES) will be managing the assessment and remediation of this site. This investigation was more comprehensive then a typical Phase I Site Assessment due to the available information regarding the presence of contamination in the soil on site. This investigation incorporated components of a Phase II Site Assessment, as well as, a Remedial Investigation. As you will read in the report, vapor-extraction points were installed and soil parameters were analyzed in order to facilitate the installation of a vapor-extraction system (VES) for the impacted soil on site. In addition, soil samples were collected at 3-foot intervals and in some cases the borings were continuously cored to facilitate a well-designed VES for optimum efficiency.

TES is currently evaluating further assessment and remedial actions for this site. In the meantime, quarterly monitoring and sampling of existing groundwater monitoring wells will be conducted.

Please forward any questions, comments and/or requests for additional information to me in writing and/or by telecommunication at (818) 505 - 2719.

Sincerely,

Rose A. Coughlin
Project Manager
TEXACO ENVIRONMENTAL SERVICES

RACn:rac
C:1127LIN.LET

Attachment (1)

cc: Lester Feldman, RWQCB-2
Leo Pagano

pr:RR (on file)

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

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

INITIAL SUBSURFACE ENVIRONMENTAL INVESTIGATION

at

Former Bay Street Station
1127 Lincoln Avenue
Alameda, California

AGS 61006.01

Report prepared for
Texaco Environmental Services
10 Universal City Plaza, 7th Floor
Universal City, California 91608
by

Applied GeoSystems

Steve Strausz
Assistant Project Geologist

Dave Higgins
Project Geologist

Diane Barclay
C. E. G. 1366

May 7, 1991

TABLE OF CONTENTS

PLATES

TABLE OF CONTENTS
(Continued)

PLATES
(Continued)

TABLES

APPENDIX A

APPENDIX B

TABLE OF CONTENTS
(Continued)

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

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

INITIAL SUBSURFACE ENVIRONMENTAL INVESTIGATION at Former Bay Street Station 1127 Lincoln Avenue Alameda, California

For Texaco Environmental Services

INTRODUCTION

Texaco Environmental Services (Texaco) contracted with RESNA\Applied GeoSystems (Applied GeoSystems) to perform an Initial Subsurface Environmental Investigation at the subject site and prepare this report of the investigation, as specified in the Work Plan for Phase I Investigation, Lewis Bay Street Station, Alameda, California, dated January 23, 1991, prepared by McLaren/Hart of Alameda, California. The purpose of this investigation was to evaluate the vertical and lateral extent of petroleum hydrocarbons, volatile-, and semi-volatile-organic compounds previously reported in the soil during removal of four underground fuel-storage tanks and one underground waste-oil-storage tank in September 1989 at the site; and to evaluate the possible impact of these compounds on the first-encountered ground water.

Work performed for this initial investigation included: drilling twelve soil borings (B-1 through B-11, and B-11A); collecting soil samples from the borings and from three hand-augured sample locations (B-10A, B-10B, B-10C); constructing 4-inch diameter ground-water monitoring wells (MW-1, MW-2, and MW-3) in borings B-1, B-2, and B-3; constructing 2-inch diameter vapor wells (VW-1 through VW-5) in borings B-4 through B-7 and B-10;

developing and sampling the ground-water monitoring wells; submitting soil and ground-water samples for laboratory analysis; performing area and historical research for potential offsite sources of petroleum hydrocarbons and volatile- and semi-volatile-organic compounds; and performing area research for sensitive receptors, water wells, and potential offsite sources. This report includes a summary of previous work performed at the site, summaries of field procedures used during this investigation, the findings and interpretation of data, and conclusions.

SITE DESCRIPTION

General

The former Bay Street Texaco Station, 1127 Lincoln Avenue, Alameda, California, is now an operating auto repair shop utilizing the building and facilities of the former service station, located in a commercial and residential area. The site location is shown on Plate 1, Site Vicinity Map. A plant nursery borders the site on the west, homes border the site to the north, and commercial and residential properties border the site across Lincoln Avenue and Bay Street to the south and east. The site is on a relatively flat asphalt-covered lot at an elevation of approximately 17 feet above mean sea level. Two 4,000-gallon gasoline-storage tanks (B and C) were formerly located in the middle of the site, two 1,000-gallon gasoline-storage tanks (D and E) were formerly located on the eastern side of the site, and one 550-gallon waste-oil-storage tank (A) was formerly located in the western portion of the site as shown on Plate 2, Generalized Site Plan. An open storm drain trench extends across the site from the repair shop along the northern boundary of the site as shown on Plate 2.

Historical Background

The present property owner, Mr Leo Pagano, reported that the former Bay Street Texaco Station was built in the early 1930's by Mr. Henry Michaels, who obtained an oil storage permit from the Alameda Fire Department on June 26, 1933 (Alameda Fire Department files) to store 2,200 gallons of gasoline in four underground storage tanks (McLaren/Hart, 1991). Mr. Pagano further reported that he subleased the station from Mr. Michaels in 1946, acquired the master lease with Texaco, Inc. from Mr. Michaels in 1957, and purchased the station and property from Mr. Michaels in 1965 (McLaren/Hart, 1991). According to Mr. Pagano, Texaco, Inc. sold him the facilities of the station in 1980 and 1982, and he continued to sell gasoline until he retired and leased the station to Mr. Nolan Eugene Lewis in January 1985. Mr. Lewis did not sell gasoline after acquiring the lease.

According to Alameda Fire Department records, four 550-gallon gasoline-storage tanks were removed and replaced by four 1,000-gallon gasoline-storage tanks in February 1950. Two of the 1,000-gallon tanks were removed and replaced by one 4,000-gallon gasoline tank in June 1955. No Alameda Fire Department record was found regarding the first installation of a second 4,000-gallon gasoline tank. Mr. Pagano reported that Texaco, Inc. replaced one of the 4,000-gallon tanks in 1975 (McLaren/Hart, 1991). The California State Underground Storage Tank Database records that one 4,000-gallon premium fuel tank was installed in 1981. This database also records two 1000-gallon unleaded fuel tanks, one 4,000-gallon regular fuel tank, and one 500-gallon waste-oil tank with no installation dates listed. An Alameda Fire Department site inspection on September 30, 1986 reported four empty gasoline tanks onsite, and noted that they originally contained the same fuel products recorded by the State database. According to Alameda Fire Department records, two

4,000-gallon gasoline-, two 1,000-gallon gasoline-, and one 550-gallon waste-oil-storage tanks were removed on September 11, 1989.

Alameda Fire Department records show no violations resulting from inspections of the site from 1980 to 1990. Prior to 1980, two violation notices were recorded for the site: on September 27, 1960, for unsafe wiring, improper disposal of flammable liquids in gravity feed drums, and combustibles stored behind grease rack; and, on January 19, 1972, for a 50-gallon white gas container without an approved dispenser.

REGIONAL AND LOCAL GEOLOGY AND HYDROGEOLOGY

Geology

The site is on the central portion of Alameda Island, at the eastern margin of San Francisco Bay within the East Bay Plain, in the south-central portion of the Oakland Alluvial Plain (Hickenbottom, 1988). The East Bay Plain lies within the Coast Range geomorphic province and is characterized by broad alluvial fan margins sloping westward into San Francisco Bay.

Helley, et al. (1979) mapped the surface deposits of most of Alameda Island as Pleistocene-age Merrit Sand, with a maximum thickness of 65 feet. The Merrit Sand is a loose, well-sorted fine- to medium-grained sand with silt and lenses of sandy clay. The Merrit Sand is chiefly derived as a wind- and water-deposited beach and nearshore deposit, and is underlain by older Pleistocene alluvium consisting of layers of poorly consolidated to unconsolidated clay, silt, sand, and gravel of thickness up to 1,100 feet (Atwater, 1977; Hickenbottom, 1988).

Hydrogeology

Alameda County uses ground water as part of its domestic water supply. The remainder of the water supply is derived from surface reservoirs and from imported water that is transported in from the Mokelumne Aqueduct, the State Water Project, and the Hetch Hetchy Aqueduct (Hickenbottom, 1988).

Ground-water quality in the water-bearing units of the Oakland Alluvial Plain is generally good (meets recommended primary and secondary standards for drinking water). The most productive water wells in the Oakland Alluvial Plain are those completed within the older alluvium units. These units contain appreciable quantities of ground water, and are therefore considered to be the principal ground-water reservoir in the East Bay Plain area. The Merrit Sand is not considered a primary source of ground-water supply because of its limited areal distribution and thickness.

The site is located approximately ½-mile south of the Inner Harbor of the tidal channel between Alameda Island and the city of Oakland.

AREA RESEARCH

At Texaco's request, Applied GeoSystems performed research of the area within an approximately ¼-mile radius of the site for sensitive receptors, nearby wells, and potential offsite sources of petroleum hydrocarbons. The information used to perform area research of the site vicinity was obtained from the following sources:

- U.S. Environmental Protection Agency (EPA) records including:

  1. National Priorities List (NPL);
  2. Facility Index System (FINDS);
  3. Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS);
  4. Resource Conservation and Recovery Act (RCRA);
  5. Emergency Response Notification System (ERNS); and
  6. Solid Waste Facilities Not in Compliance with RCRA Subtitle D Criteria (Open Dump).

- California State (CA) agency databases including:

  1. CA Department of Environmental Affairs Facility Inventory Database (CALFID);
  2. CA Department of Health Services (DHS) Hazardous Cleanup Bond Act of 1984 Bond Expenditure Program (CALBEP);
  3. DHS Hazardous Waste and Substance Sites Pursuant to AB3750 (CORTESE);
  4. DHS Abandoned Sites Program Information System (ASPIS);
  5. DHS California Safe Drinking Water and Toxic Enforcement Act (Proposition 65) records of known discharges and releases; and
  6. CA Water Resources Control Board (WRCB) records of registered underground storage tanks.

- Alameda County Flood Control and Water Conservation District water well records (ACFCWD).

- Alameda Fire Department (AFD) records.

- Inspection of air photos on file at Pacific Aerial Survey, of Oakland, California for the years 1947, 1953, 1959, 1969, 1975, 1979, 1985, and 1990.

- U.S. Geological Survey 7.5-minute Quadrangle Oakland West, revised 1980.

- Physical reconnaissance of the site area and discussion with residents of the site vicinity.

Features identified during this area research are shown on Plate 3, Area Research Map.

Sensitive Receptors

Homes in the vicinity of the site, including the rental unit bordering the site to the north, have shallow basements which could be impacted by the subsurface movement of product offsite.

The only school within a ¼-mile radius site is the former Mastick Elementary School, located south of the site. This school was closed approximately two years ago and the school facilities leased indefinitely as a senior citizens' activity center.

There are no surface bodies of water nor any water supply wells within a ¼-mile radius of the site.

Well Research

According to the files of the AFCWDC, there are two approximately 120 feet deep cathodic protection wells, and no water supply, industrial, nor monitoring wells within a ¼-mile radius of the site.

Potential Offsite Sources

According to AFD and California Water Resources Control Board (WRCB) underground storage tank files, there are or have been at least 15 sites with underground gasoline-, diesel-, heating-oil-, or distillate-storage tanks within an approximately ¼-mile radius of the site. Twelve of these sites are included in AFD records dated prior to 1943. Records of the present disposition of these underground storage tanks are sparse, with the exception

of the former Bay Street Texaco Station and Del Monte Corporation. Four of the sites, including the former Bay Street Texaco Station, Encinal Terminals, Del Monte Corporation, and Gasco Service Station #784 are included in the WRCB underground storage tank files (Encinal Terminals and Gasco Service Station #784 are located just outside of the ¼-mile radius).

Inclusion of three sites in the CALFID, ERNS, or RCRA databases indicates these sites as potential sources of petroleum hydrocarbons or volatile organic compounds (VOCs). Encinal Terminals, at 1521 Buena Vista Avenue, Alameda, California has been included in the CALFID and ERNS databases. Del Monte Corporation, at Sherman Street and Buena Vista Avenue, Alameda, California has been included in the RCRA database. A potential source of VOCs, Elegant Cleaners, at 1208 Lincoln Avenue, Alameda, California has been included in the CALFID and RCRA databases. These sites are shown on Plate 3.

Applied GeoSystems' review of air photos (Pacific Aerial Surveys, 1990, 1985, 1979, 1975, 1969, 1959, 1953, and 1947) has yielded visual evidence of a service station located on the northeast corner of Lincoln Ave and 9th Street on the air photos taken in 1953 and 1959. This is based on the appearance of a building and drive-through canopy on these airphotos. These facilities were removed between the 1959 and 1969 air photos. Applied GeoSystems found no other evidence of a service station located at this address.

PREVIOUS WORK

Others have performed environmental work at the site under contract to the property owner, Mr. Leo Pagano, prior to Applied GeoSystems' performance of this investigation under contract to Texaco Environmental Services. According to the work plan (McLaren/Hart,

1991), the removal of four gasoline underground storage tanks and one waste-oil underground storage tank was performed by Zaccor, and soil samples were collected by Environmental Bio-Systems. No ground water was encountered in the excavations to the total depth of approximately 13 feet below the ground surface.

Environmental Bio-Systems collected twelve soil samples from the bottom and side-walls of the former gasoline-storage tank excavations at depths from 7.5 to 12.0 feet, and one soil sample from the bottom of the former waste-oil-storage tank excavation at a depth of 7.5 feet (McLaren/Hart, 1991).

Soil samples collected from the former gasoline-storage tank excavations were analyzed for total petroleum hydrocarbons as gasoline (TPHg) using the California State Department of Health Services (DHS) Leaking Underground Fuel Tank Manual (LUFT Manual) method, and for the gasoline constituents benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Method 8020. In addition, the sample obtained from beneath the former waste-oil-storage tank was analyzed for total petroleum hydrocarbons as diesel (TPHd) and total oil and grease (TOG) using methods unspecified in the McLaren/Hart work plan, volatile-organic compounds (VOCs) using EPA Method 8240, semi-VOCs using EPA Method 8270, and for cadmium, chromium, lead, and zinc by atomic adsorption spectroscopy (McLaren/Hart, 1991).

Laboratory analysis of the soil samples collected from the former gasoline-storage tank excavation reported concentrations of TPHg from 3.7 to 6,200 parts per million (ppm). Analysis of the soil sample collected from the bottom of the former waste-oil-storage tank excavation reported nondetectable levels of TPHg, BTEX, TPHd, TOG, VOCs (with the exception of 0.61 ppm acetone), and semi-VOC. Concentrations of the metals cadmium,

chromium, lead, and zinc detected in this sample were at the low ends of common ranges for these elements in soil. The results of these previous laboratory analysis of soil samples are included in Table 1, and the reported TPHg concentrations are shown with sample locations on Plate 4. It is not clear from the information currently available to us whether further excavation was performed in the areas of the former tank excavations, and whether any investigation was performed regarding the product pipelines.

FIELD WORK

The field work performed as part of this subsurface investigation is described below. A summary of the field procedures employed by Applied GeoSystems is included in Appendix A. Work for this investigation was performed in accordance with the Site Safety and Health Plan (McLaren/Hart, 1990).

Drilling

A well construction permit was acquired from the Alameda County Health Department (ACHD) prior to drilling at the site. A copy of the permit is included in Appendix B. On March 12 through 14, 1991, 11 soil borings (B-1 through B-11) were drilled, ground-water monitoring wells (MW-1, MW-2, and MW-3) were constructed in borings B-1, B-2, and B-3, and vapor monitoring/extraction wells (VW-1 through VW-5) were constructed in borings B-1 through B-4 and B-10, respectively. On March 15, 1991, shallow soil borings B-10A, B-10B, and B-10C were hand augered. An additional soil boring B-11A, was drilled on April 4, 1991. The locations of soil borings, hand-auger samples, ground-water monitoring wells, and vapor wells are shown on Plate 2, Generalized Site Plan.

Soil borings B-1 through B-3 (monitoring wells MW-1, MW-2, and MW-3) were located near and surrounding the area of the former gasoline-storage tanks and former fuel pumps to evaluate the vertical and lateral extent of previously reported petroleum hydrocarbons in the soil, and to evaluate the potential impact of these compounds on first-encountered ground water beneath the site. Soil borings B-5, B-6, and B-7 were located to evaluate the vertical and lateral extent of petroleum hydrocarbons in soil in the vicinity of the former 1,000-gallon gasoline-storage tanks. Soil borings B-4, B-8, and B-9 were located to evaluate the vertical and lateral extent of petroleum hydrocarbons in the soil in the vicinity of the former 4,000-gallon gasoline-storage tanks. Soil boring B-10 and hand-auger samples B-10A, B-10B, and B-10C were located to evaluate the vertical and lateral extent of petroleum hydrocarbons in the soil adjacent to and below the locations of the former product pumps. Soil borings B-11 and B-11A were located to evaluate the vertical and lateral extent of petroleum hydrocarbons, VOCs, and semi-VOCs in the soil in the vicinity of the former waste-oil-storage tank.

Soil Sampling and Description

A total of 49 soil samples were collected from the soil borings and described using the Unified Soil Classification System (Plate 5) as indicated on the Logs of Borings, Plates 6 through 20. Soil samples from the borings were collected at intervals of 3 feet or less from the surface to total depths of the borings. Sampling procedures are described in Appendix A.

The earth materials encountered at the site during this assessment consisted of minor silty gravel backfill, and fine- to medium-grained silty sand backfill and native soil (See Geologic

Cross Sections A-A', B-B', and C-C', Plate 18). Ground-water was first encountered in the borings at a depths of approximately 6 to 9¾ feet below the ground surface.

Monitoring Well Construction and Development

Ground-water monitoring wells MW-1, MW-2, and MW-3 were constructed in borings B-1, B-2, and B-3, respectively. These wells were completed with 4-inch-diameter, Schedule 40, polyvinyl chloride (PVC) casing. The well casings were set in the wells to total depths of approximately 20 feet below ground surface. The screened casing for the monitoring wells consists of 4-inch-diameter, 0.020 inch machine-slotted PVC set from the total well depths to approximately 5 feet. Blank PVC casing was set from the top of the screened casing to within a few inches below the ground surface. Prior to constructing the ground-water monitoring wells, a representative sample of the aquifer sediments was collected from boring B-7 at a depth of 15½, and submitted for sand-size analysis to Johnson Filtration Systems, Inc. (JFS), of New Brighton, Minnesota. JFS recommended using Number (No.) 12 X 20 sand size filter pack and 0.030-inch screen slot size, based on the results of the sand-size analysis. Number 2 X 16 sand was used for wells MW-1, MW-2, and MW-3, according to the recommended size range in the finer end, and to facilitate well construction with the coarser fraction. Size 0.020-inch screen slot size was used to avoid pulling sand pack fines into the well casing. Wells MW-1, MW-2, and MW-3 were developed on March 15, 1991 to remove fine-grained sediments and to allow better communication between the water-bearing zone and the ground-water monitoring wells.

Vapor monitoring/extraction wells VW-1 through VW-5 were constructed in borings B-4 through B-7 and B-10, respectively. Vapor wells were constructed in borings which yielded field-measured organic vapor meter (OVM) readings of any soil sample collected from the

boring above 100 units (units approximately correspond to parts per million), at the request of Texaco. These wells were completed with 2-inch-diameter, Schedule 40, polyvinyl chloride (PVC) casing. The well casings were set in the wells to total depths just above ground water at the time of construction (approximately 9 feet below ground surface for VW-2 through VW-5 constructed on March 12, 1991, and approximately 8 feet for VW-1 constructed on March 13, 1991). Ground water levels at the site had risen from approximately 9¾ feet deep on March 12, 1991 to approximately 7½ feet deep on March 13, 1991, after heavy rains on March 12, 1991. The screened casing for the vapor wells consists of 2-inch-diameter, 0.020 inch machine-slotted PVC set from the total well depths to approximately 5 or 6 feet. Blank PVC casing was set from the top of the screened casing to within a few inches below the ground surface. Coarse, Monterey No. 2 size sand was used for the filter pack to facilitate air movement through the vapor wells. Details regarding well construction and development procedures are described in Appendix A.

Surveying and Ground-Water Sampling

Well casing top elevations were surveyed to a U. S. Coast and Geodetic Survey Elevation Datum by Ron Archer Civil Engineer, Inc., on March 22, 1991. Depths-to-water were measured in ground-water monitoring wells MW-1, MW-2, and MW-3, and vapor wells VW-2 through VW-5 and water samples were collected and visually inspected for floating product on March 22 and April 4, 1991. Well casing top elevations, measured depths-to-water, and evaluated ground-water elevations are presented in Table 2. Initial water samples collected from ground-water monitoring wells MW-1, MW-2, and MW-3, and vapor wells VW-2 and VW-3 showed no visual evidence of hydrocarbon product. Initial water samples collected from vapor wells VW-4 and VW-5 showed a product sheen on the surface of the water.

Ground-water monitoring wells MW-1, MW-2, and MW-3 were purged and sampled on March 22, 1991. Appendix A contains a description of subjective analysis and ground-water sampling procedures.

GROUND-WATER GRADIENT

The magnitude of the ground-water gradient and direction of ground-water flow at the site is 0.006 (0.6 feet vertical drop over 100 feet horizontal distance) toward the north-northeast, based on the March 22, 1991, and April 4, 1991, depth-to-water measurements for ground-water monitoring wells MW-1, MW-2, and MW-3. The ground-water gradient evaluated for the April 4, 1991, depth-to-water measurements is presented graphically on Plate 22.

LABORATORY METHODS

Soil samples collected from borings B-1 through B-11 and hand-auger samples B-10A, B-10B, and B-10C were analyzed in accordance with Alameda County Health Department (ACHD) requirements for the gasoline constituents BTEX and TPHg using modified EPA Methods 5030/8015/8020. One soil sample with the highest field measured OVM reading, or collected from just above ground water, from each of borings B-1 through B-11 was submitted for laboratory analysis for TPHd using EPA Method 3550/8015. Soil samples collected from boring B-11A adjacent to the former waste-oil tank were analyzed for VOCs using EPA Method 8010, semi-VOCs using EPA Method 8270, and TOG using EPA Method 5520E/F (soil samples originally collected from boring B-11 for analysis of VOCs, semi-VOCs, and TOG were retained past the holding times by the laboratory, requiring the subsequent drilling and resampling of boring B-11A). These soil samples were selected for laboratory analysis based on:

- Location above first-encountered ground-water;
- Areas where the presence of petroleum hydrocarbons were suspected; and
- Maximum of 5-foot intervals and or change in stratigraphic units, as recommended by State Department of Health Services (DHS) guidelines.

Water samples obtained from ground-water monitoring wells MW-1, MW-2, and MW-3 were analyzed in accordance with ACHD requirements for BTEX and TPHg by modified EPA Methods 5030/8015/602, for TPHd using EPA Methods 3510/8015, and for VOC using EPA Method 624/8240.

The results of soil and ground-water sample chemical analyses are summarized in Tables 3 and 4. Chain of Custody Records and laboratory analysis reports are included in Appendix D.

In addition, one soil sample collected at a depth of 15½ from boring B-7 was submitted to Johnson Filtration Systems Inc. laboratory in St. Paul, Minnesota on March 12, 1991, for particle size distribution analysis to aid ground-water monitoring well design. The results of analysis and design recommendations are included in Appendix E.

CONCLUSIONS

Soil

Diesel, oil and grease, and volatile and semi-volatile organic compounds do not appear to have impacted the shallow soil at the site.

Gasoline hydrocarbons have impacted shallow soils at the site in the vicinity of the former gasoline-storage tanks and former product pumps. The areas of highest concentrations of TPHg in the soil are in the vicinity of the former 1,000-gallon gasoline-storage tanks, south of the former 4,000-gallon gasoline-storage tanks, and in the vicinity of the former product pumps, at depths of 5½ to 8½ feet, as shown graphically on Plate 23. The lateral extent of gasoline hydrocarbons has been evaluated to nondetectable (1.0 ppm) in the western and extreme southeastern portions of the site.

The distribution of TPHg in the soil suggests that the former gasoline-storage tanks, and possibly the product lines, were sources of the hydrocarbons detected in the soil. The relatively high concentrations of gasoline hydrocarbons reported in soil samples collected from borings B-1 and B-5 along the eastern boundary of the site, and B-4 and B-10 upgradient of the tanks and product lines, suggest possible offsite sources of gasoline hydrocarbons in the soil at the site. This suggestion is supported by the presence of several underground gasoline-storage tank sites found during Applied GeoSystems' area research. Movement of gasoline hydrocarbons in the shallow soil in the vicinity of the site may be facilitated by fluctuating ground-water levels in the vicinity of the site.

Ground Water

Diesel, VOCs, and semi-VOCs do not appear to have impacted shallow ground water at the site. While some hydrocarbons were detected by analysis of ground water samples for diesel, these hydrocarbons are likely due to the presence of gasoline in the ground water.

The ground water at the site has been impacted by gasoline hydrocarbons, based on detectable levels of TPHg and BTEX reported in ground-water samples obtained from

ground-water monitoring wells MW-1, MW-2, and MW-3. The benzene concentrations reported in the water samples obtained from these wells exceed the California State Department of Health Services maximum contaminant level for benzene (1 ppb) in drinking water. The concentrations of gasoline hydrocarbons in the ground water appear to be increasing toward the north (downgradient direction) onsite, suggesting an onsite source (See Plates 24 through 26, TPHg, Benzene, and Toluene Concentrations in Ground Water). The presence of concentrations of gasoline hydrocarbons in the water sample obtained from well MW-2 (upgradient of the former 1,000-gallon gasoline-storage tanks) exceeding the concentrations of gasoline hydrocarbons in the shallow soil in boring B-2/MW-2 suggests a possible offsite source of a portion of the gasoline hydrocarbons in the ground water.

LIMITATIONS

This report was prepared in accordance with generally accepted standards of environmental geological practice in California at the time this assessment was performed. This assessment was conducted solely for the purpose of evaluating environmental conditions of the soil and ground water with respect to gasoline and waste-oil hydrocarbons at the site. No soil engineering or geotechnical references are implied or should be inferred. Evaluation of the geologic conditions at the site for the purpose of this assessment is made from a limited number of observation points. Subsurface conditions may vary away from the data points available. Additional work, including further subsurface investigation, can reduce the inherent uncertainties associated with this type of assessment. This report has been prepared solely for Texaco Environmental Services, and any reliance on this report by third parties shall be at such party's sole risk.

REFERENCES

Atwater, B.F., and E.J. Helley, 1977, Late Quaternary Depositional History, Holocene Sea-Level Changes, and Vertical Crustal Movement, Southern San Francisco Bay, California, U.S. Geological Survey Professional Paper 1014.

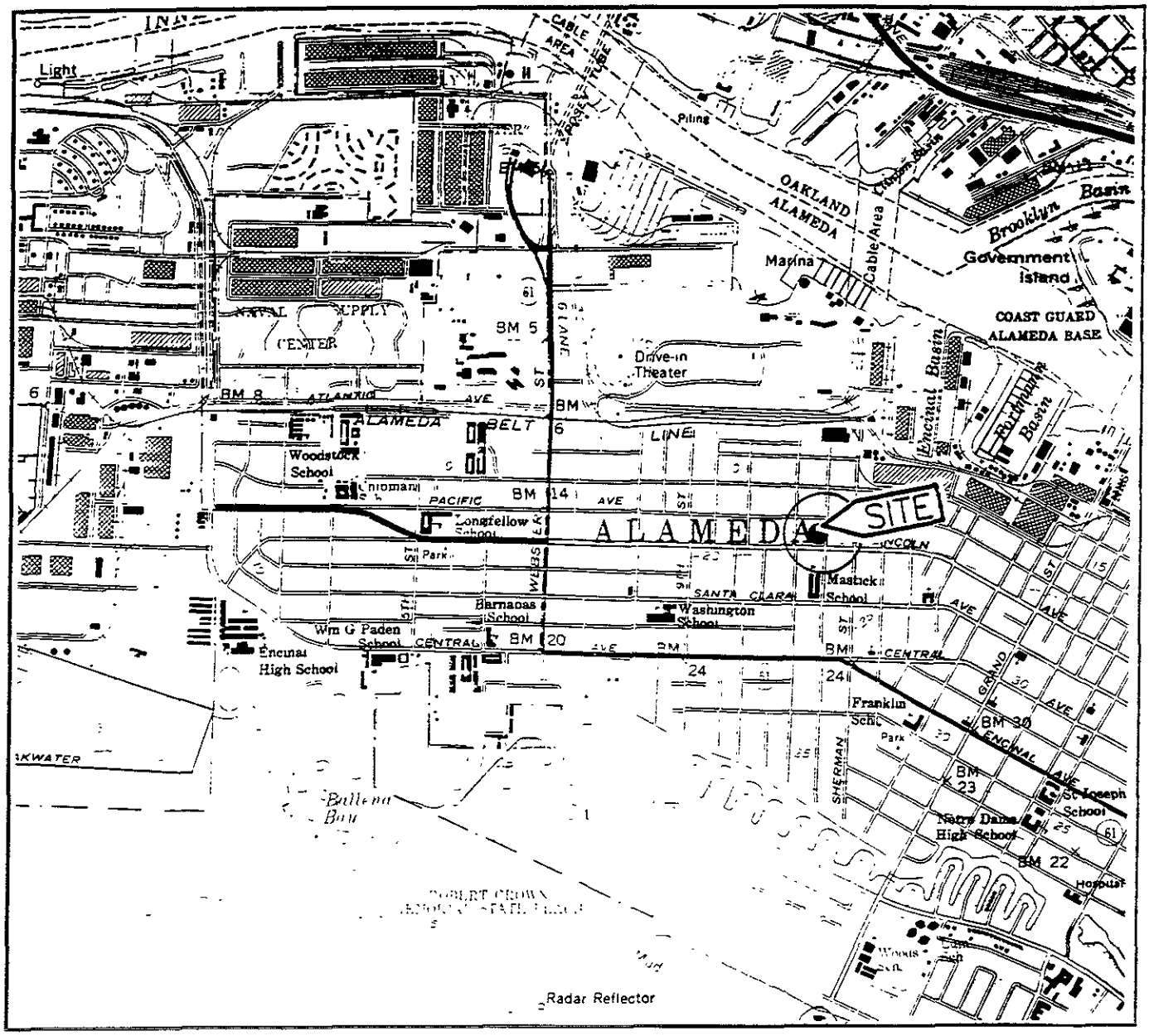
Helley, E.S., K.R. Lajoie, W.E. Spangle, and M.S. Blair, 1979, Flatland Deposits of the San Francisco Bay Region, California, U.S. Geological Survey Professional Paper 943.

Hickenbottom, Kelvin, and Muir, Kenneth, June 1988, Geohydrology and Groundwater-Quality Overview, of the East Bay Plain Area, Alameda County, California, Report 205 (j).

McLaren/Hart, November 29, 1990, Texaco-Alameda Site Safety and Health Plan, Project 88705-001.

McLaren/Hart, January 23, 1991, Work Plan for Phase I Investigation, Lewis Bay Street Service Station, Alameda, California, Project 88705-001.

Pacific Aerial Surveys, Air Photos including: 3845-8-31&32, dated 6/12/90; 6240-5-20&21, dated 5/15/85; 1750-5-20&21, dated 9/14/79; 1193-5-17&18, dated 5/29/75; 902-5-19&20, dated 5/2/69; 337-6-31&32, dated 3/24/59; 119-10-38&39, dated 8/14/53; 11-6-6&7, dated 1947.



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

Approximate Scale

2000 1000 0 2000

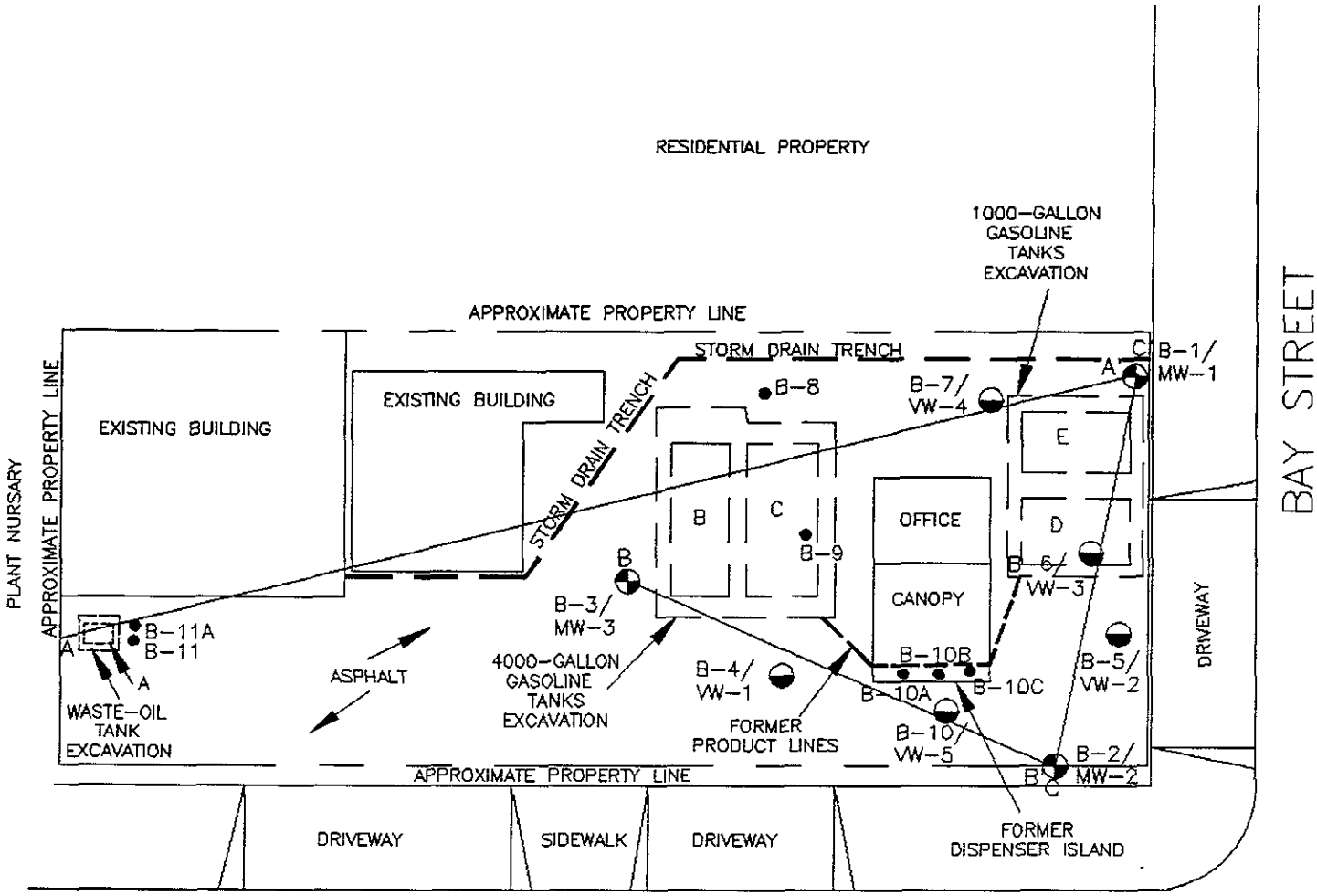
1" = 2000'

Applied GeoSystems

PROJECT 61006-1

SITE VICINITY MAP
Former Bay Street Station
1127 Lincoln Avenue
Alameda, California

PLATE
1



EXPLANATION

B-10C ● = Soil boring (Applied GeoSystems, March and April 1991)

B-10/ VW-5 = Vapor monitoring/extraction well (Applied GeoSystems, March 1991)

B-3/ MW-3 = Ground-water monitoring well (Applied GeoSystems, March 1991)

C C' = Geologic cross sections

E = Former underground storage tank locations

N

Approximate Scale

20 10 0 20 40

feet

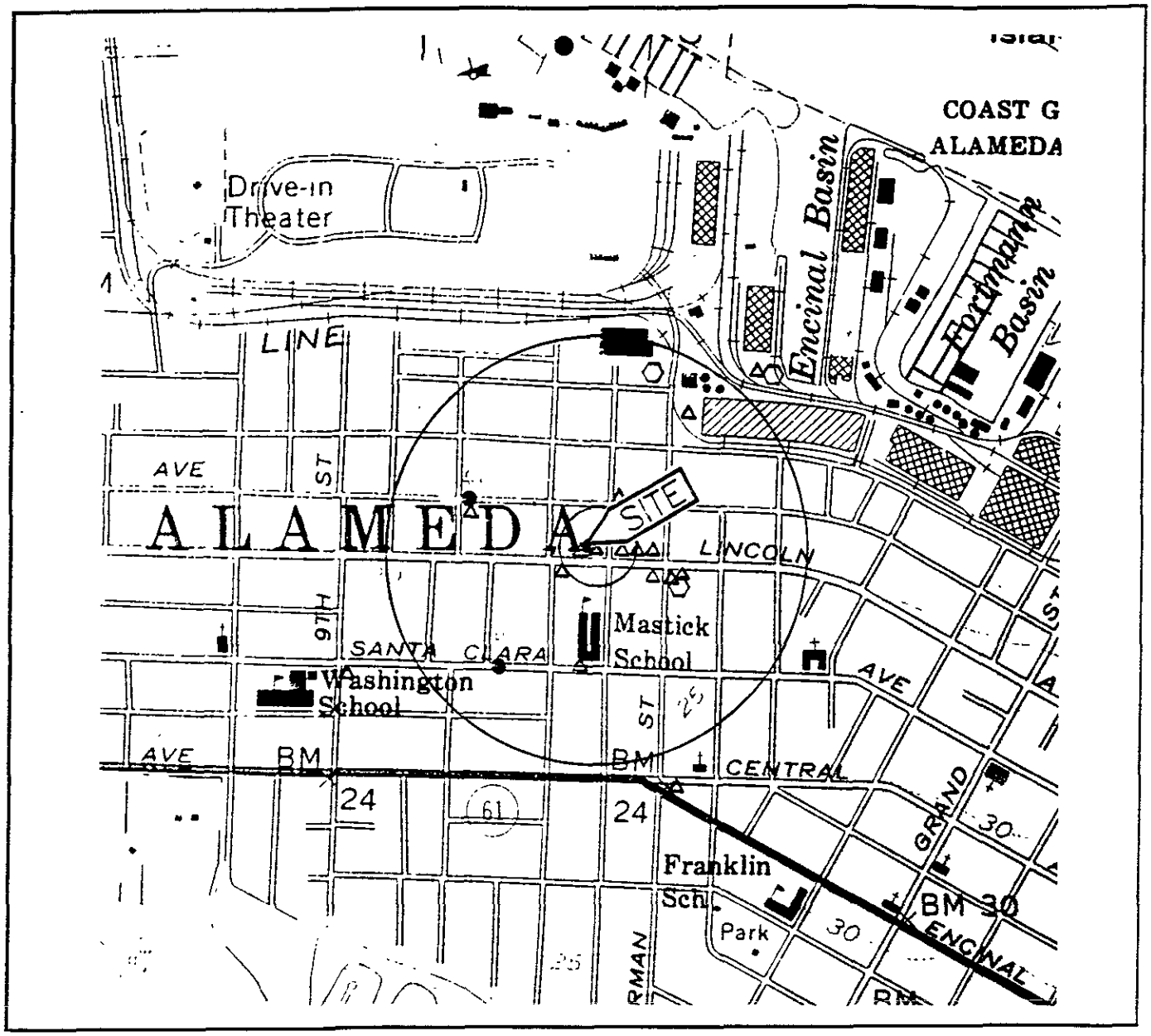
Source: Surveyed by Ron Archer, Civil Engineer, Inc March 1991

Applied GeoSystems

PROJECT 61006-1

GENERALIZED SITE PLAN
Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

PLATE 2



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

● = Water wells (Cathodic Protection)

— = Underground [illegible]

□ = Federal Emergency [illegible] System (EPA)
Federal Resource Conservation and Recovery Act
Information System (RCRA)
California Equivalent Database (CALEPA) sites

N

Approximate Scale

500 0 500

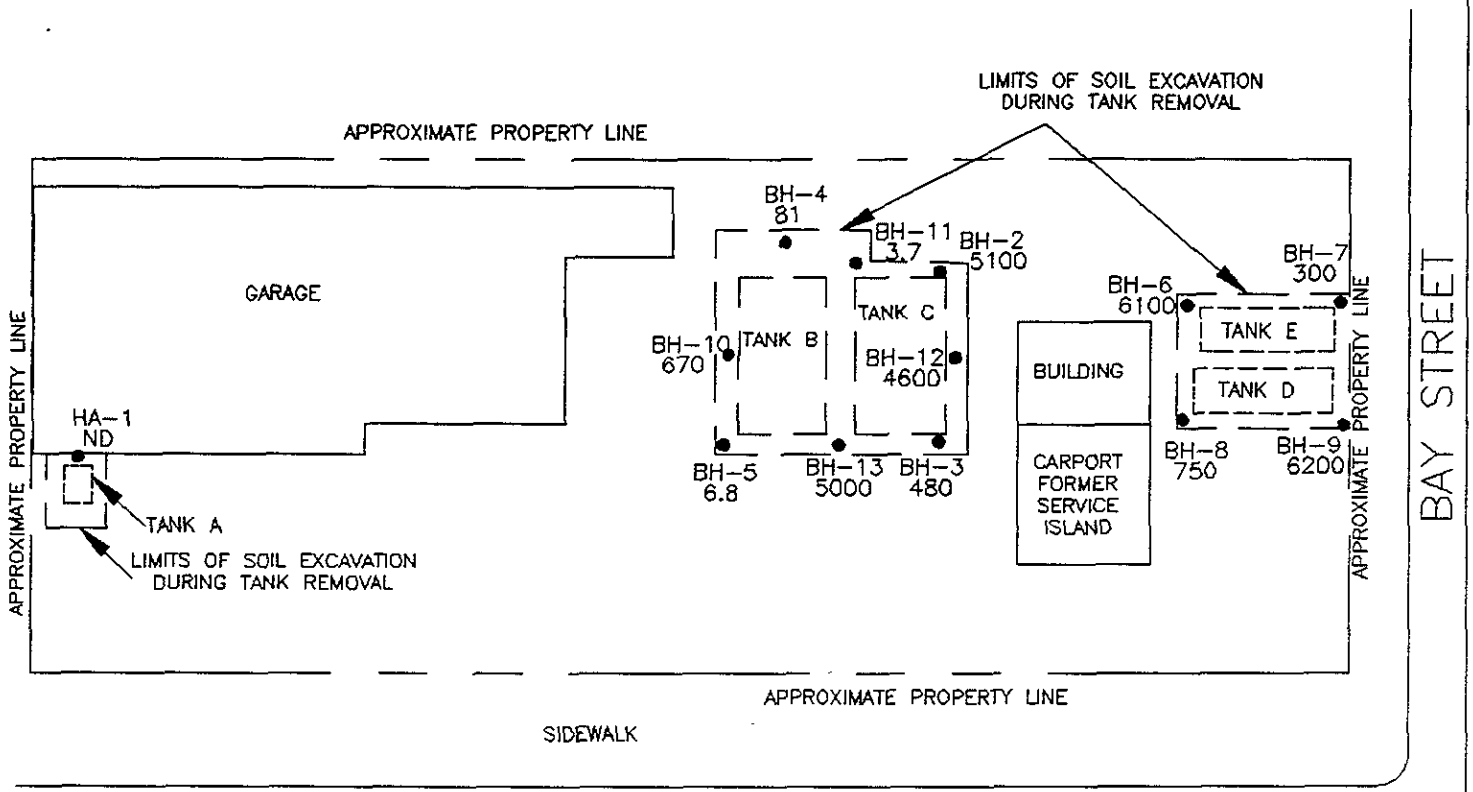
Feet

Applied GeoSystems

AREA RESEARCH MAP
(1/4-Mile Radius)
Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

PLATE 3

PROJECT 61006-1



LINCOLN AVENUE

EXPLANATION

HA-1 ● = Soil sampling location (Environmental-Bio-Systems, 9/11/89)

6,200 = Concentration of TPHg in ppm

ND = Not detected above reporting limit

N

Approximate Scale

30 15 0 30 60

feet

Applied GeoSystems

PROJECT 61006-1

TANK EXCAVATION SOIL SAMPLES
Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

PLATE
4

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISION		LTR	DESCRIPTION	MAJOR DIVISION		LTR	DESCRIPTION
COARSE-GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW	Well-graded Gravels or Gravel-Sand mixtures, little or no fines.	FINE-GRAINED SOILS	SILTS AND CLAYS LL<50	ML	Inorganic Silts and very fine sands, rock flour, Silty or Clayey fine Sands, or Clayey Silts with slight plasticity.
		GP	Poorly-graded Gravels or Gravel-Sand mixtures, little or no fines.			CL	Inorganic Clays of low to medium plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays.
		GM	Silty Gravels, Gravel-Sand-Silt mixtures.			OL	Organic Silts and Organic Silt-Clays of low plasticity
		GC	Clayey Gravel, Gravel-Sand-Clay mixtures.		SILTS AND CLAYS LL>50	MH	Inorganic Silts, micaceous or diatomaceous fine Sandy or Silty Soils, Elastic Silts.
	SAND AND SANDY SOILS	SW	Well-graded Sand or Gravelly Sands, little or no fines.			CH	Inorganic Clays of high plasticity, fat Clays.
		SP	Poorly-graded Sands or Gravelly Sands, little or no fines.			OH	Organic Clays of medium to high plasticity, organic Silts.
		SM	Silty Sands, Sand-Silt mixtures.				
		SC	Clayey Sands, Sand-Clay mixtures.	HIGHLY ORGANIC SOILS		PT	Peat and other highly Organic Soils.


Depth through which sampler is driven


Relatively undisturbed sample


No sample recovered


Static water level observed in well/boring


Initial water level observed in boring

S-10 Sample number


Sand pack


Bentonite


Neat cement


Caved native soil


Blank PVC


Machine-slotted PVC

P.I.D. Photoionization detector

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

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

Applied GeoSystems

PROJECT 61006-1

UNIFIED SOIL CLASSIFICATION SYSTEM PLATE AND SYMBOL KEY

Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

5

Depth of boring: 21-1/2 feet Diameter of boring: 10 inches Date drilled: 3-12-91

Well depth: 20 feet Material type: Sch 40 PVC Casing diameter: 4 inches

Screen interval: 5 to 20 feet Slot size: 0.020-inch

Drilling Company: Gregg Drilling Driller: Chris and Andy

Method Used: Hollow-Stem Auger Field Geologist: Steve Strausz

Signature of Registered Professional:

Registration No.: CEG 1366 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (2 inches) baserock (1 inch).	
				SM	Silty sand, fine-to medium-grained, light brown, damp, medium dense.	
2	S-2.5	4 4 6	0			
4						
6	S-5.5	6 8 8	0.6		Color change to light brown with rusty mottling.	
8	S-8.5	7 8 10	432	▽	Color change to gray, moist; obvious product odor.	
10					Wet.	
12	S-11.5	8 9 11	0.6		Sand medium-to coarse-grained.	
14	S-14.5	9 8 12	0		Sand fine-to medium-grained, color change to rusty light brown.	
16						
18	S-17.5	8 10 10	0		Slightly coarse sand, mottled gray-brown.	
20	S-20.5	9 10 12	0			

Total Depth = 21- feet

Applied GeoSystems

LOG OF BORING B-1/MW-1

Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

PLATE 6

PROJECT: 61006-1

Depth of boring: 20-1/2 feet Diameter of boring: 10 inches Date drilled: 3-12-91

Well depth: 20 feet Material type: Sch 40 PVC Casing diameter: 4 inches

Screen Interval: 5-20 feet Slot size: 0.020-inch

Drilling Company: Gregg Drilling Driller: Chris and Andy

Method Used: Hollow-Stem Auger Field Geologist: Steve Strausz

Signature of Registered Professional:

Registration No.: CEG 1366 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (3 inches) baserock (2 inches).	
2	S-2.5	3 5 4	0	SM	Silty sand, fine-to medium-grained, brown, damp, loose.	
4						
6	S-5.5	8 6 7	180		Color change to light blue-gray, moist, medium dense; noticeable product odor.	
8	S-8.5	7 7 8	12.7	▽	Wet. Color change to light gray-brown.	
10						
12	S-11.5	7 9 10	0			
14	S-14.5	8 8 10	0		Color change to light brown.	
16						
18	S-17.5	8 9 11 7	0		Some coarse-grained sand particles.	
20	S-19.5	8 9	0			
					Total Depth = 20-1/2 feet.	

Applied GeoSystems

LOG OF BORING B-2/MW-2

Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

PLATE 7

PROJECT: 61006-1

Depth of boring: 20 feet Diameter of boring: 10 inches Date drilled: 3-12-91

Well depth: 20 feet Material type: Sch 40 PVC Casing diameter: 4 inches

Screen Interval: 5-20 feet Slot size: 0.020-inch

Drilling Company: Gregg Drilling Driller: Chris and Andy

Method Used: Hollow-Stem Auger Field Geologist: Steve Strausz

Signature of Registered Professional:

Registration No.: CEG 1366 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (2 inches) baserock (2 inches).	
2				SM	Silty sand, fine-to medium-grained, dark to light brown, damp, loose.	
4	S-3.5	3 4 5	0			
6	S-6.5	4 7 8	5	▽	Color change to light brown, moist, medium dense. Wet.	
8						
10	S-9.5	4 6 9	0		Color change to light gray-brown.	
12	S-12.5	6 8 9	0		Color change to light brown.	
14						
16	S-15.5	7 9 10	0		Some coarse-grained sand.	
18						
20	S-19	10 11 11	0		Color change to gray-brown. Total Depth = 20 feet	

Applied GeoSystems

PROJECT: 61006-1

LOG OF BORING B-3/MW-3

Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

PLATE 8

Depth of boring: 9-1/2 feet Diameter of boring: 6 inches Date drilled: 3-12-91

Well depth: 8 feet Material type: Sch 40 PVC Casing diameter: 2 inches

Screen interval: 6-8 feet Slot size: 0.020-inch

Drilling Company: Gregg Drilling Driller: Chris and Andy

Method Used: Hollow-Stem Auger Field Geologist: Steve Strausz

Signature of Registered Professional:

Registration No.: CEG 1366 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (2 inches) baserock (2 inches).	
				GM	Silty gravel, subangular 1/4" to 2" diameter, light brown, damp, medium dense: Fill?	
2						
4	S-4.5	5 5 6	80.2	SM	Silty sand, fine-to medium-grained, dark gray-brown, damp, medium dense.	
6	S-6.5	5 7 8	112.4		Color change to rusty-brown.	
8	S-8.5	7 8 10	33.4	▽	Color change to light gray. Wet.	
					Total Depth = 9-1/2 feet.	
10						
12						
14						
16						
18						
20						

Applied GeoSystems

PROJECT: 61006-1

LOG OF BORING B-4/VW-1

Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

PLATE 9

Depth of boring: 9-1/2 feet Diameter of boring: 6 inches Date drilled: 3-12-91

Well depth: 9 feet Material type: Sch 40 PVC Casing diameter: 2 inches

Screen interval: 6-9 feet Slot size: 0.020-inch

Drilling Company: Gregg Drilling Driller: Chris and Andy

Method Used: Hollow-Stem Auger Field Geologist: Steve Strausz

Signature of Registered Professional: _____

Registration No.: CEG 1366 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (4 inches) baserock (4 inches).	
2	S-2.5	4 5 5	0	SM	Silty sand, fine-to medium-grained, dark brown, damp, medium dense; noticeable product odor.	
4						
6	S-5.5	6 8 9	254		Color change to blue-gray, moist.	
8	S-8.5	7 7 7	303	▽	Wet.	
10					Total Depth = 9-1/2 feet.	
12						
14						
16						
18						
20						

Applied GeoSystems

LOG OF BORING B-5/VW-2

Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

PLATE 10

PROJECT: 6006-1

Depth of boring: 13–1/2 feet Diameter of boring: 6 inches Date drilled: 3–12–91

Well depth: 9 feet Material type: Sch 40 PVC Casing diameter: 2 inches

Screen interval: 6–9 feet Slot size: 0.020–inch

Drilling Company: Gregg Drilling Driller: Chris and Andy

Method Used: Hollow–Stem Auger Field Geologist: Steve Strausz

Signature of Registered Professional:

Registration No.: CEG 1366 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0						
					Asphalt (3 inches) baserock (2 inches).	
2				SM	Silty sand, fine–to medium–grained, gray, damp, medium dense; noticeable product odor: Backfill.	
	S–2.5	6 7 7	38.4			
4				GM	Silty gravel, black, moist, medium dense; asphalt debris: Backfill.	
				SM	Silty sand, fine–to medium–grained, light gray–brown, moist, medium dense: Backfill.	
6	S–5.5	8 9 10	462			
8	S–8.5	7 8 8	283	▽	Wet.	
10					Approximate bottom of former tank excavation.	
12				SM	Silty sand, fine–to medium–grained, light gray–brown, moist, medium dense: Native soil?	
	S–12.5	10 11 14	0.6			
14					Total Depth = 13–1/2 feet.	
16						
18						
20						

Applied GeoSystems

PROJECT: 61006–1

LOG OF BORING B–6/VW–3

Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

PLATE 11

Depth of boring: 16-1/2 feet Diameter of boring: 6 inches Date drilled: 3-12-91

Well depth: 9 feet Material type: Sch 40 PVC Casing diameter: 2 inches

Screen interval: 6-9 feet Slot size: 0.020-inch

Drilling Company: Gregg Drilling Driller: Chris and Andy

Method Used: Hollow-Stem Auger Field Geologist: Steve Strausz

Signature of Registered Professional:

Registration No.: CEG 1366 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (3 inches) baserock (6 inches).	
2				SM	Silty sand, fine-to medium-grained, dark brown, damp, medium dense.	
					Color change to light brown.	
4	S-3.5	3 6 8	0			
6	S-6.5	4 7 8	158		Color change to blue-gray, damp to moist; noticeable product odor.	
8						
10	S-9.5	6 7 7	30.1	▽	Wet.	
12	S-12.5	6 8 9	1			
14						
16	S-15.5	7 10 11	1		Total Depth = 16-1/2 feet.	
18						
20						

Applied GeoSystems

PROJECT: 61006-1

LOG OF BORING B-7/VW-4

Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

PLATE 12

Depth of boring: 9 feet Diameter of boring: N/A Date drilled: 3-13-91

Well depth: N/A Material type: N/A Casing diameter: N/A

Screen interval: N/A Slot size: N/A

Drilling Company: Gregg Drilling Driller: Chris and Andy

Method Used: Hollow-Stem Auger Field Geologist: Steve Strausz

Signature of Registered Professional: _____

Registration No.: _____ State: _____

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (4 inches).	
				GM	Silty gravel, gray, damp, medium dense: Fill?	
2	S-2.5	2 4 5	2.2	SM	Silty sand, fine-to medium-grained, brown, damp, loose.	
4						
6	S-5.5	5 7 8	1	▽	Wet.	
8	S-8	6 8 9	5.4	▼	Color change to gray; noticeable product odor.	
					Total Depth = 9 feet.	
10						
12						
14						
16						
18						
20						

Applied GeoSystems

PROJECT: 61006-1

LOG OF BORING B-8

Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

PLATE 13

Depth of boring: 8-1/2 feet Diameter of boring: N/A Date drilled: 3-13-91

Well depth: N/A Material type: N/A Casing diameter: N/A

Screen interval: N/A Slot size: N/A

Drilling Company: Gregg Drilling Driller: Chris and Andy

Method Used: Hollow-Stem Auger Field Geologist: Steve Strausz

Signature of Registered Professional: _____

Registration No.: _____ State: _____

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (4 inches) baserock (3 inches).	
				SM	Silty sand, fine-to medium-grained, light brown, medium dense: Backfill.	
2	S-2.5	4 5 6	0			
4						
6	S-5.5	6 6 8	0.6			
		7		▽	Wet.	
8	S-8	6 8	0			
					Total Depth = 8-1/2 feet.	
10						
12						
14						
16						
18						
20						

Applied GeoSystems

LOG OF BORING B-9

Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

PLATE 14

PROJECT: 61006-1

Depth of boring: 9-1/2 feet Diameter of boring: 6 inches Date drilled: 3-12-91

Well depth: 9 feet Material type: Sch 40 PVC Casing diameter: 2 inches

Screen interval: 6-9 feet Slot size: 0.020-inch

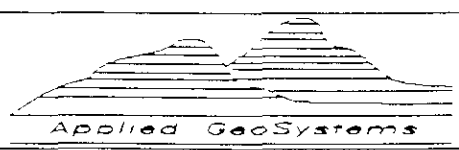
Drilling Company: Gregg Drilling Driller: Chris and Andy

Method Used: Hollow-Stem Auger Field Geologist: Steve Strausz

Signature of Registered Professional:

Registration No.: CEG 1366 State: CA

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Concrete (5 inches), asphalt (1 inch), baserock (4 inches).	
2	S-2.5	4 6 7	25.4	SM	Silty sand, fine-to medium-grained, dark brown, damp, medium dense; noticeable product odor.	
4						
6	S-5.5	5 7 9	116.8		Color change to light blue-gray; obvious product odor.	
8	S-8.5	4 7 10	282	▽	Wet.	
10					Total Depth = 9-1/2 feet.	
12						
14						
16						
18						
20						



PROJECT: 61006-1

LOG OF BORING B-10/VW-5

Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

PLATE 15

Depth of boring: 2-1/2 feet Diameter of boring: N/A Date drilled: 3-13-91

Well depth: N/A Material type: N/A Casing diameter: N/A

Screen interval: N/A Slot size: N/A

Drilling Company: Driller:

Method Used: Hand Auger Field Geologist: Steve Strausz

Signature of Registered Professional:

Registration No.: State:

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0						
				SM	Silty sand, fine-to medium-grained, brown, damp, medium dense.	
2	S-2.5					
					Total Depth = 2/1-2 feet.	
4						
6						
8						
10						
12						
14						
16						
18						
20						

Applied GeoSystems

PROJECT: 61006-1

LOG OF BORING B-10A

Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

PLATE 16

Depth of boring: 3 feet Diameter of boring: N/A Date drilled: 3-13-91

Well depth: N/A Material type: N/A Casing diameter: N/A

Screen interval: N/A Slot size: N/A

Drilling Company: Driller:

Method Used: Hand Auger Field Geologist: Steve Strausz

Signature of Registered Professional:

Registration No.: State:

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0						
2	S-3			SM	Silty sand, fine-to medium-grained, brown, damp, medium dense.	
4					Total Depth = 3 feet.	
6						
8						
10						
12						
14						
16						
18						
20						

Applied GeoSystems

PROJECT: 61006-1

LOG OF BORING B-10B

Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

PLATE 17

Depth of boring: 3 feet Diameter of boring: N/A Date drilled: 3-13-91

Well depth: N/A Material type: N/A Casing diameter: N/A

Screen interval: N/A Slot size: N/A

Drilling Company: Driller:

Method Used: Hand Auger Field Geologist: Steve Strausz

Signature of Registered Professional:

Registration No.: State:

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0						
				SM	Silty sand, fine-to medium-grained, brown, damp, medium dense.	
2	S-3					
					Total Depth = 3 feet.	
4						
6						
8						
10						
12						
14						
16						
18						
20						

Applied GeoSystems

PROJECT: 61006-1

LOG OF BORING B-10C

Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

PLATE 18

Depth of boring: 9-1/2 feet Diameter of boring: N/A Date drilled: 3-13-91

Well depth: N/A Material type: N/A Casing diameter: N/A

Screen interval: N/A Slot size: N/A

Drilling Company: Gregg Drilling Driller: Chris and Andy

Method Used: Hollow-Stem Auger Field Geologist: Steve Strausz

Signature of Registered Professional:

Registration No.: State:

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (3 inches) baserock (2 inches).	
				SM	Silty sand, fine-to medium-grained, dark brown, damp, medium dense.	
2	S-2.5	4 6 7	0		Color change to light brown.	
4						
6	S-5.5	5 5 7	0			
8	S-8.5	7 8 10	0	▽	Wet.	
10					Total Depth = 9-1/2 feet.	
12						
14						
16						
18						
20						

Applied GeoSystems

PROJECT: 61006-1

LOG OF BORING B-11

Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

PLATE 19

Depth of boring: 7 feet Diameter of boring: N/A Date drilled: 3-13-91

Well depth: N/A Material type: N/A Casing diameter: N/A

Screen interval: N/A Slot size: N/A

Drilling Company: Gregg Drilling Driller: Chris and Andy

Method Used: Hollow-Stem Auger Field Geologist: Steve Strausz

Signature of Registered Professional: _____

Registration No.: _____ State: _____

Depth	Sample No.	Blows	P.I.D.	USCS Code	Description	Well Const.
0					Asphalt (2 inches) baserock (3 inches).	
2				SM	Silty sand, fine-to medium-grained, dark brown, damp, loose.	
4	S-4	3 3 6	7.2		Color change to light brown.	
6	S-6.5	4 8 6	1.6	▽	Medium dense. Wet.	
					Total Depth = 7 feet.	
8						
10						
12						
14						
16						
18						
20						

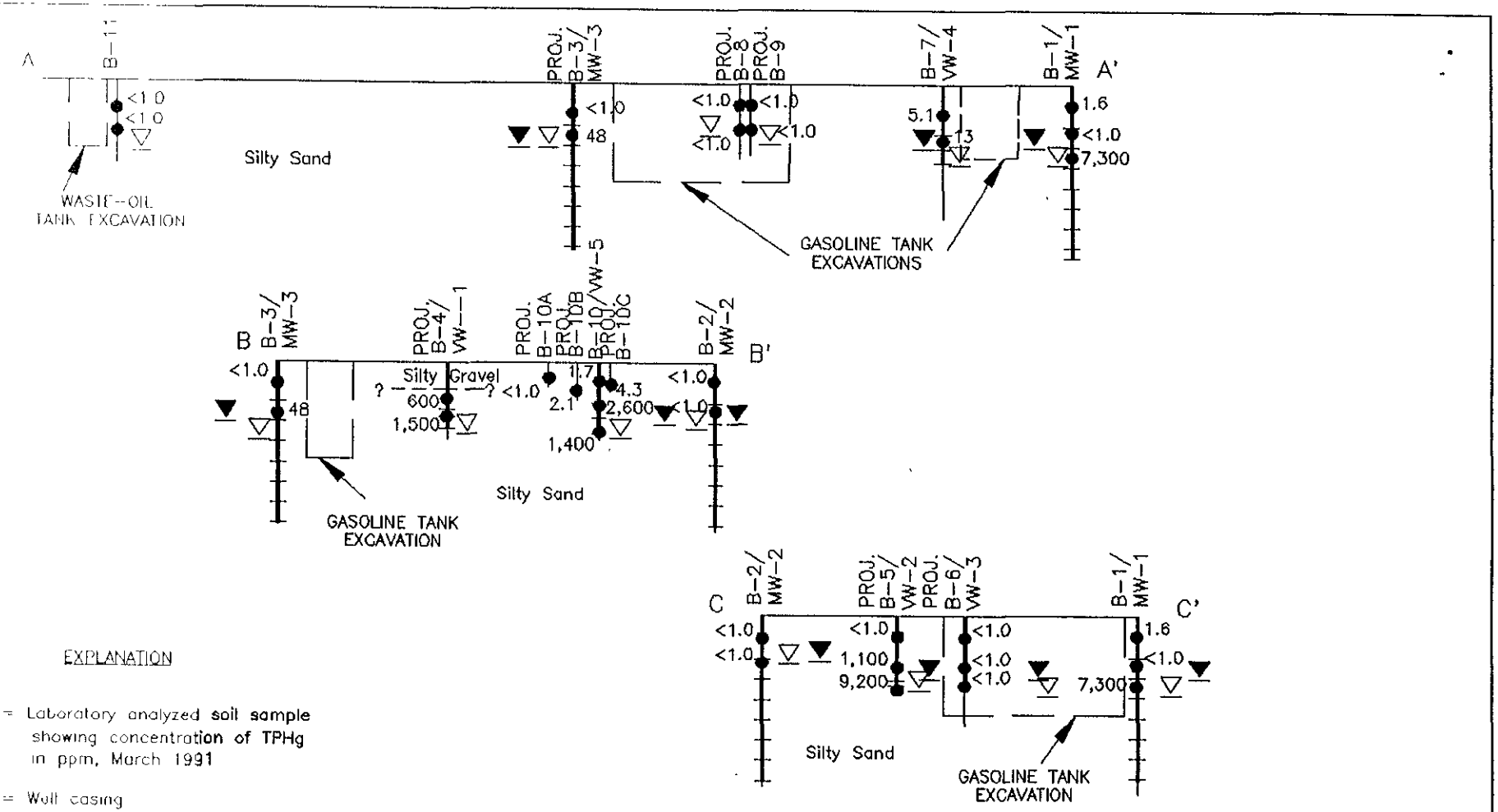
Applied GeoSystems

PROJECT: 61006-1

LOG OF BORING B-11A

Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

PLATE 20



EXPLANATION

9,200 = Laboratory analyzed soil sample showing concentration of TPHg in ppm, March 1991

= Well casing

= Well screen

= Boring

▽ = Initial water level in boring

▼ = Static water level in well (4/4/91)

Approximate Horizontal and Vertical Scale

20 10 0 20 40

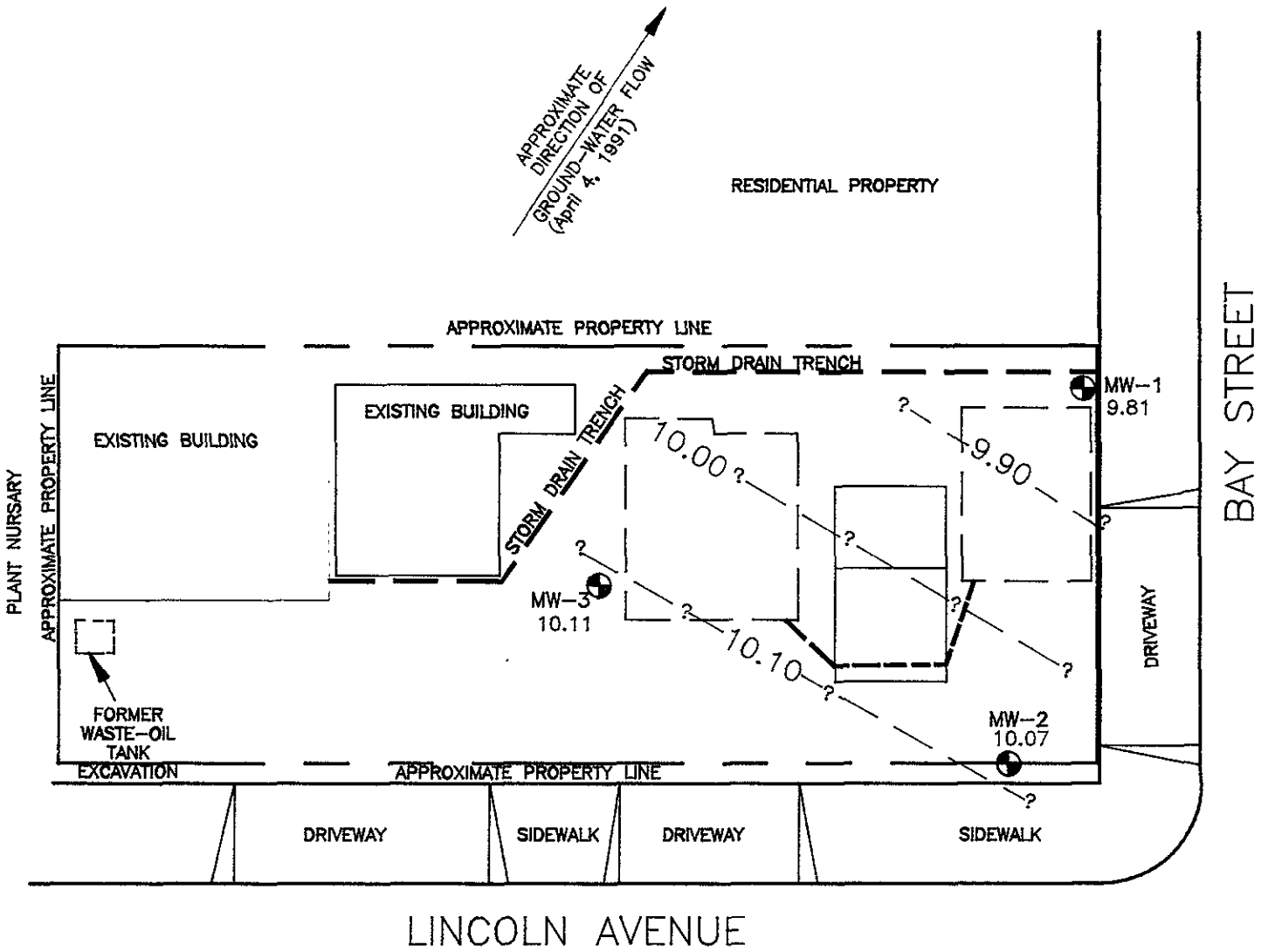
feet

PLATE 21

GEOLOGIC CROSS SECTION A-A', B-B', AND C-C'
Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

Applied GeoSystems

PROJECT 61006-1



EXPLANATION

10.10 = Line of equal elevation of ground water above mean sea level (MSL)

10.11 = Elevation of ground water in feet, April 4, 1991

MW-3 = Monitoring well (Applied GeoSystems, March 1991)

N

Approximate Scale

20 10 0 20 40

feet

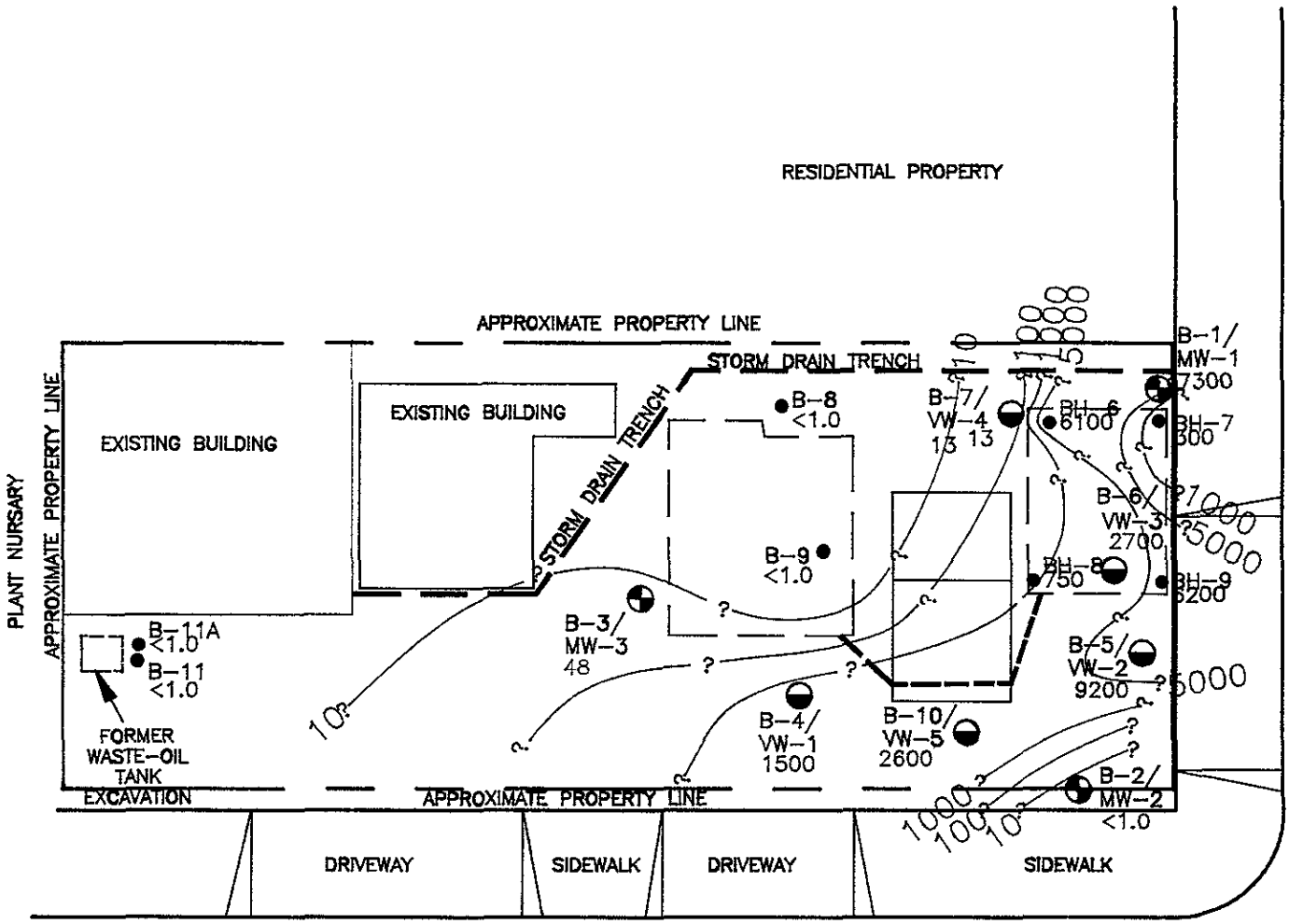
Source: Surveyed by Ron Archer, Civil Engineer, Inc. March 1991.

Applied GeoSystems

PROJECT 61006-1

GROUND-WATER GRADIENT MAP
Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

PLATE
22



5000 = Line of equal concentration of TPHg in soil, at 5-1/2 to 8-1/2 feet

EXPLANATION

9200 = Concentration of TPHg in soil in ppm, at 5-1/2 to 8-1/2 feet, March 1991

BH-9 ● = Soil sampling locations (by Environmental-Bio-Systems, 9/11/89)

B-11A ● = Soil boring (Applied GeoSystems, March and April 1991)

B-10/ VW-5 = Vapor extraction well (Applied GeoSystems, March 1991)

B-3/ MW-3 = Monitoring well (Applied GeoSystems, March 1991)

N

Approximate Scale

20 10 0 20 40

feet

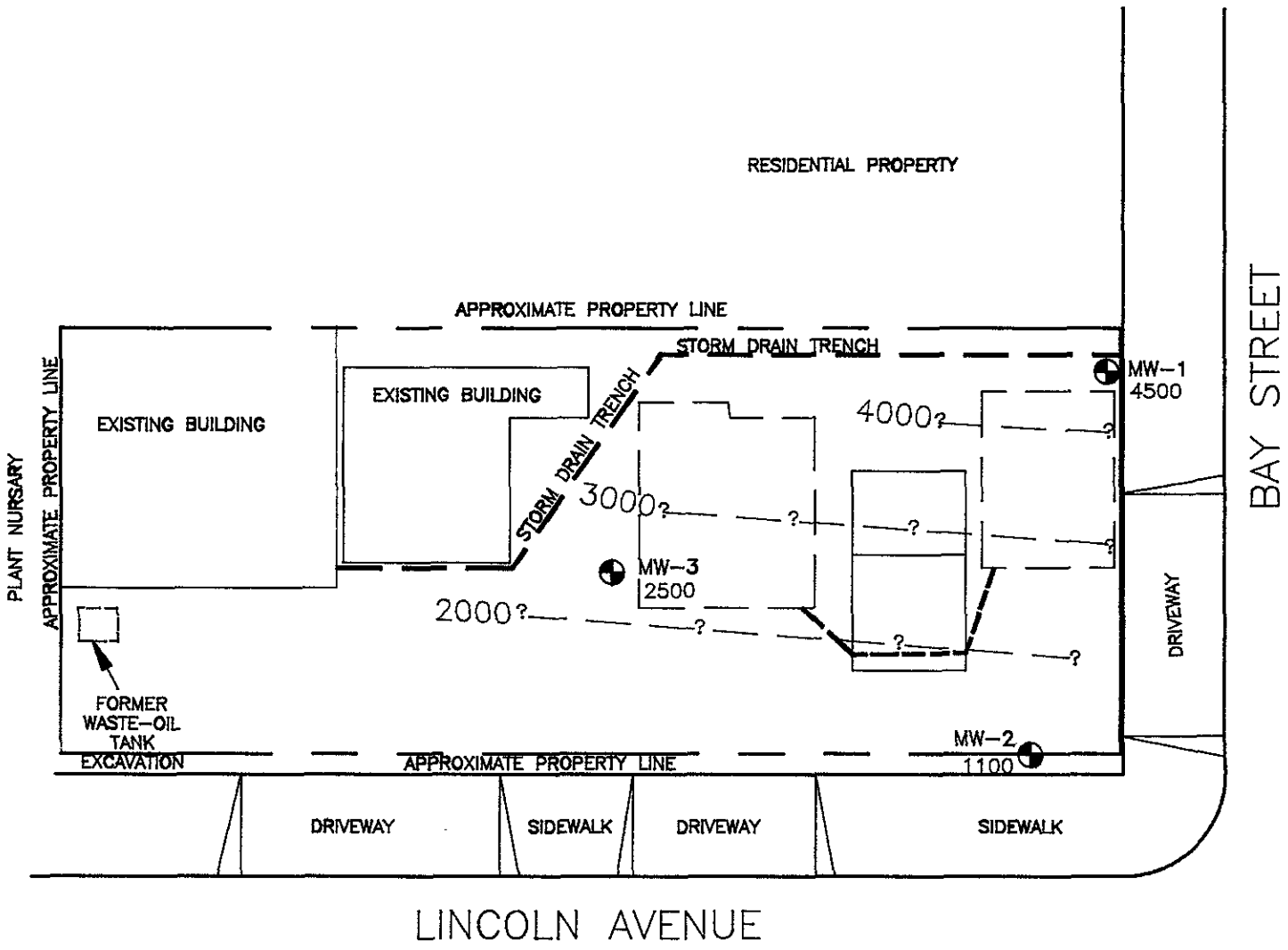
Source: Surveyed by Ron Archer, Civil Engineer, Inc. March 1991.

Applied GeoSystems

PROJECT 61006-1

TPHg IN SOIL
AT 5-1/2 to 8-1/2 Feet
Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

PLATE
23



EXPLANATION

4,000 = Line of equal concentration of TPHg in ground water

4,500 = Concentration of TPHg in ground water, in ppb, March 1991, by EPA Method 602

MW-3 = Monitoring well (Applied GeoSystems, March 1991)

N

Approximate Scale

20 10 0 20 40

feet

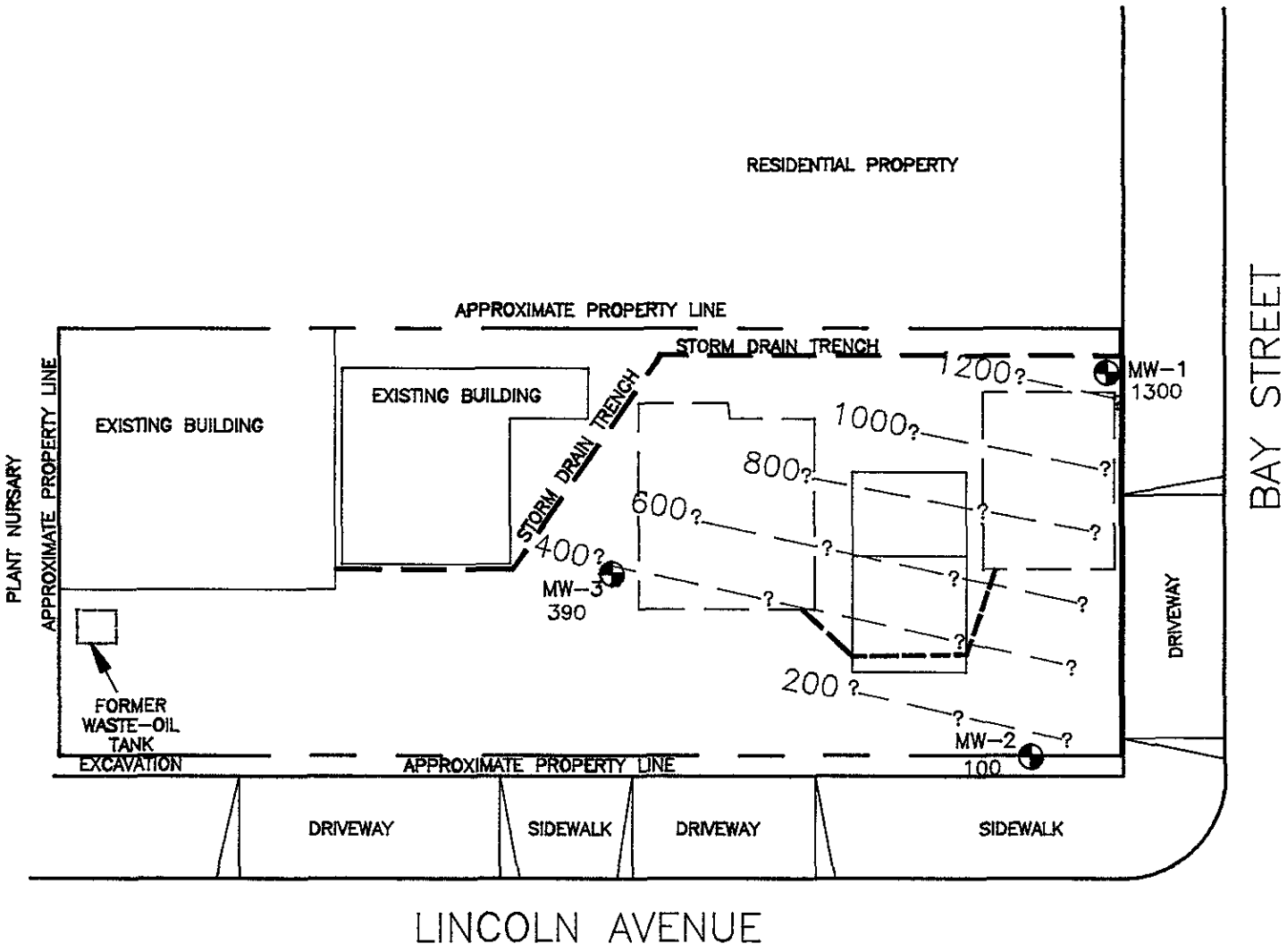
Source: Surveyed by Ron Archer, Civil Engineer, Inc. March 1991.

Applied GeoSystems

PROJECT 61006-1

TPHg CONCENTRATIONS IN GROUND WATER
Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

PLATE 24



EXPLANATION

1200 = Line of equal concentration of Benzene in ground water

1300 = Concentration of Benzene in ground water in ppb, March 1991, by EPA Method 602

MW-3 = Monitoring well (Applied GeoSystems, March 1991)

N

Approximate Scale

20 10 0 20 40

feet

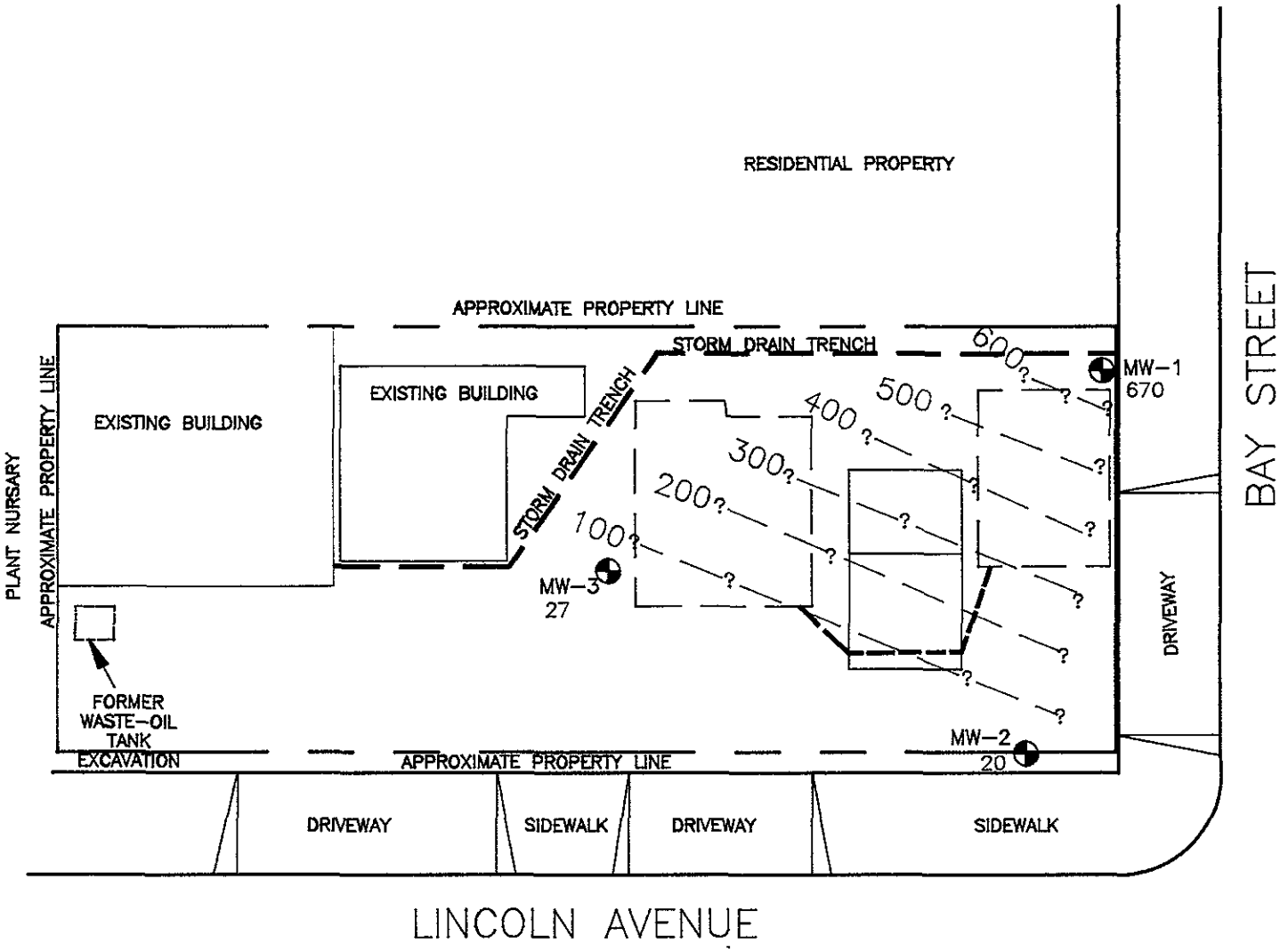
Source: Surveyed by Ron Archer, Civil Engineer, Inc. March 1991.

Applied GeoSystems

PROJECT 61006-1

BENZENE CONCENTRATIONS IN GROUND WATER
Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

PLATE 25



EXPLANATION

600 = Line of equal concentration of Toluene in ground water

670 = Concentration of Toluene in ground water in ppb, March 1991 by EPA Method 602

MW-3 = Monitoring well (Applied GeoSystems, March 1991)

N

Approximate Scale

20 10 0 20 40

feet

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

Applied GeoSystems

PROJECT 61006-1

TOLUENE CONCENTRATIONS IN GROUND WATER

Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

PLATE

26

TABLE 1
PREVIOUS LABORATORY ANALYSES OF SOIL SAMPLES
(Source: McLaren/Hart, 1991)
Former Bay Street Texaco Station
Alameda, California
(Page 1 of 2)

Sample Location	Sample ID	Sample Depth	TPHg	TPHd	B	T	E	X	TOG	ACETONE
TANK A (Center)	HA-1	7.5	ND	ND	ND	ND	ND	ND	ND	0.61
TANK B (North End)	BH-4	10.5	81	NA	0.7	1.0	1.5	5.5	NA	NA
TANK B (South End)	BH-5	10.5	6.8	NA	0.3	0.5	0.3	0.8	NA	NA
TANK B (West End)	BH-10	10.0	670	NA	2.9	8.3	22	110	NA	NA
TANK B and C (South End)	BH-13	11.0	5,000	NA	21	200	150	380	NA	NA
TANK C (North End)	BH-2	11.0	5,100	NA	84	180	150	500	NA	NA
TANK C (North End)	BH-11	12.0	3.7	NA	ND	0.1	0.1	0.5	NA	NA
TANK C (South End)	BH-3	11.0	480	NA	2.0	23	11	43	NA	NA
TANK C (East End)	BH-12	11.0	4,600	NA	42	220	160	350	NA	NA
TANK D (West End)	BH-8	8.5	750	NA	15	56	21	120	NA	NA
TANK D (East End)	BH-9	8.5	6,200	NA	240	740	180	1,000	NA	NA
TANK E (West End)	BH-6	8.0	6,100	NA	93	430	140	610	NA	NA
TANK E (East End)	BH-7	8.0	300	NA	6.6	22	8.5	48	NA	NA

See Notes of Page 2 of 2.

TABLE 1
PREVIOUS LABORATORY ANALYSES OF SOIL SAMPLES
(Source: McLaren/Hart, 1991)
Former Bay Street Texaco Station
Alameda, California
(Page 2 of 2)

Sample Location	Sample ID	Sample Depth	Cadmium	Chromium	Lead	Zinc
Tank A (Center)	HA-1	7.5	<0.01	11	5	22
TTLC[1]			100	2,500	1,000	5,000
Selected Average for soils[2]			0.06	100	10	50

Sample depth in feet.
Results in parts per million.
HA: Hand auger sample.
BH: Backhoe sample.
ND: Not detected above laboratory reporting limit.
NA: Not analyzed for this compound.
1: Total Threshold Limit Concentration, California Code of Regulations, Title 22.
2: Lindsay, W.L., 1979, Chemical Equilibria in Soils, John Wiley & Sons.

TABLE 2
CUMULATIVE GROUND-WATER MONITORING DATA
Former Bay Street Texaco Station
1127 Lincoln Avenue
Alameda, California

Monitoring Well	Date	Elevation of Well Casing	Depth to Water	Elevation of Ground-Water	Floating Product
MW-1	03-22-91	16.49	7.23	9.26	none
	04-04-91		6.68	9.81	none
MW-2	03-22-91	17.14	7.60	9.54	none
	04-04-91		7.07	10.07	none
MW-3	03-22-91	16.91	7.43	9.48	none
	04-04-91		6.80	10.11	none
VW-1	03-22-91	16.83	dry	dry	none
	04-04-91		6.89	9.92	none
VW-2	03-22-91	17.00	7.59	9.41	none
	04-04-91		7.04	9.96	none
VW-3	03-22-91	16.94	7.71	9.23	none
	04-04-91		6.92	10.02	none
VW-4	03-22-91	16.81	7.66	9.15	sheen
	04-04-91		inaccessible	--	--
VW-5	03-22-91	17.20	7.67	9.53	sheen
	04-04-91		inaccessible	--	--

Elevations above mean sea level.
Depth to water measured in feet below top of casing.

TABLE 3
LABORATORY ANALYSES OF SOIL SAMPLES
Former Bay Street Texaco Station
Alameda, California
(Page 1 of 2)

Sample Number	TPHg	B	T	E	X	TPHd	TOG	VOCs & Semi-VOCs
S-2½-B1	1.6	0.006	0.052	0.009	0.083	NA	NA	NA
S-5½-B1	<1.0	<0.005	<0.005	<0.005	0.007	NA	NA	NA
S-8½-B1	7,300	17	350	130	630	<10	NA	NA
S-2½-B2	<1.0	<0.005	0.007	<0.005	0.023	NA	NA	NA
S-5½-B2	<1.0	<0.005	<0.005	<0.005	0.014	<10	NA	NA
S-3½-B3	<1.0	<0.005	<0.005	<0.005	0.006	NA	NA	NA
S-6½-B3	48	<0.005	<0.005	0.089	0.65	<10	NA	NA
S-4½-B4	600	<0.005	0.23	6.0	32	NA	NA	NA
S-6½-B4	1,500	0.087	10	26	130	<10	NA	NA
S-2½-B5	<1.0	0.006	0.019	0.018	0.11	NA	NA	NA
S-5½-B5	1,100	<0.005	5.1	8.1	47	<10	NA	NA
S-8½-B5	9,200	93	540	160	770	NA	NA	NA
S-2½-B6	11	0.013	0.31	0.14	0.99	NA	NA	NA
S-5½-B6	58	<0.005	1.4	0.84	4.9	<10	NA	NA
S-8½-B6	2,700	60	290	53	260	NA	NA	NA
S-3½-B7	5.1	<0.005	0.072	0.026	0.15	NA	NA	NA
S-7-B7	13	0.24	0.61	0.44	1.3	<10	NA	NA
S-2½-B8	<1.0	<0.005	0.006	<0.005	0.015	NA	NA	NA
S-5½-B8	<1.0	<0.005	<0.005	<0.005	0.010	<10	NA	NA
S-2½-B9	<1.0	<0.005	<0.005	<0.005	0.007	NA	NA	NA
S-5½-B9	<1.0	<0.005	<0.005	<0.005	0.009	<10	NA	NA
S-2½-B10	1.7	<0.005	0.017	0.027	0.14	NA	NA	NA
S-5½-B10	2,600	<0.005	12	31	160	NA	NA	NA
S-8½-B10	1,400	2.6	32	21	110	<10	NA	NA
S-2½-B10A	<1.0	<0.005	<0.005	<0.005	<0.005	NA	NA	NA
S-3-B10B	2.1	<0.005	0.007	<0.005	0.079	NA	NA	NA
S-3-B10C	4.3	<0.005	0.023	0.14	0.55	NA	NA	NA
S-2½-B11	<1.0	<0.005	<0.005	<0.005	0.008	NA	NA	NA
S-5½-B11	<1.0	<0.005	<0.005	<0.005	0.007	<10	NA	NA
S-3½-B11A	NA	NA	NA	NA	NA	NA	<50	0.9*
S-6-B11A	NA	NA	NA	NA	NA	NA	<50	1.0*

See notes on Page 2 of 2

TABLE 3
LABORATORY ANALYSES OF SOIL SAMPLES
Former Bay Street Texaco Station
Alameda, California
(Page 2 of 2)

Sample depth measured in feet.
Results in parts per million (ppm).

NA =	Not analyzed.
< =	Below indicated laboratory detection limit.
TPHg =	Total petroleum hydrocarbons as gasoline (analyzed by EPA Method 5030/8015).
TPHd =	Total petroleum hydrocarbons as diesel (analyzed by EPA Method 3550/8015).
B = benzene,	T = toluene, E = ethylbenzene, X = total xylene isomers.
BTEX =	Measured by EPA Method 5030/8020.
TOG =	Total oil and grease (analyzed by Standard Method 5520 E/F).
VOCs =	Volatile organic compounds (analyzed by EPA Method 8010).
Semi-VOCs =	Semi-volatile organic compounds (analyzed by EPA Method 8270) (* = ND with the exception of indicated concentration of Di-N-butyl phthalate)

Sample Identification: S-6-B11A

- S — Soil sample
- 6 — Sample depth
- B11A — Boring number

TABLE 4
LABORATORY ANALYSES OF GROUND-WATER SAMPLES
Former Bay Street Texaco Station
Alameda, California

Sample Number	TPHg	B	T	E	X	TPHd*	VOCs & Semi-VOCs
W-9-MW1	4,500	1,300 (1,300)	670 (640)	180 (120)	770 (830)	1,100	ND#
W-9-MW2	1,100	100 (54)	20 (5)	63 (31)	220 (130)	140	ND#
W-9-MW3	2,500	390 (480)	27 (<100)	240 (330)	780 (1,600)	770	ND#

Sample depth measured in feet.
Results in parts per billion (ppb).
ND = Below laboratory detection limit.
TPHg = Total petroleum hydrocarbons as gasoline (analyzed by EPA Method 5030).
TPHd = Total petroleum hydrocarbons as diesel (analyzed by EPA Method 3510).
* = Anametrix states: "The concentrations reported as diesel for samples W-9-MW1, W-9-MW2, and W-9-MW3 are primarily due to the presence of a lighter petroleum product, possibly gasoline."
B = benzene, T = toluene, E = ethylbenzene, X = total xylene isomers.
BTEX = Measured by EPA Method 602/(624).
TOG = Total oil and grease (analyzed by Standard Method 5520 E/F).
VOCs = Volatile organic compounds (analyzed by EPA Method 624/8240).
# = Except for BTEX, reported in parentheses.
Semi-VOCs = Semi-volatile organic compounds (analyzed by EPA Method 8270)
Sample Identification: W-9-MW3
W = Water sample
9 = Sample depth
MW3 = Monitoring well number

APPENDIX A

FIELD PROTOCOL
WELL PURGE DATA SHEETS
STABILIZATION GRAPHS

FIELD PROTOCOL

The following presents Applied GeoSystems' protocol utilized to this site investigation involving petroleum hydrocarbon-impacted soil and/or ground-water.

Sampling of Stockpiled Soil

One composite soil sample is collected for each 50 cubic yards of stockpiled soil, and for each individual stockpile composed of less than 50 cubic yards. Composite soil samples are obtained by first evaluating relatively high, average, and low areas of hydrocarbon concentration by digging approximately one to two feet into the stockpile and placing the intake probe of a field calibrated OVM against the surface of the soil; and then collecting one sample from the "high" reading area, and three samples from the "average" areas. Samples are collected by removing the top one to two feet of soil, then driving laboratory-cleaned brass sleeves into the soil. The samples are sealed in the sleeves using aluminum foil, plastic caps, and aluminized duct tape; labeled; and promptly placed in iced storage for transport to the laboratory, where compositing will be performed.

Soil Borings

Prior to the drilling of borings and construction of monitoring wells, permits are acquired from the appropriate regulatory agency. In addition to the above-mentioned permits, encroachment permits from the City or State are acquired if drilling of borings offsite in the City or State streets is necessary. Copies of the permits are included in the appendix of the project report. Prior to drilling, Underground Services Alert is notified of our intent to drill, and known underground utility lines and structures are approximately marked.

The borings are drilled by a truck-mounted drill rig equipped with 8- or 10-inch-diameter, hollow-stem augers. The augers are steam-cleaned prior to drilling each boring to minimize the possibility of cross-contamination. After drilling the borings, monitoring wells are constructed in the borings, or neat-cement grout with bentonite is used to backfill the borings to the ground surface.

Borings for ground-water monitoring wells are drilled to a depth of no more than 20 feet below the depth at which a saturated zone is first encountered, or a short distance into a stratum beneath the saturated zone which is of sufficient moisture and consistency to be judged as a perching layer by the field geologist, whichever is shallower. Drilling into a

deeper aquifer below the shallowest aquifer can begin only after a conductor casing is properly installed and allowed to set, to seal the shallow aquifer.

Drill Cuttings

Drill cuttings subjectively evaluated as having hydrocarbon contamination at levels greater than 100 parts per million (ppm) are separated from those subjectively evaluated as having hydrocarbon contamination levels less than 100 ppm. Evaluation is based either on subjective evidence of soil discoloration, or on measurements made using a field calibrated OVM. Readings are taken by placing a soil sample into a ziplock type plastic bag and allowing volatilization to occur. The intake probe of the OVM is then inserted into the headspace created in the plastic bag immediately after opening it. The drill cuttings from the borings are placed in labeled 55-gallon drums approved by the Department of Transportation; or on plastic at the site, and covered with plastic. The cuttings remain the responsibility of the client.

Soil Sampling in Borings

Soil samples are collected at no greater than 5-foot intervals from the ground surface to the total depth of the borings. The soil samples are collected by advancing the boring to a point immediately above the sampling depth, and then driving a California-modified, split-spoon sampler containing brass sleeves through the hollow center of the auger into the soil. The sampler and brass sleeves are laboratory-cleaned, steam-cleaned, or washed thoroughly with Alconox® and water, prior to each use. The sampler is driven with a standard 140-pound hammer repeatedly dropped 30 inches. The number of blows to drive the sampler each successive six inches are counted and recorded to evaluate the relative consistency of the soil.

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

One of the samples in brass sleeves not selected for laboratory analysis at each sampling interval is tested in the field using an OVM that is field calibrated at the beginning of each day it is used. This testing is performed by inserting the intake probe of the OVM into the headspace created in the plastic bag containing the soil sample as described in the Drill Cuttings section above. The OVM readings are presented in Logs of Borings included in the project report.

Logging of Borings

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

Monitoring Well Construction

Monitoring wells are constructed in selected borings using clean 2- or 4-inch-diameter, thread-jointed, Schedule 40 polyvinyl chloride (PVC) casing. No chemical cements, glues, or solvents are used in well construction. Each casing bottom is sealed with a threaded end-plug, and each casing top with a locking plug. The screened portions of the wells are constructed of machine-slotted PVC casing with 0.020-inch-wide (typical) slots for initial site wells. Slot size for subsequent wells may be based on sieve analysis and/or well development data. The screened sections in ground-water monitoring wells are placed to allow monitoring during seasonal fluctuations of ground-water levels.

The annular space of each well is backfilled with No. 2 by 12 sand, or similar sorted sand, to approximately two feet above the top of the screened casing for initial site wells. The sand pack grain size for subsequent wells may be based on sieve analysis and/or well development data. A 1- to 2-foot-thick bentonite plug is placed above the sand as a seal against cement entering the filter pack. The remaining annulus is then backfilled with a slurry of water, neat cement, and bentonite to approximately one foot below the ground surface.

An aluminum utility box with a PVC apron is placed over each wellhead and set in concrete placed flush with the surrounding ground surface. Each wellhead cover has a seal to protect the monitoring well against surface-water infiltration and requires a special wrench to open. The design discourages vandalism and reduces the possibility of accidental disturbance of the well.

Ground-Water Monitoring Well Development

The monitoring wells are developed by bailing or over-pumping and surge-block techniques. The wells are either bailed or pumped, allowed to recharge, and bailed or pumped again until the water removed from the wells is determined to be clear. Turbidity measurements

(in NTUs) are recorded during well development and are used in evaluating well development. The wells are allowed to equilibrate for at least 48 hours after development prior to sampling. Water generated by well development will be stored in 17E Department of Transportation (DOT) 55-gallon drums on site and will remain the responsibility of the client.

Ground-Water Sampling

The static water level in each well is measured to the nearest 0.01-foot using a Solinst® electric water-level sounder or oil/water interface probe (if the wells contain floating product) cleaned with Alconox® and water before use in each well. The liquid in the onsite wells is examined for visual evidence of hydrocarbons by gently lowering approximately half the length of a Teflon® bailer (cleaned with Alconox® and water) past the air/water interface. The sample is then retrieved and inspected for floating product, sheen, emulsion, color, and clarity. The thickness of floating product detected is recorded to the nearest 1/8-inch.

Wells which do not contain floating product are purged using a submersible pump. The pump, cables, and hoses are cleaned with Alconox® and water prior to use in each well. The wells are purged until withdrawal is of sufficient duration to result in stabilized pH, temperature, and electrical conductivity of the water, as measured using portable meters calibrated to a standard buffer and conductivity standard. If the well becomes dewatered, the water level is allowed to recover to at least 80 percent of the initial water level. Prior to the collection of each ground water sample, the Teflon® bailer is cleaned with Alconox® and rinsed with tap water and deionized water, and the latex gloves worn by the sampler changed. Hydrochloric acid is added to the sample vials as a preservative (when applicable). A sample method blank is collected by pouring distilled water into the bailer and then into sample vials. A sample of the formation water is then collected from the surface of the water in each of the wells using the Teflon® bailer. The water samples are then gently poured into laboratory-cleaned, 40-milliliter (ml) glass vials, 500 ml plastic bottles or 1-liter glass bottles (as required for specific laboratory analysis) and sealed with Teflon®-lined caps, and inspected for air bubbles to check for headspace, which would allow volatilization to occur. The samples are then labeled and promptly placed in iced storage. A field log of well evacuation procedures and parameter monitoring is maintained. Water generated by the purging of wells is stored in 17E DOT 55-gallon drums onsite and remains the responsibility of the client.

Sample Labeling and Handling

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

WELL PURGE DATA SHEET

Project Name: Texaco - Alameda Job No. 61016.01

Date: March 22, 1991 Page 1 of 1

Well No. MW-1 Time Started 15:20

Time (hr)	Gallons (cum.)	Temp. (F)	pH	Conduct. (micromoh)	Turbidity (NTU)
15:20	Start purging MW-1				
15:25	5	67.2	7.22	7.88	45.1
15:31	10	66.8	7.21	7.83	33.4
15:37	15	66.1	7.16	7.78	29.2
15:41	20	66.0	7.15	7.78	25.4
15:47	25	65.8	7.14	7.80	18.6
15:56	30	66.0	7.13	7.78	17.4
16:08	35	66.1	7.14	7.78	22.1
16:17	40	65.8	7.14	7.76	15.3
16:25	45	65.6	7.14	7.76	12.8
	Stop purging MW-1				

Notes:

Depth to Bottom (feet) :	19.4
Depth to Water - initial (feet) :	7.23
Depth to Water - final (feet) :	7.23
% recovery :	100%
Time Sampled :	16:30
Gallons per Well Casing Volume :	7.94
Gallons Purged :	45.0
Well Casing Volumes Purged :	5.66
Approximate Pumping Rate (gpm) :	0.69

WELL PURGE DATA SHEET

Project Name: Texaco - Alameda Job No. 61016.01

Date: March 22, 1991 Page 1 of 1

Well No. MW-2 Time Started 12:45

Time (hr)	Gallons (cum.)	Temp. (F)	pH	Conduct. (micromoh)	Turbidity (NTU)
12:45	Start purging MW-2				
12:50	5	67.2	7.12	8.34	25.1
12:58	10	67.1	7.12	8.28	36.2
13:06	15	66.9	7.10	8.10	41.3
	19	Well Dry - Allow to recharge			
13:10	Begin purging				
13:25	26	67.0	7.20	6.88	134.8
13:34	30	66.8	7.18	6.62	133.5
13:43	35	66.8	7.16	6.33	105.6
13:50	40	66.9	7.15	6.38	80.2
14:00	48	67.0	7.14	6.41	52.6
14:10	55	66.8	7.14	6.44	35.3
	Stop purging MW-2				

Notes:

Depth to Bottom (feet) : 19.45
Depth to Water - initial (feet) : 7.60
Depth to Water - final (feet) : 7.60
% recovery : 100%
Time Sampled : 15:00
Gallons per Well Casing Volume : 7.74
Gallons Purged : 55.0
Well Casing Volumes Purged : 7.11
Approximate Pumping Rate (gpm) : 0.65

WELL PURGE DATA SHEET

Project Name: Texaco - Alameda Job No. 61016.01

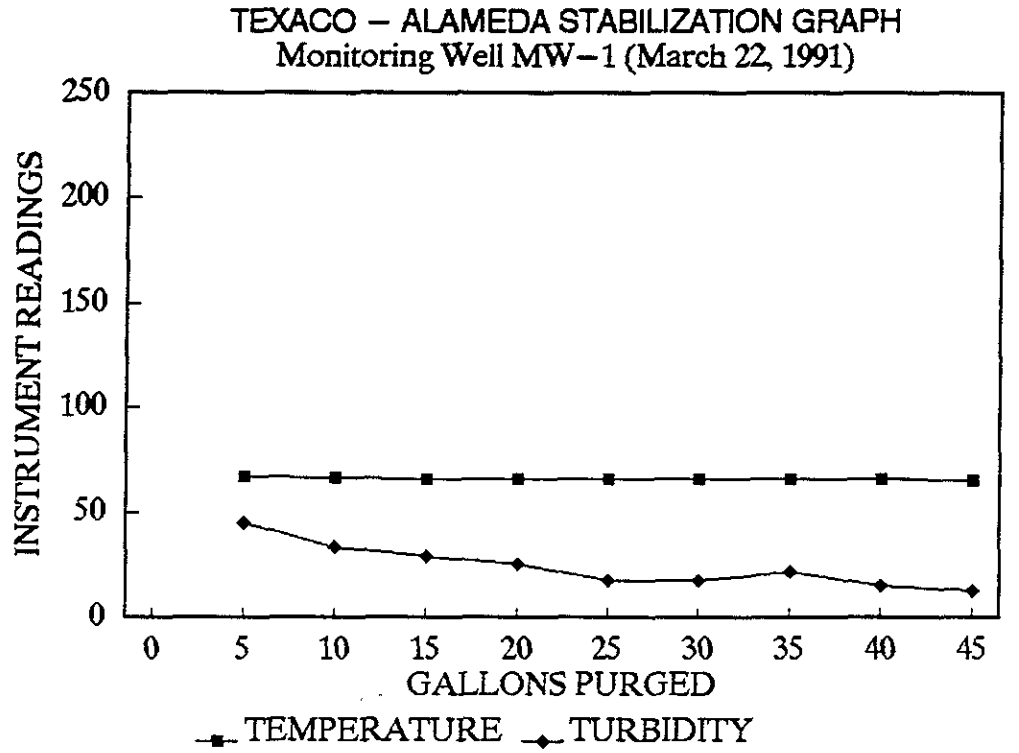
Date: March 22, 1991 Page 1 of 1

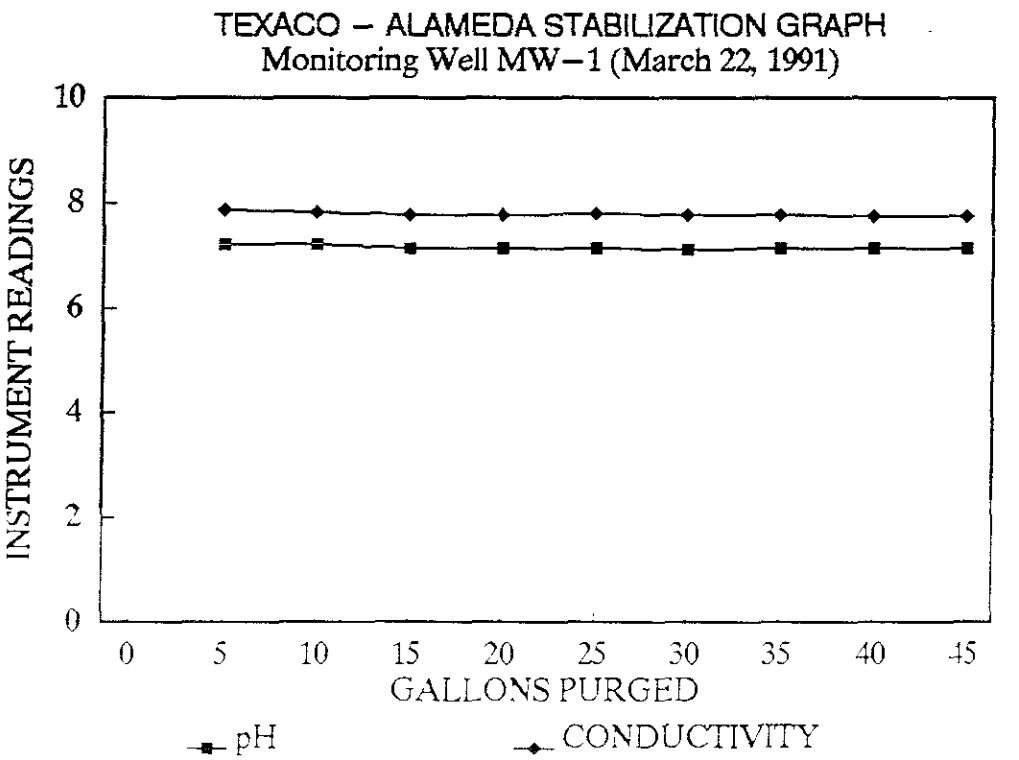
Well No. MW-3 Time Started 11:10

Time (hr)	Gallons (cum.)	Temp. (F)	pH	Conduct. (micromoh)	Turbidity (NTU)
11:10	Start purging MW-3				
11:15	5	67.0	7.18	8.68	37.5
11:20	10	66.1	7.08	7.89	34.3
11:35	20	67.0	7.10	7.88	47.8
11:40	25	67.0	7.09	7.88	55.1
11:47	30	67.3	7.14	7.35	69.0
11:54	35	67.0	7.15	7.15	38.2
12:00	40	66.8	7.15	6.98	20.5
12:10	45	66.8	7.15	6.98	14.0
12:19	50	66.8	7.14	6.98	9.4
12:23	55	67.0	7.15	7.00	6.2
	Stop purging MW-3				

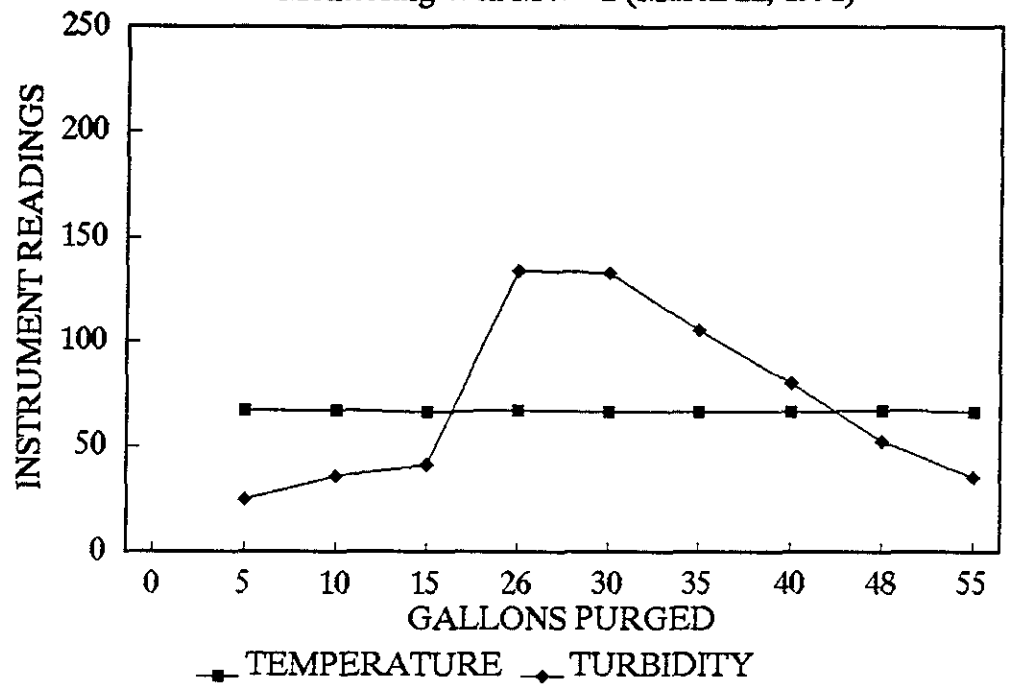
Notes:

Depth to Bottom (feet) :	19.72
Depth to Water - initial (feet) :	7.43
Depth to Water - final (feet) :	7.43
% recovery :	100%
Time Sampled :	12:40
Gallons per Well Casing Volume :	8.02
Gallons Purged :	55.0
Well Casing Volumes Purged :	6.85
Approximate Pumping Rate (gpm) :	0.75

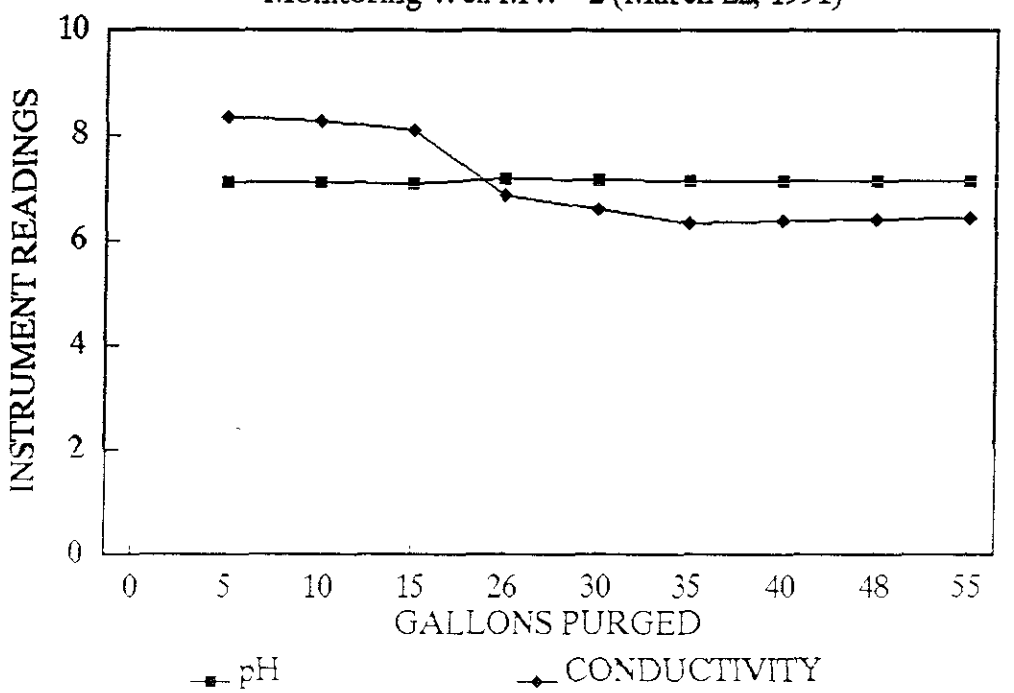

TEXACO – ALAMEDA STABILIZATION GRAPH
Monitoring Well MW–1 (March 22, 1991)
INSTRUMENT READINGS
250
200
150
100
50
0
0 5 10 15 20 25 30 35 40 45
GALLONS PURGED
TEMPERATURE
TURBIDITY

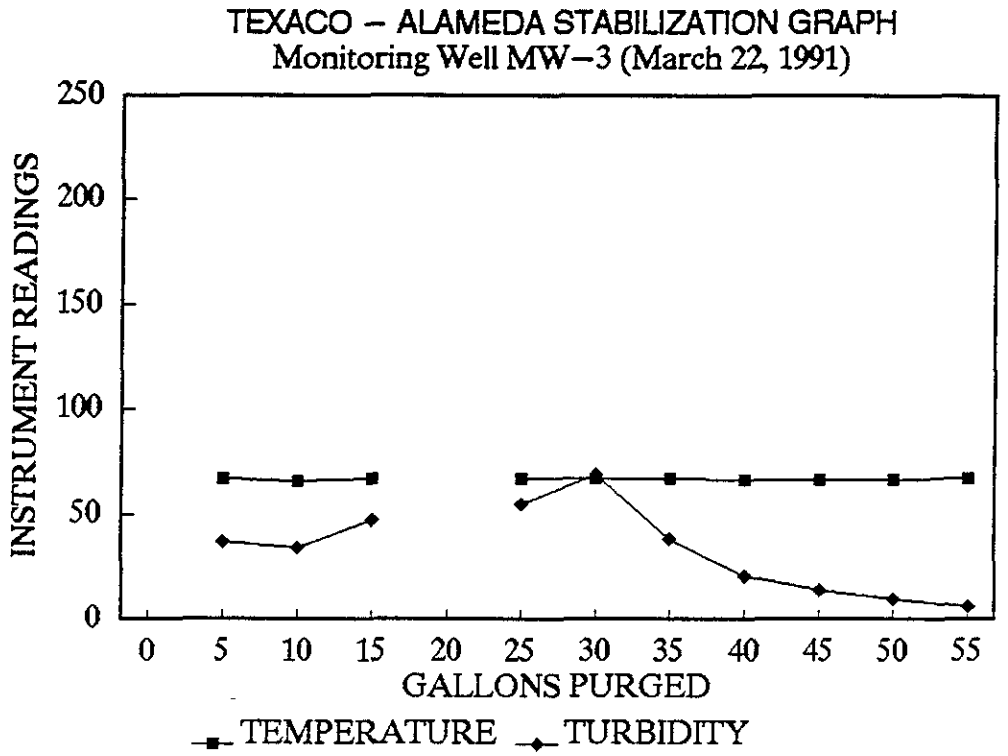

TEXACO – ALAMEDA STABILIZATION GRAPH
Monitoring Well MW–1 (March 22, 1991)
INSTRUMENT READINGS
10
8
6
4
2
0
0 5 10 15 20 25 30 35 40 45
GALLONS PURGED
pH
CONDUCTIVITY

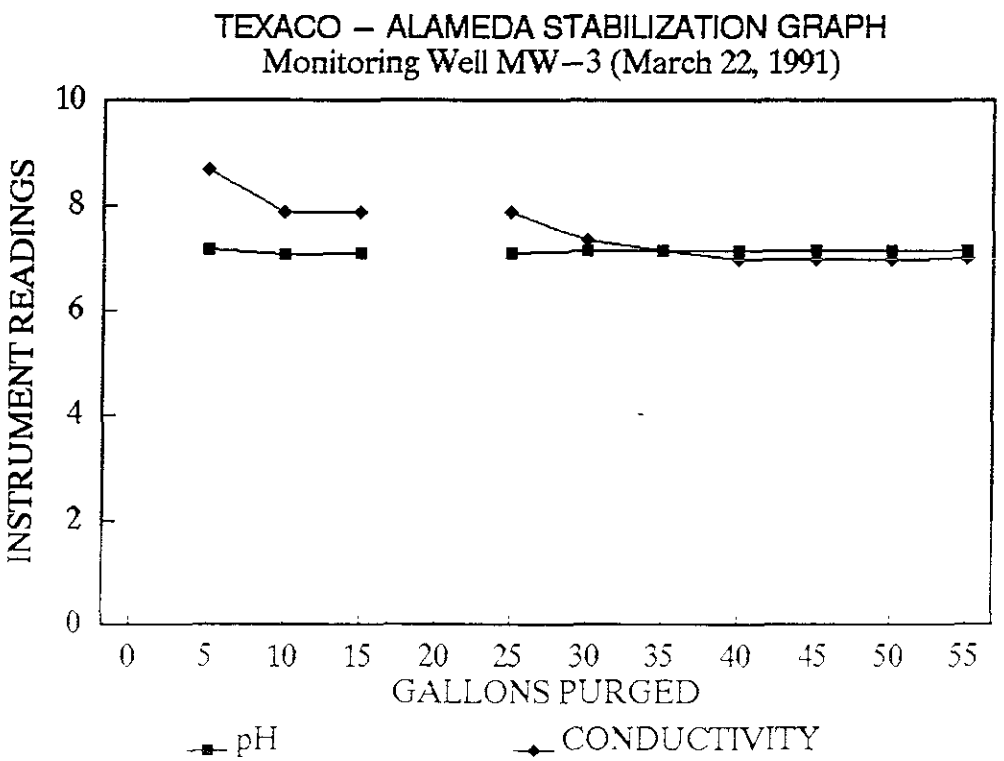
TEXACO – ALAMEDA STABILIZATION GRAPH
Monitoring Well MW–2 (March 22, 1991)



TEXACO – ALAMEDA STABILIZATION GRAPH
Monitoring Well MW–2 (March 22, 1991)




TEXACO – ALAMEDA STABILIZATION GRAPH
Monitoring Well MW–3 (March 22, 1991)
INSTRUMENT READINGS
250
200
150
100
50
0
0 5 10 15 20 25 30 35 40 45 50 55
GALLONS PURGED
TEMPERATURE
TURBIDITY


TEXACO – ALAMEDA STABILIZATION GRAPH
Monitoring Well MW–3 (March 22, 1991)
INSTRUMENT READINGS
10
8
6
4
2
0
0 5 10 15 20 25 30 35 40 45 50 55
GALLONS PURGED
pH
CONDUCTIVITY

APPENDIX B

WELL CONSTRUCTION PERMIT

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 1127 Lincoln Avenue
Alameda, CA 94501

2) CLIENT
Name Texaco Environmental Services
Address 10 Universal City Plaza Phone
City Universal City, CA Zip 91608

3) APPLICANT
Name Steve Strauss (for Texaco)
Applied GeoSystems
Address 2215 Almaden Expy #34 Phone (408) 264-7723
City San Jose Zip 95118

4) DESCRIPTION OF PROJECT

Water Well Construction	✓	Geotechnical Investigation	
Cathodic Protection		General	
Well Destruction		Contamination	

PROPOSED WATER WELL USE

Domestic		Industrial		Irrigation	
Municipal		Monitoring	✓	Other	

PROPOSED CONSTRUCTION
Drilling Method:

Mud Rotary		Air Rotary		Auger	
Cable		Other	✓ Hollow-Stem auger		

DRILLER'S LICENSE NO. C-57 485165

WELL PROJECTS

Drill Hole Diameter	10 in.	Maximum Depth	30 ft.
Casing Diameter	4 in.		
Surface Seal Depth	20 ft.	Number	3

GEOTECHNICAL PROJECTS

Number of Borings		Maximum Depth	ft.
Hole Diameter	in.		

ESTIMATED STARTING DATE 3/12/91
ESTIMATED COMPLETION DATE 3/14/91

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

APPLICANT'S SIGNATURE Steve Strauss Date 3/6/91

FOR OFFICE USE

PERMIT NUMBER 91131
LOCATION NUMBER

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

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

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

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

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 6 Mar 91
Wyman Hong

APPENDIX C

CHAIN OF CUSTODY RECORDS
LABORATORY ANALYSIS REPORTS

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

PROJ NO	PROJECT NAME
61006.1	Texaco Alameda
P.O. NO	SAMPLERS (Signature)
	Lee Thoem

RECEIVED
APR [illegible]
APPLIED GEOSYSTEMS
SAN JOSE BRANCH

DATE MM/DD/YY	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	Preserved?	REMARKS	LABORATORY I.D. NUMBER
3/12/91	1205	S - 2½ - B1	1	X	X				
	1210	S - 5½ - B1	1	X	X				
	1220	S - 8½ B1	1	X	X	X			
3/13/91	1240	S - 2½ - B2	1	X	X				
	1245	S - 5½ - B2	1	X	X	X			
	1520	S - 3½ - B3	1	X	X				
	1525	S - 6½ - B3	1	X	X	X			
	1035	S - 4½ - B4	1	X	X				
	1040	S - 6½ - B4	1	X	X	X			
3/12/91	1550	S - 2½ - B5	1	X	X				
	1555	S - 5½ - B5	1	X	X	X			
	1600	S - 8½ - B5	1	X	X				
	1045	S 2½ - B6	1	X	X				
	1050	S 5½ - B6	1	X	X	X			
	1055	S - 8½ - B6	1	X	X				
	910	S 3½ B7	1	X	X				
	920	S - 7 - B7	1	X	X	X			

RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED BY (Signature)	Laboratory:	SEND RESULTS TO:
Lee Thoem		Diane Smith x5570		**Applied GeoSystems** 3315 Almaden Expressway Suite 34 San Jose, California 95118 (408) 264-7723
RELINQUISHED BY (Signature) EXPRESS-IT x7480mm	DATE / TIME 3-15-91 930	RECEIVED BY (Signature):	Turn Around: 2-week	Proj. Mgr.: Dave Higgins
RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature): Anthony Guerra		

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

PROJ. NO	PROJECT NAME
61006-1	Texaco Alameda
P.O. NO	SAMPLERS (Signature)
	Steve Thomas

RECEIVED
MAR 1991
APPLIED GEOSYSTEMS
SAN JOSE BRANCH

DATE (MM/DD/YY)	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	VOCs (8010) 8270	Preserved?	REMARKS	LABORATORY I.D. NUMBER
3/12/91	0920	S - 2½ - B8	1	X	X					
	0925	S 5½ - B8	1	X	X	X	X			
	0945	S - 2½ B9	1	X	X					
	0950	S 5½ B9	1	X	X	X	X			
3/12/91	1635	S - 2½ B10	1	X	X					
	1645	S 5½ B10	1	X	X		X			
	1650	S 8½ B10	1	X	X	X	X (8270)			
3/13/91	1135	S 2½ - B11				X	X			
	1140	S - 5½ - B11		X	X	X	X		one sample for VOCs	

RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED BY (Signature):
		Dan Smith X598
RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED BY (Signature):
Express. if X740 mm	3-13-91 930	
RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature):
		Anthony Lewis

Laboratory:

Turn Around: 2-week

SEND RESULTS TO:

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

Proj. Mgr.: Dave Higgins

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

PROJ. NO.	PROJECT NAME
61006-1	Texaco - Alameda
P.O. NO.	SAMPLERS (Signature)
	Steve Steen

RECEIVED
APR 1991
APPLIED GEOSYSTEMS
SAN JOSE BRANCH

DATE MM/DD/YY	TIME	SAMPLE I.D.	No. of Containers	ANALYSIS: TPHg	BTEX	TPHd	Preserved?	LABORATORY I.D. NUMBER
3/15/91	940	S-2½-B10A	1	X	X			
3/15/91	0950	S-3-B10B	1	X	X			
3/15/91	1000	S-3-B10C	1	X	X			

RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED BY (Signature)
Steve Steen	3-15-91 1330	
RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED BY (Signature)
RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature):
	3-15-91 1330	Tamara Kuk

REMARKS:
2 week turnaround

SEND RESULTS TO:
Applied GeoSystems
3315 Almaden Expressway
Suite 34
San Jose, California 95118
(408) 264-7723

Proj. Mgr.: Dave Higgins

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. Dave Higgins
Applied GeoSystems
3315 Almaden Expressway
San Jose, CA 95811
Project: AGS 61006-1

Date Sampled: 03-12/13-91
Date Received: 03-15-91
BTEX Analyzed: 03-17 to 21-91
TPHg Analyzed: 03-17 to 21-91
TPHd Analyzed: 03-23-91
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-2 1/2-B1 S1103364	0.006	0.052	0.009	0.083	1.6	NR
S-5 1/2-B1 S1103365	ND	ND	ND	0.007	ND	NR
S-8 1/2-B1 S1103366	17	350	130	630	7300	ND
S-2 1/2-B2 S1103367	ND	0.007	ND	0.023	ND	NR
S-5 1/2-B2 S1103368	ND	ND	ND	0.014	ND	ND

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

April 1, 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. Dave Higgins
Applied GeoSystems
3315 Almaden Expressway
San Jose, CA 95811
Project: AGS 61006-1

Date Sampled: 03-12/13-91
Date Received: 03-15-91
BTEX Analyzed: 03-17 to 21-91
TPHg Analyzed: 03-17 to 21-91
TPHd Analyzed: 03-26-91
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-3 1/2-B3 S1103369	ND	ND	ND	0.006	ND	NR
S-6 1/2-B3 S1103370	ND	ND	0.089	0.65	48	ND
S-4 1/2-B4 S1103371	ND	0.23	6.0	32	600	NR
S-6 1/2-B4 S1103372	0.087	10	26	130	1500	ND
S-2 1/2-B5 S1103373	0.006	0.019	0.018	0.11	ND	NR

ppm = parts per million = mg/kg = milligrams per kilogram.
ND = Not detected. Compound(s) may be present at concentrations below the detection limit.
NR = Analysis not requested.

ANALYTICAL PROCEDURES

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

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

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

Laboratory Representative

April 1, 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. Dave Higgins	Date Sampled:	03-12/13-91
	Applied GeoSystems	Date Received:	03-15-91
	3315 Almaden Expressway	BTEX Analyzed:	03-17 to 21-91
	San Jose, CA 95811	TPHg Analyzed:	03-17 to 21-91
Project:	AGS 61006-1	TPHd Analyzed:	03-21-91
		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-5 1/2-B5 S1103374	ND	5.1	8.1	47	1100	ND
S-8 1/2-B5 S1103375	93	540	160	770	9200	NR
S-2 1/2-B6 S1103376	0.013	0.31	0.14	0.99	11	NR
S-5 1/2-B6 S1103377	ND	1.4	0.84	4.9	58	ND
S-8 1/2-B6 S1103378	60	290	53	260	2700	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

April 1, 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. Dave Higgins
Applied GeoSystems
3315 Almaden Expressway
San Jose, CA 95811
Project: AGS 61006-1

Date Sampled: 03-12/13-91
Date Received: 03-15-91
BTEX Analyzed: 03-17 to 21-91
TPHg Analyzed: 03-17 to 21-91
TPHd Analyzed: 03-26-91
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-3 1/2-B7 S1103379	ND	0.072	0.026	0.15	5.1	NR
S-7-B7 S1103380	0.24	0.61	0.44	1.3	13	ND
S-2 1/2-B8 S1103381	ND	0.006	ND	0.015	ND	NR
S-5 1/2-B8 S1103382	ND	ND	ND	0.010	ND	ND
S-2 1/2-B9 S1103383	ND	ND	ND	0.007	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

April 1, 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. Dave Higgins
Applied GeoSystems
3315 Almaden Expressway
San Jose, CA 95811
Project: AGS 61006-1

Date Sampled: 03-12/13-91
Date Received: 03-15-91
BTEX Analyzed: 03-17 to 21-91
TPHg Analyzed: 03-17 to 21-91
TPHd Analyzed: 03-26-91
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-5 1/2-B9 S1103384	ND	ND	ND	0.009	ND	ND
S-2 1/2-B10 S1103385	ND	0.017	0.027	0.14	1.7	NR
S-5 1/2-B10 S1103386	ND	12	31	160	2600	NR
S-8 1/2-B10 S1103387	2.6	32	21	110	1400	ND
S-2 1/2-B11 S1103388	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

April 1, 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. Dave Higgins	Date Sampled:	03-13-91
	Applied GeoSystems	Date Received:	03-15-91
	3315 Almaden Expressway	BTEX Analyzed:	03-17 to 21-91
	San Jose, CA 95811	TPHg Analyzed:	03-17 to 21-91
Project:	AGS 61006-1	TPHd Analyzed:	03-26-91
		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-5 1/2-B11 S1103389	ND	ND	ND	0.007	ND	ND

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

April 1, 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. Dave Higgins	Date Sampled:	03-15-91
	Applied GeoSystems	Date Received:	03-15-91
	3315 Almaden Expressway	BTEX Analyzed:	03-27-91
	San Jose, CA 95811	TPHg Analyzed:	03-27-91
Project:	AGS 61006-1	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-2.5-B10A S1103390	ND	ND	ND	ND	ND	NR
S-3-B10B S1103391	ND	0.007	ND	0.079	2.1	NR
S-3-B10C S1103392	ND	0.023	0.14	0.55	4.3	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

April 1, 1991
Date Reported

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

PROJ. NO	PROJECT NAME
10061	Texaco, Alameda
P.O. NO	SAMPLERS (Signature)
	[signature]

DATE MM/DD/YY	TIME	SAMPLE I.D.	No. of Containers	TPHg	BTEX	TPHd	8015	8270	5520 E/F (O&G)			Preserved?	LABORATORY I.D. NUMBER
1/9/91	0900	S-3½-11A	1	[illegible]	[illegible]		X	X	X				
1/9/91	0930	S-6-11A	1				X	X	X				

RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED BY (Signature)
[signature]	4-4-91 1130	
RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED BY (Signature)
RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature):
	4/4/91 11:30	[signature]

REMARKS:

48 hour turnaround

SEND RESULTS TO:

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

Proj. Mgr.: Dave Higgins

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. Dave Higgins	Date Sampled:	04-04-91
	Applied GeoSystems	Date Received:	04-04-91
	3315 Almaden Expressway	TOG Analyzed:	04-04-91
	San Jose, CA 95118	Matrix:	Soil
Project:	AGS 61006-1	Detection Limit:	50 mg/kg

SAMPLE Laboratory Identification	TOG (mg/kg)
S-3.5-11A S1104087	ND
S-6-11A S1104088	ND

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

Laboratory Representative

April 8, 1991
Date Reported

CHAIN-OF-CUSTODY RECORD

CHROMALAB FILE # 491030

1959

PROJ NO	PROJECT NAME
6.1006-1	Texaco - Alameda
P.O. NO.	SAMPLERS (Signature)

DATE (MM/DD/YY)	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	ANALYSIS 8010	ANALYSIS 8270				Preserved?	REMARKS	LABORATORY I.D. NUMBER
4/4/91		S-3½-11A Soil	1				X	X						
4/4/91		S-6-11A ↓	1				X	X						

RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED BY (Signature):
Anthony Guerra	4/4/91 1:52	T. Dawson
RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED BY (Signature):
RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature):
	4-4 2:30	T. Dawson

Laboratory: Chromalab

Turn Around: 48 Hrs

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

(415) 623-0775

Proj. Mgr.: Laura Kuk

CHROMALAB, INC.

Analytical Laboratory (E694)

5 DAYS TURNAROUND

April 8, 1991 — ChromaLab File # 0491030 A

Client: Applied Analytical — Attn: Laura Kuck
Date Sampled: Apr. 04, 1991 — Date Submitted: Apr. 04, 1991
Date Extracted: Apr. 06, 1991 — Date Analyzed: Apr. 08, 1991

Project Number: 61006-1 — Project Name: Texaco-Alameda
Sample I.D.: S-3.5-11A
Method of Analysis: EPA 8270 — Matrix: soil

COMPOUND NAME	Sample mg/Kg	MDL mg/Kg	Spike Recovery
PHENOL	N.D.	0.5	-----
BIS(2-CHLOROETHYL) ETHER	N.D.	0.5	104.2% 96.2%
2-CHLOROPHENOL	N.D.	0.5	-----
1,3-DICHLOROBENZENE	N.D.	0.5	-----
1,4-DICHLOROBENZENE	N.D.	0.5	-----
BENZYL ALCOHOL	N.D.	1.0	-----
1,2-DICHLOROBENZENE	N.D.	0.5	-----
2-METHYLPHENOL	N.D.	0.5	-----
BIS(2-CHLOROISOPROPYL)ETHER	N.D.	0.5	-----
4-METHYLPHENOL	N.D.	0.5	-----
N-NITROSO-DI-N-PROPYLAMINE	N.D.	0.5	-----
HEXACHLOROETHANE	N.D.	0.5	-----
NITROBENZENE	N.D.	0.5	-----
ISOPHORONE	N.D.	0.5	-----
2-NITROPHENOL	N.D.	0.5	-----
2,4-DIMETHYLPHENOL	N.D.	0.5	-----
BENZOIC ACID	N.D.	2.5	-----
BIS(2-CHLOROETHOXY)METHANE	N.D.	0.5	95.3% 93.0%
2,4-DICHLOROPHENOL	N.D.	0.5	-----
1,2,4-TRICHLOROBENZENE	N.D.	0.5	-----
NAPHTHALENE	N.D.	0.5	-----
4-CHLOROANILINE	N.D.	1.0	-----
HEXACHLOROBUTADIENE	N.D.	0.5	-----
4-CHLORO-3-METHYLPHENOL	N.D.	1.0	-----
2-METHYLNAPHTHALENE	N.D.	0.5	-----
HEXACHLOROCYCLOPENTADIENE	N.D.	0.5	-----
2,4,6-TRICHLOROPHENOL	N.D.	0.5	-----
2,4,5-TRICHLOROPHENOL	N.D.	0.5	-----
2-CHLORONAPHTHALENE	N.D.	0.5	-----
2-NITROANILINE	N.D.	2.5	-----
DIMETHYL PHTHALATE	N.D.	0.5	-----
ACENAPHTHYLENE	N.D.	0.5	-----
3-NITROANILINE	N.D.	2.5	-----
ACENAPHTHENE	N.D.	0.5	110.0% 100.0%
2,4-DINITROPHENOL	N.D.	2.5	-----
4-NITROPHENOL	N.D.	2.5	-----
DIBENZOFURAN	N.D.	0.5	-----

(continued on next page

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

ChromaLab File # 0491030 A

Project Number: 61006-1 Project Name: Texaco-Alameda
Sample I.D.: S-3.5-11A
Method of Analysis: EPA 8270 Matrix: soil

COMPOUND NAME	Sample mg/Kg	MDL mg/Kg	Spike Recovery
2,4-DINITROTOLUENE	N.D.	0.5	-----
2,6-DINITROTOLUENE	N.D.	0.5	110.1% 116.0%
DIETHYL PHTHALATE	N.D.	0.5	-----
4-CHLORO-PHENYL PHENYL ETHER	N.D.	0.5	-----
FLUORENE	N.D.	0.5	-----
4-NITROANILINE	N.D.	2.5	-----
4,6-DINITRO-2-METHYL PHENOL	N.D.	2.5	-----
N-NITROSODIPHENYLAMINE	N.D.	0.5	-----
4-BROMOPHENYL PHENYL ETHER	N.D.	0.5	-----
HEXACHLOROBENZENE	N.D.	0.5	-----
PENTACHLOROPHENOL	N.D.	2.5	-----
PHENANTHRENE	N.D.	0.5	-----
ANTHRACENE	N.D.	0.5	-----
DI-N-BUTYL PHTHALATE	0.9	0.5	-----
FLUORANTHENE	N.D.	0.5	-----
PYRENE	N.D.	0.5	-----
BUTYLBENZYLPHTHALATE	N.D.	0.5	-----
3,3'-DICHLOROBENZIDINE	N.D.	1.0	-----
BENZO(A)ANTHRACENE	N.D.	0.5	-----
BIS(2-ETHYLHEXYL)PHTHALATE	N.D.	0.5	-----
CHRYSENE	N.D.	0.5	110.0% 98.7%
DI-N-OCTYLPHTHALATE	N.D.	0.5	-----
BENZO(B)FLUORANTHENE	N.D.	0.5	-----
BENZO(K)FLUORANTHENE	N.D.	0.5	-----
BENZO(A)PYRENE	N.D.	0.5	-----
INDENO(1,2,3 C,D)PYRENE	N.D.	0.5	-----
DIBENZO(A,H)ANTHRACENE	N.D.	0.5	-----
BENZO(G,H,I)PERYLENE	N.D.	0.5	-----

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

April 8, 1991 — ChromaLab File # 0491030 B

Client: Applied Analytical — Attn: Laura Kuck
Date Sampled: Apr. 04, 1991 — Date Submitted: Apr. 04, 1991
Date Extracted: Apr. 06, 1991 — Date Analyzed: Apr. 08, 1991

Project Number: 61006-1 — Project Name: Texaco-Alameda
Sample I.D.: S-6-11A
Method of Analysis: EPA 8270 — Matrix: soil

COMPOUND NAME	Sample mg/Kg	MDL mg/Kg	Spike Recovery
PHENOL	N.D.	0.5	-----
BIS(2-CHLOROETHYL) ETHER	N.D.	0.5	104.2% 96.2%
2-CHLOROPHENOL	N.D.	0.5	-----
1,3-DICHLOROBENZENE	N.D.	0.5	-----
1,4-DICHLOROBENZENE	N.D.	0.5	-----
BENZYL ALCOHOL	N.D.	1.0	-----
1,2-DICHLOROBENZENE	N.D.	0.5	-----
2-METHYLPHENOL	N.D.	0.5	-----
BIS(2-CHLOROISOPROPYL)ETHER	N.D.	0.5	-----
4-METHYLPHENOL	N.D.	0.5	-----
N-NITROSO-DI-N-PROPYLAMINE	N.D.	0.5	-----
HEXACHLOROETHANE	N.D.	0.5	-----
NITROBENZENE	N.D.	0.5	-----
ISOPHORONE	N.D.	0.5	-----
2-NITROPHENOL	N.D.	0.5	-----
2,4-DIMETHYLPHENOL	N.D.	0.5	-----
BENZOIC ACID	N.D.	2.5	-----
BIS(2-CHLOROETHOXY)METHANE	N.D.	0.5	95.3% 93.0%
2,4-DICHLOROPHENOL	N.D.	0.5	-----
1,2,4-TRICHLOROBENZENE	N.D.	0.5	-----
NAPHTHALENE	N.D.	0.5	-----
4-CHLOROANILINE	N.D.	1.0	-----
HEXACHLOROBUTADIENE	N.D.	0.5	-----
4-CHLORO-3-METHYLPHENOL	N.D.	1.0	-----
2-METHYLNAPHTHALENE	N.D.	0.5	-----
HEXACHLOROCYCLOPENTADIENE	N.D.	0.5	-----
2,4,6-TRICHLOROPHENOL	N.D.	0.5	-----
2,4,5-TRICHLOROPHENOL	N.D.	0.5	-----
2-CHLORONAPHTHALENE	N.D.	0.5	-----
2-NITROANILINE	N.D.	2.5	-----
DIMETHYL PHTHALATE	N.D.	0.5	-----
ACENAPHTHYLENE	N.D.	0.5	-----
3-NITROANILINE	N.D.	2.5	-----
ACENAPHTHENE	N.D.	0.5	110.0% 100.0%
2,4-DINITROPHENOL	N.D.	2.5	-----
4-NITROPHENOL	N.D.	2.5	-----
DIBENZOFURAN	N.D.	0.5	-----

(continued on next page)

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

ChromaLab File # 0491030 B

Project Number: 61006-1 Project Name: Texaco-Alameda
Sample I.D.: S-6-11A
Method of Analysis: EPA 8270 Matrix: soil

COMPOUND NAME	Sample mg/Kg	MDL mg/Kg	Spike Recovery
2,4-DINITROTOLUENE	N.D.	0.5	-----
2,6-DINITROTOLUENE	N.D.	0.5	110.1% 116.0%
DIETHYL PHTHALATE	N.D.	0.5	-----
4-CHLORO-PHENYL PHENYL ETHER	N.D.	0.5	-----
FLUORENE	N.D.	0.5	-----
4-NITROANILINE	N.D.	2.5	-----
4,6-DINITRO-2-METHYL PHENOL	N.D.	2.5	-----
N-NITROSODIPHENYLAMINE	N.D.	0.5	-----
4-BROMOPHENYL PHENYL ETHER	N.D.	0.5	-----
HEXACHLOROBENZENE	N.D.	0.5	-----
PENTACHLOROPHENOL	N.D.	2.5	-----
PHENANTHRENE	N.D.	0.5	-----
ANTHRACENE	N.D.	0.5	-----
DI-N-BUTYL PHTHALATE	1.0	0.5	-----
FLUORANTHENE	N.D.	0.5	-----
PYRENE	N.D.	0.5	-----
BUTYLBENZYLPHTHALATE	N.D.	0.5	-----
3,3'-DICHLOROBENZIDINE	N.D.	1.0	-----
BENZO(A)ANTHRACENE	N.D.	0.5	-----
BIS(2-ETHYLHEXYL)PHTHALATE	N.D.	0.5	-----
CHRYSENE	N.D.	0.5	110.0% 98.7%
DI-N-OCTYLPHTHALATE	N.D.	0.5	-----
BENZO(B)FLUORANTHENE	N.D.	0.5	-----
BENZO(K)FLUORANTHENE	N.D.	0.5	-----
BENZO(A)PYRENE	N.D.	0.5	-----
INDENO(1,2,3 C,D)PYRENE	N.D.	0.5	-----
DIBENZO(A,H)ANTHRACENE	N.D.	0.5	-----
BENZO(G,H,I)PERYLENE	N.D.	0.5	-----

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

April 8, 1991 — ChromaLab File # 0491030 A

Client: Applied Analytical — Attn: Laura Kuck
Date Sampled: Apr. 04, 1991 — Date Submitted: Apr. 04, 1991
Date Extracted: Apr. 05, 1991 — Date Analyzed: Apr. 05, 1991

Project Number: 61006-1 — Project Name: Texaco-Alameda
Sample I.D.: S-3.5-11A
Method of Analysis: EPA 8010 — Detection Limit: 5.0 ug/Kg

COMPOUND NAME	ug/Kg	Spike Recovery
CHLOROMETHANE	N.D.	---
VINYL CHLORIDE	N.D.	---
BROMOMETHANE	N.D.	---
CHLOROETHANE	N.D.	---
TRICHLOROFLUOROMETHANE	N.D.	---
1,1-DICHLOROETHENE	N.D.	102.5% 96.5%
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.	99.7% 93.5%
1,2-DICHLOROETHANE	N.D.	---
TRICHLOROETHENE	N.D.	---
1,2-DICHLOROPROPANE	N.D.	---
BROMODICHLOROMETHANE	N.D.	---
2-CHLOROETHYLVINYLETHER	N.D.	---
TRANS-1,3-DICHLOROPROPENE	N.D.	98.2% 96.1%
CIS-1,3-DICHLOROPROPENE	N.D.	---
1,1,2-TRICHLOROETHANE	N.D.	---
TETRACHLOROETHENE	N.D.	---
DIBROMOCHLOROMETHANE	N.D.	---
CHLOROBENZENE	N.D.	101.5% 96.4%
BROMOFORM	N.D.	---
1,1,2,2-TETRACHLOROETHANE	N.D.	---
1,3-DICHLOROBENZENE	N.D.	---
1,4-DICHLOROBENZENE	N.D.	---
1,2-DICHLOROBENZENE	N.D.	---

ChromaLab, Inc.

David Duong
Senior Chemist

Eric Tam
Lab Director

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

April 8, 1991 — ChromaLab File # 0491030 B

Client: Applied Analytical — Attn: Laura Kuck
Date Sampled: Apr. 04, 1991 — Date Submitted: Apr. 04, 1991
Date Extracted: Apr. 05, 1991 — Date Analyzed: Apr. 05, 1991

Project Number: 61006-1 — Project Name: Texaco-Alameda
Sample I.D.: S-6-11A
Method of Analysis: EPA 8010 — Detection Limit: 5.0 ug/Kg

COMPOUND NAME	ug/Kg	Spike Recovery
CHLOROMETHANE	N.D.	---
VINYL CHLORIDE	N.D.	---
BROMOMETHANE	N.D.	---
CHLOROETHANE	N.D.	---
TRICHLOROFLUOROMETHANE	N.D.	---
1,1-DICHLOROETHENE	N.D.	102.5% 96.5%
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.	99.7% 93.5%
1,2-DICHLOROETHANE	N.D.	---
TRICHLOROETHENE	N.D.	---
1,2-DICHLOROPROPANE	N.D.	---
BROMODICHLOROMETHANE	N.D.	---
2-CHLOROETHYLVINYLETHER	N.D.	---
TRANS-1,3-DICHLOROPROPENE	N.D.	98.2% 96.1%
CIS-1,3-DICHLOROPROPENE	N.D.	---
1,1,2-TRICHLOROETHANE	N.D.	---
TETRACHLOROETHENE	N.D.	---
DIBROMOCHLOROMETHANE	N.D.	---
CHLOROBENZENE	N.D.	101.5% 96.4%
BROMOFORM	N.D.	---
1,1,2,2-TETRACHLOROETHANE	N.D.	---
1,3-DICHLOROBENZENE	N.D.	---
1,4-DICHLOROBENZENE	N.D.	---
1,2-DICHLOROBENZENE	N.D.	---

ChromaLab, Inc.

David Duong
Senior Chemist

Eric Tam
Lab Director

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

Applied GeoSystems

CHAIN-OF-CUSTODY RECORD

9103300

(1) 10/7

C.R. 11/15

PROJ NO	PROJECT NAME
610061	Texaco, Alameda
P.O. NO	SAMPLERS (Signature)
0743	

RECEIVED
APR 11 1991
APPLIED GEOSYSTEMS
SAN JOSE BRANCH

DATE (MM/DD/YY)	TIME		No. of Containers	TPHgasoline (8015)	BTEX (602/8020)	TPHdiesel (8015)	624 / 8240					Preserved?	REMARKS	LABORATORY I.D. NUMBER
3/22/91	1650	W-9 MW1	10	X	X	X	X					HCl	Cond, pH, creating, no bubble traveling,	
"		MW1 Rinsate Blank	1	X	X								does preserved except Trip Blk (HCl)	
3/22/91	1400	W-9-MW2	10	X	X	X	X					HCl		
"		MW2 Rinsate Blank	1	X	X									
3/22/91	1300	W-9-MW3	10	X	X	X	X					HCl		
"		MW3 Rinsate Blank	1	X	X									
3/22/91		Travel Blank	1	X	X									
3/23/91	1700	VH-7 grab sample	1										Cold	
3/22/91	1710	VH-5 grab sample	1										Cold	

RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED BY (Signature)
Steve Steves	3/24/91 9:10	Lisa Higgins
RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED BY (Signature)
Lisa Higgins	3/24/91 10:45	Barry L. Carrizosa
RELINQUISHED BY (Signature)	DATE / TIME	RECEIVED FOR LABORATORY BY (Signature)
Barry L. Carrizosa	3/25/91 1110	[illegible] 03 3/25/91 1110

Laboratory:

Turn Around: 2 wks

SEND RESULTS TO:
Applied GeoSystems
3315 Almaden Expressway
Suite 34
San Jose, California 95118
(408) 264-7723

Proj. Mgr.: Dave Higgins

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

RECEIVED
APR 11 1991
APPLIED GEOSYSTEMS
SAN JOSE BRANCH

REPORT

MR. DAVE HIGGINS
APPLIED GEO SYSTEMS - SAN JOSE
3315 ALMADEN EXPRESSWAY, SUITE 34
SAN JOSE, CA 95118

Workorder # : 9103300
Date Received : 03/25/91
Project ID : 61006-1
Purchase Order: 0743

The following samples were received at Anametrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9103300- 1	W-9-MW1
9103300- 2	MW1 RINSATE BLANK
9103300- 3	W-9-MW2
9103300- 4	MW2 RINSATE BLANK
9103300- 5	W-9-MW3
9103300- 6	MW3 RINSATE BLANK
9103300- 7	TRAVEL BLANK
9103300- 8	VW-7 GRAB SAMPLE
9103300- 9	VW-5 GRAB SAMPLE

This report consists of 16 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anametrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Sarah Schoen, Ph.D.
Laboratory Manager

4-8-91
Date

ANAMETRIX REPORT DESCRIPTION
GCMS

Organic Analysis Data Sheets (OADS)

OADS forms contain tabulated results for target compounds. The OADS are grouped by method and, within each method, organized sequentially in order of increasing Anametrix ID number.

Tentatively Identified Compounds (TICs)

TIC forms contain tabulated results for non-target compounds detected in GC/MS analyses. TICs must be requested at the time samples are submitted at Anametrix. TIC forms immediately follow the OADS form for each sample. If TICs are requested but not found, then TIC forms will not be included with the report.

Surrogate Recovery Summary (SRS)

SRS forms contain quality assurance data. An SRS form will be printed for each method, if the method requires surrogate compounds. They will list surrogate percent recoveries for all samples and any method blanks. Any surrogate recovery outside the established limits will be flagged with an "*", and the total number of surrogates outside the limits will be listed in the column labelled "Total Out".

Matrix Spike Recovery Form (MSR)

MSR forms contain quality assurance data. They summarize percent recovery and relative percent difference information for matrix spikes and matrix spike duplicates. This information is a statement of both accuracy and precision. Any percent recovery or relative percent difference outside established limits will be flagged with an "*", and the total number outside the limits will be listed at the bottom of the page. Not all reports will contain an MSR form.

Qualifiers

Anametrix uses several data qualifiers (Q) in it's report forms. These qualifiers give additional information on the compounds reported. They should help a data reviewer to verify the integrity of the analytical results. The following is a list of qualifiers and their meanings:

- U - Indicates that the compound was analyzed for, but was not detected at or above the specified reporting limit.
- B - Indicates that the compound was detected in the associated method blank.
- J - Indicates that the compound was detected at an amount below the specified reporting limit. Consequently, the amount should be considered an approximate value. Tentatively identified compounds will always have a "J" qualifier because they are not included in the instrument calibration.
- E - Indicates that the amount reported exceeded the linear range of the instrument calibration.
- D - Indicates that the compound was detected in an analysis performed at a secondary dilution.
- A - Indicates that the tentatively identified compound is a suspected aldol condensation product. This is common in EPA Method 8270 soil analyses.

Absence of a qualifier indicates that the compound was detected at a concentration at or above the specified reporting limit.

REPORTING CONVENTIONS

- Due to a size limitation in our data processing step, only the first eight (8) characters of your project ID and sample ID will be printed on the report forms. However, the report cover letter and report summary pages display up to twenty (20) characters of your project and sample IDs.
- Amounts reported are gross values, i.e., not corrected for method blank contamination.

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

MR. DAVE HIGGINS
APPLIED GEO SYSTEMS - SAN JOSE
3315 ALMADEN EXPRESSWAY, SUITE 34
SAN JOSE, CA 95118

Workorder # : 9103300
Date Received : 03/25/91
Project ID : 61006-1
Purchase Order: 0743
Department : GCMS
Sub-Department: GCMS

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9103300- 1	W-9-MW1	WATER	03/22/91	8240
9103300- 3	W-9-MW2	WATER	03/22/91	8240
9103300- 5	W-9-MW3	WATER	03/22/91	8240

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

MR. DAVE HIGGINS
APPLIED GEO SYSTEMS - SAN JOSE
3315 ALMADEN EXPRESSWAY, SUITE 34
SAN JOSE, CA 95118

Workorder # : 9103300
Date Received : 03/25/91
Project ID : 61006-1
Purchase Order: 0743
Department : GCMS
Sub-Department: GCMS

QA/QC SUMMARY :

- No QA/QC problems encountered.

Department Supervisor Date

Chemist Date

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : 61006-1
Sample ID : W-9-MW1
Matrix : WATER
Date Sampled : 3/22/91
Date Analyzed : 4/ 5/91
Instrument ID : F1

Anametrix ID : 9103300-01
Analyst : [illegible]
Supervisor : [illegible]

Dilution Factor : 10.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	100.	ND	U
75-01-4	VINYL CHLORIDE	100.	ND	U
74-83-9	BROMOMETHANE	100.	ND	U
75-00-3	CHLOROETHANE	100.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	50.	ND	U
75-35-4	1,1-DICHLOROETHENE	50.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	50.	ND	U
67-64-1	ACETONE	200.	ND	U
75-15-0	CARBON DISULFIDE	50.	ND	U
75-09-2	METHYLENE CHLORIDE	50.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	50.	ND	U
75-34-3	1,1-DICHLOROETHANE	50.	ND	U
78-93-3	2-BUTANONE	200.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	50.	ND	U
67-66-3	CHLOROFORM	50.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	50.	ND	U
56-23-5	CARBON TETRACHLORIDE	50.	ND	U
71-43-2	BENZENE	50.	1300.	
107-06-2	1,2-DICHLOROETHANE	50.	ND	U
79-01-6	TRICHLOROETHENE	50.	ND	U
78-87-5	1,2-DICHLOROPROPANE	50.	ND	U
75-27-4	BROMODICHLOROMETHANE	50.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	50.	ND	U
108-05-4	VINYL ACETATE	100.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	50.	ND	U
108-10-1	4-METHYL-2-PENTANONE	100.	ND	U
108-88-3	TOLUENE	50.	640.	
10061-02-6	TRANS-1,3-DICHLOROPROPENE	50.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	50.	ND	U
127-18-4	TETRACHLOROETHENE	50.	ND	U
591-78-6	2-HEXANONE	100.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	50.	ND	U
108-90-7	CHLOROBENZENE	50.	ND	U
100-41-4	ETHYLBENZENE	50.	120.	
1330-20-7	XYLENE (TOTAL)	50.	830.	
100-42-5	STYRENE	50.	ND	U
75-25-2	BROMOFORM	50.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	50.	ND	U
541-73-1	1,3-DICHLOROBENZENE	50.	ND	U
106-46-7	1,4-DICHLOROBENZENE	50.	ND	U
95-50-1	1,2-DICHLOROBENZENE	50.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : 61006-1
Sample ID : W-9-MW2
Matrix : WATER
Date Sampled : 3/22/91
Date Analyzed : 4/ 3/91
Instrument ID : F1

Anametrix ID : 9103300-03
Analyst : LI
Supervisor : UM

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	ND	U
75-35-4	1,1-DICHLOROETHENE	5.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	ND	U
75-34-3	1,1-DICHLOROETHANE	5.	ND	U
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	ND	U
67-66-3	CHLOROFORM	5.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	ND	U
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	54.	
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	ND	U
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	5.	J
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	ND	U
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	31.	
1330-20-7	XYLENE (TOTAL)	5.	130.	
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : 61006-1
Sample ID : W-9-MW3
Matrix : WATER
Date Sampled : 3/22/91
Date Analyzed : 4/ 3/91
Instrument ID : F1

Anametrix ID : 9103300-05
Analyst : LY
Supervisor : JM

Dilution Factor : 20.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	200.	ND	U
75-01-4	VINYL CHLORIDE	200.	ND	U
74-83-9	BROMOMETHANE	200.	ND	U
75-00-3	CHLOROETHANE	200.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	100.	ND	U
75-35-4	1,1-DICHLOROETHENE	100.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	100.	ND	U
67-64-1	ACETONE	400.	ND	U
75-15-0	CARBON DISULFIDE	100.	ND	U
75-09-2	METHYLENE CHLORIDE	100.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	100.	ND	U
75-34-3	1,1-DICHLOROETHANE	100.	ND	U
78-93-3	2-BUTANONE	400.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	100.	ND	U
67-66-3	CHLOROFORM	100.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	100.	ND	U
56-23-5	CARBON TETRACHLORIDE	100.	ND	U
71-43-2	BENZENE	100.	480.	
107-06-2	1,2-DICHLOROETHANE	100.	ND	U
79-01-6	TRICHLOROETHENE	100.	ND	U
78-87-5	1,2-DICHLOROPROPANE	100.	ND	U
75-27-4	BROMODICHLOROMETHANE	100.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	100.	ND	U
108-05-4	VINYL ACETATE	200.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	100.	ND	U
108-10-1	4-METHYL-2-PENTANONE	200.	ND	U
108-88-3	TOLUENE	100.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	100.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	100.	ND	U
127-18-4	TETRACHLOROETHENE	100.	ND	U
591-78-6	2-HEXANONE	200.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	100.	ND	U
108-90-7	CHLOROBENZENE	100.	ND	U
100-41-4	ETHYLBENZENE	100.	330.	
1330-20-7	XYLENE (TOTAL)	100.	1600.	
100-42-5	STYRENE	100.	ND	U
75-25-2	BROMOFORM	100.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	100.	ND	U
541-73-1	1,3-DICHLOROBENZENE	100.	ND	U
106-46-7	1,4-DICHLOROBENZENE	100.	ND	U
95-50-1	1,2-DICHLOROBENZENE	100.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID :
Sample ID : BLANK
Matrix : WATER
Date Sampled : 0/ 0/ 0
Date Analyzed : 4/ 3/91
Instrument ID : F1

Anametrix ID : 1CB0403V00
Analyst : LY
Supervisor : MI

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	ND	U
75-35-4	1,1-DICHLOROETHENE	5.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	ND	U
75-34-3	1,1-DICHLOROETHANE	5.	ND	U
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	ND	U
67-66-3	CHLOROFORM	5.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	ND	U
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	ND	U
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	ND	U
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	ND	U
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	ND	U
1330-20-7	XYLENE (TOTAL)	5.	ND	U
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID :
Sample ID : BLANK
Matrix : WATER
Date Sampled : 0/ 0/ 0
Date Analyzed : 4/ 5/91
Instrument ID : F1

Anametrix ID : 1CB0405V01
Analyst : [illegible]
Supervisor : [illegible]

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	ND	U
75-35-4	1,1-DICHLOROETHENE	5.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	ND	U
75-34-3	1,1-DICHLOROETHANE	5.	ND	U
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	ND	U
67-66-3	CHLOROFORM	5.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	ND	U
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	ND	U
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	ND	U
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	ND	U
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	ND	U
1330-20-7	XYLENE (TOTAL)	5.	ND	U
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

SURROGATE RECOVERY SUMMARY -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : 61006-1
Matrix : LIQUID

Anametrix ID : 9103300
Analyst : LJ
Supervisor : UM

	SAMPLE ID	SU1	SU2	SU3	TOTAL OUT
1	W-9-MW2	108	98	110	0
2	W-9-MW3	106	93	105	0
3	BLANK	102	100	95	0
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

	QC LIMITS
SU1 = 1,2-DICHLOROETHANE-D4	(75-113)
SU2 = TOLUENE-D8	(83-118)
SU3 = BROMOFLUOROBENZENE	(82-114)

* Values outside of Anametrix QC limits

SURROGATE RECOVERY SUMMARY -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : 61006-1
Matrix : LIQUID

Anametrix ID : 9103300
Analyst : LY
Supervisor : JH

	SAMPLE ID	SU1	SU2	SU3	TOTAL OUT
1	W-9-MW1	102	103	99	0
2	BLANK	96	99	94	0
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

	QC LIMITS
SU1 = 1,2-DICHLOROETHANE-D4	(75-113)
SU2 = TOLUENE-D8	(83-118)
SU3 = BROMOFLUOROBENZENE	(82-114)

* Values outside of Anametrix QC limits

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

MR. DAVE HIGGINS
APPLIED GEO SYSTEMS - SAN JOSE
3315 ALMADEN EXPRESSWAY, SUITE 34
SAN JOSE, CA 95118

Workorder # : 9103300
Date Received : 03/25/91
Project ID : 61006-1
Purchase Order: 0743
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9103300- 1	W-9-MW1	WATER	03/22/91	TPHd
9103300- 3	W-9-MW2	WATER	03/22/91	TPHd
9103300- 5	W-9-MW3	WATER	03/22/91	TPHd
9103300- 1	W-9-MW1	WATER	03/22/91	TPHg/BTEX
9103300- 2	MW1 RINSATE BLANK	WATER	03/22/91	TPHg/BTEX
9103300- 3	W-9-MW2	WATER	03/22/91	TPHg/BTEX
9103300- 4	MW2 RINSATE BLANK	WATER	03/22/91	TPHg/BTEX
9103300- 5	W-9-MW3	WATER	03/22/91	TPHg/BTEX
9103300- 6	MW3 RINSATE BLANK	WATER	03/22/91	TPHg/BTEX
9103300- 7	TRAVEL BLANK	WATER	03/22/91	TPHg/BTEX

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

MR. DAVE HIGGINS
APPLIED GEO SYSTEMS - SAN JOSE
3315 ALMADEN EXPRESSWAY, SUITE 34
SAN JOSE, CA 95118

Workorder # : 9103300
Date Received : 03/25/91
Project ID : 61006-1
Purchase Order: 0743
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- The concentrations reported as diesel for samples W-9-MW1, W-9-MW2, and W-9-MW3 are primarily due to the presence of a lighter petroleum product, possibly gasoline.

Department Supervisor Date

Chemist Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9103300
Matrix : WATER
Date Sampled : 03/22/91

Project Number : 61006-1
Date Released : 04/03/91

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# W-9- MW1 -01	Sample I.D.# MW1 RINSATE BLANK -02	Sample I.D.# W-9- MW2 -03	Sample I.D.# MW2 RINSATE BLANK -04	Sample I.D.# W-9- MW3 -05
Benzene	0.5	1300	ND	100	ND	390
Toluene	0.5	670	ND	20	ND	27
Ethylbenzene	0.5	180	ND	63	ND	240
Total Xylenes	0.5	770	1.3	220	ND	780
TPH as Gasoline	50	4500	ND	1100	ND	2500
% Surrogate Recovery		116%	130%	140%	136%	94%
Instrument I.D.		HP4	HP4	HP4	HP4	HP4
Date Analyzed		04/01/91	03/29/91	03/29/91	03/29/91	04/02/91
RLMF		25	1	1	1	25

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.
RLMF - Reporting Limit Multiplication Factor.
Anametrix control limits for surrogate recovery are 53-147%.

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

Analyst Date

Supervisor 4/3/91 Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9103300
Matrix : WATER
Date Sampled : 03/22/91

Project Number : 61006-1
Date Released : 04/03/91

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# MW3 RINSATE BLANK -06	Sample I.D.# TRAVEL BLANK -07	Sample I.D.# 04B0329A BLANK	Sample I.D.# 04B0401A BLANK	Sample I.D.# 04B0402A BLANK
Benzene	0.5	ND	ND	ND	ND	ND
Toluene	0.5	ND	ND	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND	ND	ND
Total Xylenes	0.5	ND	ND	ND	ND	ND
TPH as Gasoline	50	ND	ND	ND	ND	ND
% Surrogate Recovery		144%	137%	111%	97%	96%
Instrument I.D.		HP4	HP4	HP4	HP4	HP4
Date Analyzed		03/29/91	03/29/91	03/29/91	04/01/91	04/02/91
RLMF		1	1	1	1	1

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.
RLMF - Reporting Limit Multiplication Factor.
Anametrix control limits for surrogate recovery are 53-147%.

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

Analyst Date

Supervisor Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS AS DIESEL
ANAMETRIX, INC. (408) 432-8192

Anametrix W.O.: 9103300
Matrix : WATER
Date Sampled : 03/22/91
Date Extracted: 03/28/91

Project Number : 61006-1
Date released : 04/03/91
Instrument I.D.: HP9

Anametrix I.D.	Client I.D.	Date Analyzed	Reporting Limit (ug/L)	Amount Found (ug/L)
9103300-01	W-9-MW1	03/29/91	50	1100
9103300-03	W-9-MW2	03/29/91	50	140
9103300-05	W-9-MW3	03/29/91	50	770
DWBL032891	METHOD BLANK	03/29/91	50	ND

Note : Reporting limit is obtained by multiplying the dilution factor times 50ug/L.
ND - Not detected at or above the practical quantitation limit for the method.
TPHd - Total Petroleum Hydrocarbons as diesel is determined by GCFID following sample extraction by EPA Method 3510.

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

Analyst Date

Supervisor Date

TOTAL EXTRACTABLE HYDROCARBON MATRIX SPIKE REPORT
EPA METHOD 3550 WITH GC/FID
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : METHOD SPIKE
Matrix : REAGENT WATER
Date sampled : N/A
Date extracted: 03/28/91
Date analyzed : 03/29/91

Anametrix I.D. : SPK032891
Analyst : [illegible]
Supervisor : [illegible]
Date Released : 04/03/91

COMPOUND	SPIKE AMT. (ug/L)	MS (ug/L)	%REC MS	MSD (ug/L)	%REC MSD	RPD	%REC LIMITS
Diesel	500	330	66%	270	54%	-20%	49-122

* Limits established by Anametrix, Inc.

APPENDIX D

WELLHEAD SURVEY

RON ARCHER
CIVIL ENGINEER, INC.

CONSULTING • PLANNING • DESIGN • SURVEYING

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

RECEIVED

1991

APPLIED GEOSYSTEMS
SAN JOSE BRANCH

MARCH 26, 1991 JOB NO. 1779

ELEVATION OF EXISTING MONITOR WELLS AT THE LEWIS BAY STREET AUTO REPAIR SERVICE FACILITY (FORMERLY TEXACO) LOCATED AT 1127 LINCOLN AVENUE (FORMERLY RAILROAD AVENUE) AT BAY STREET. CITY OF ALAMEDA, ALAMEDA COUNTY ,CALIFORNIA.

FOR:APPLIED GEOSYSTEMS
PROJECT NO. 61006-1

BENCHMARK:
TOP OF FOUND BRASS PLUG SET IN TOP OF CURB AT MID RETURN AT THE NORTHWEST CORNER OF SANTA CLARA AVENUE AT BAY STREET. ELEVATION TAKEN AS 21.155, CITY OF ALAMEDA DATUM

MONITOR WELL DATA TABLE

WELL NO.	ELEVATION	DESCRIPTION
MW1	16.49	TOP OF PVC CASING
	16.94	TOP OF BOX
MW2	17.14	TOP OF PVC CASING
	17.61	TOP OF BOX
MW3	16.91	TOP OF PVC CASING
	17.30	TOP OF BOX
VW1	16.83	TOP OF PVC CASING
	17.38	TOP OF BOX
VW2	17.00	TOP OF PVC CASING
	17.43	TOP OF BOX
VW3	16.94	TOP OF PVC CASING
	17.21	TOP OF BOX
VW4	16.81	TOP OF PVC CASING
	17.07	TOP OF BOX
VW5	17.20	TOP OF PVC CASING
	17.65	TOP OF BOX

APPENDIX E

SIEVE ANALYSIS REPORT

DRILLER

ENGINEER APPLIED GEOSYSTEMS
SAN JOSE CA, 95118

ANALYSIS BY BILL SCHAFER
DATE Apr 11, 26, 1991

JOB NAME TEFACC

LOCATION , ALAMEDA, CA

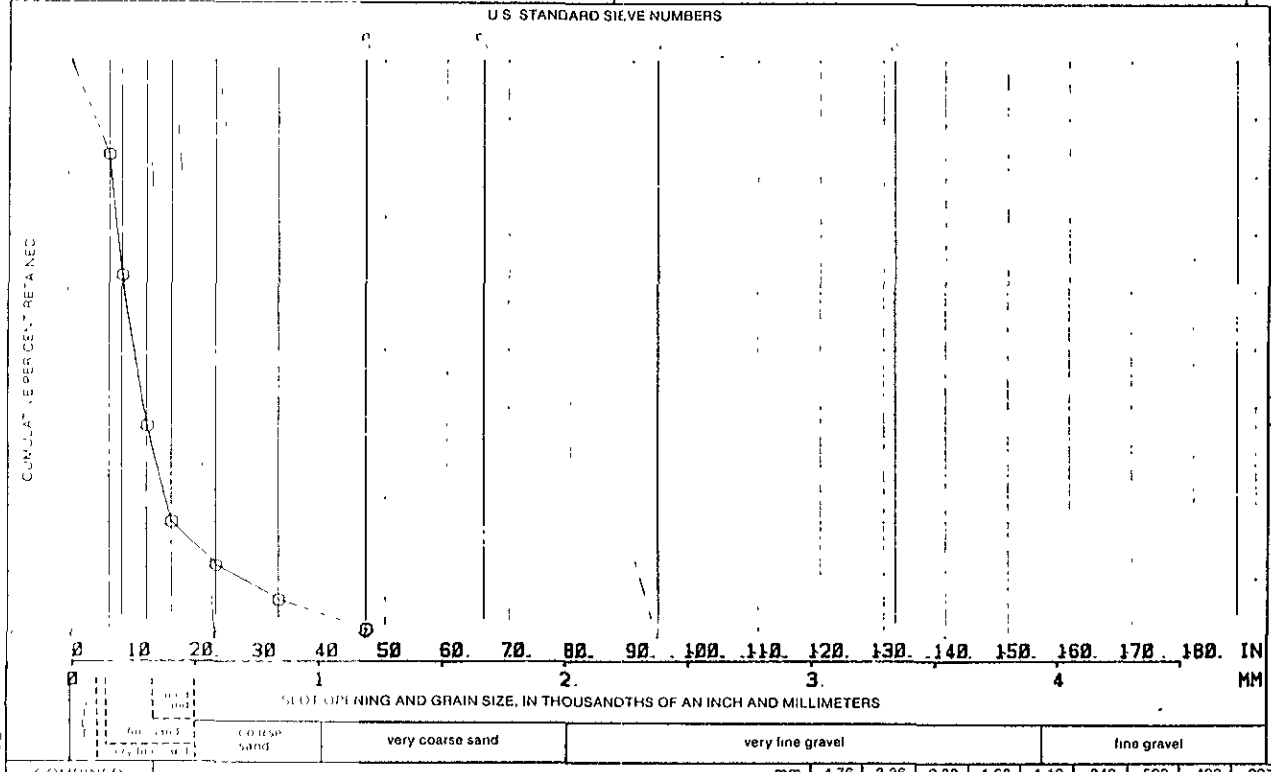
JOHNSON I D NUMBER 91116
SAMPLE SENT IN BY APPLIED GEOSYSTEMS SAN JOSE BRANCH

RECEIVED
APR 30 1991
APPLIED GEOSYSTEMS

SAND ANALYSIS REPORT

Johnson Filtration Systems Inc.

P O Box 64118 • St Paul, Minnesota 55164-0118 • Telephone 612 636 3900
Telex 29-7451 • FAX 1 612 636 0889 • Call Toll Free 1 800 VEE-WIRE



TEST HOLE DATA	
DIAMETER	
DEPTH	
DRILLING METHOD	
DRILLING FLUID	
GEOPHYSICAL LOGS	
STATIC WATER LEVEL	

WELL DATA
CASING DIAMETER
DESIRED YIELD
WELL APPLICATION

DESIGN RECOMMENDATIONS

RECOMMEND :
JOHNSON 55 SCREEN
.30. SLOT 10.030INL
.WITH MONTERY. 12-20

COMMENTS

SCREEN RECOMMENDATIONS

DIAMETER

SLOT	LENGTH	SETTING

COMBINED SAMPLE DEPTHS	PHYSICAL SAMPLE DESCRIPTION		mm	4.76	3.36	2.38	1.68	1.19	.840	.590	.420	297	210	149	.074	053	TOTAL WT.
			Inches	187	123	094	066	047	033	023	016	012	008	006	003	002	
			U.S. Sieve #	4	6	8	12	16	20	30	40	50	70	100	200	270	
#1	O SET TO COARSE SAND	CUMULATIVE % RETAINED		0.0	0.0	0.0	0.0	1.2	6.4	12.4	19.9	36.7	62.9	83.7			251.8

SO MANY CONSIDERATIONS ENTER INTO THE MAKING OF A GOOD WELL THAT, WHILE WE BELIEVE SLOT SIZES FURNISHED OR RECOMMENDED FROM SAND SAMPLES ARE CORRECT WE ASSUME NO RESPONSIBILITY FOR THE SUCCESSFUL OPERATION OF JOHNSON WELL SCREENS