

EXXON COMPANY, U.S.A.

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ENVIRONMENTAL ENGINEERING

G. D. GIBSON
SENIOR ENVIRONMENTAL ENGINEER

March 13, 1991

Exxon RAS 7-7003
349 Main Street
Pleasanton, California

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

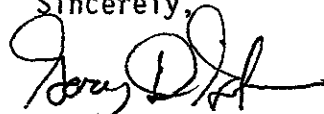
Dear Mr. Mueller:

Attached for your review and comment is the Letter Work Plan for Supplemental Environmental Investigation for the above referenced Exxon Company, U.S.A. facility in the City of Pleasanton. This work plan, by Applied GeoSystems of Fremont, California, proposes the installation of two offsite soil borings, to be converted to monitoring wells, and the installation of two onsite soil borings to complete the onsite soil characterization.

A recent monitoring event showed both a decrease in the level of dissolved hydrocarbons in the groundwater and a decrease in the water level at the site. A report on quarterly sampling and analysis is being submitted under separate cover.

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

Sincerely,



Gary D. Gibson

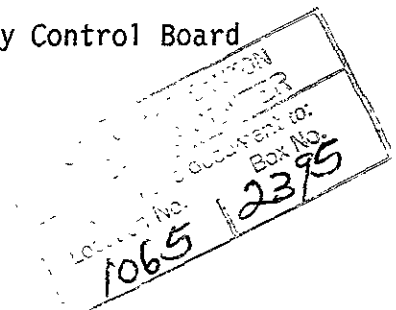
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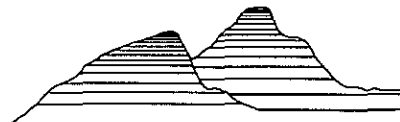
c - w/attachment:

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

w/o attachment:

Ms. M. D. Baca
Mr. D. J. Bertoch
Mr. P. J. Brininstool
Mr. J. R. Hastings
Mr. R. C. Witham - Applied GeoSystems





Applied GeoSystems

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

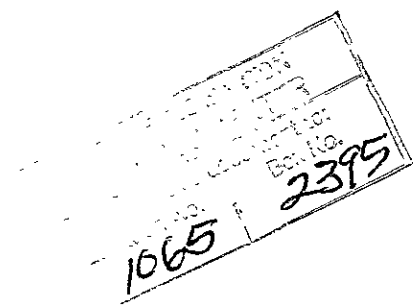
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LETTER WORK PLAN
SUPPLEMENTAL SUBSURFACE
ENVIRONMENTAL INVESTIGATION

at

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

1-4-91





Applied GeoSystems

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January 4, 1991
AGS 19025-3W

Mr. Gary Gibson
Exxon Company, U.S.A.
P.O. Box 4032
2300 Clayton Road
Concord, California 94520

Subject: Letter Work Plan for a Supplemental Subsurface Environmental Investigation at Exxon Station No. 7-7003, 349 Main Street, Pleasanton, California.

Mr. Gibson:

As requested by Exxon Company U.S.A. (Exxon), Applied GeoSystems (AGS) has prepared this Letter Work Plan for a supplemental subsurface environmental investigation at Exxon Station No. 7-7003. This Letter Work Plan summarizes the results of previous work at the site and describes proposed work to evaluate further the extent of hydrocarbons in soil and ground water.

The Exxon site is located at 349 Main Street on the southwest corner of Angela and Main Streets in Pleasanton, California (Plate P-1). Features of the site include a service station building and two service islands that dispense gasoline. New underground storage tanks (USTs) for gasoline are located northeast of the station building and a waste-oil UST is northwest of the station building (Plate P-2).

Background

In June 1989, at the request of Exxon Company U.S.A. (Exxon), AGS conducted a soil-vapor survey prior to the removal and replacement of the USTs. In July 1989, Exxon removed three 8,000-gallon steel gasoline USTs and a waste-oil UST, and in August 1989, new double-walled fiberglass tanks were installed. Soil sampling by AGS indicated the presence of petroleum hydrocarbon-impacted soil locally next to the former USTs. Soil was excavated to a depth of 24 feet in the vicinity of the hydrocarbon-impacted soil; a sample collected at 24 feet contained 40 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPHg).

Between January and June 1990, AGS drilled 13 boreholes around the former USTs and installed ground-water monitoring wells MW-1 through MW-5 in five of the boreholes (Plate P-2). Based on the results of soil analyses, hydrocarbons in soil appear to be adequately delineated to the north, east, and south of the former gasoline USTs. One sample from a depth of 21 feet in boring B-5 contained 1,400 ppm TPHg. Soil with TPHg concentrations greater than 100 ppm appears to be limited to depths between 21 and 26 feet below grade in an area immediately southwest of the former gasoline USTs and extends an unknown distance west and southwest of boring B-5. Results of ground-water analyses indicate that the highest dissolved hydrocarbon concentrations are in MW-1 to the northwest (approximately downgradient) of the former gasoline USTs (AGS Report No. 19025-2, August 1, 1990). In August 1990, concentrations of dissolved TPHg ranged from 0.120 to 3.2 ppm (AGS Report No. 19025-3, October 10, 1990).

Scope of Work

At Exxon's request, AGS plans to (1) drill two onsite borings in the vicinity of the gasoline USTs to delineate hydrocarbons in soil, and (2) drill two offsite borings and install a ground-water monitoring well in each boring to further delineate hydrocarbons in ground water. The locations of the proposed borings and wells are shown on Plate P-2. Work will be conducted in accordance with the attached Field Procedures and with the protocol approved by the San Francisco Bay Regional Water Quality Control Board. A permit for this work was acquired from the Alameda County Flood Control and Water Conservation District (Permit No. 90645). An application for an encroachment permit for the offsite wells was submitted to the City of Pleasanton Department of Public Works.

The scope of work is comprised of the following tasks:

- Drill two 30-foot borings onsite and two 40-foot borings offsite. Collect soil samples at 2-1/2 to 5-foot intervals. Field screen soil during drilling with an organic vapor meter.
- Analyze an estimated two soil samples per boring for TPHg, benzene, toluene, ethylbenzene, and xylenes (BTEX), and organic lead at a State-certified laboratory.
- Install 4-inch diameter ground-water monitoring wells in the two offsite borings. A typical well-construction diagram is shown on Plate P-3.
- Develop the new wells by surging and pumping.

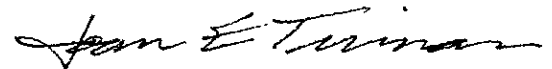
- Measure depth-to-water and collect an initial water sample for subjective evaluation from each new and existing well.
- Purge and sample the two new and five existing site wells.
- Survey the new wells to a mean sea level datum.
- Analyze one composite sample from the soil cuttings for TPHg, BTEX, and total lead for disposal purposes.
- Analyze a total of seven ground-water samples for TPHg, BTEX, organic lead, and ethylene dibromide. In addition, analyze the sample from the well nearest the waste-oil UST for total oil and grease and volatile organic compounds.
- Prepare a report describing procedures and results.

Please call if you have any questions.

Sincerely,
Applied GeoSystems

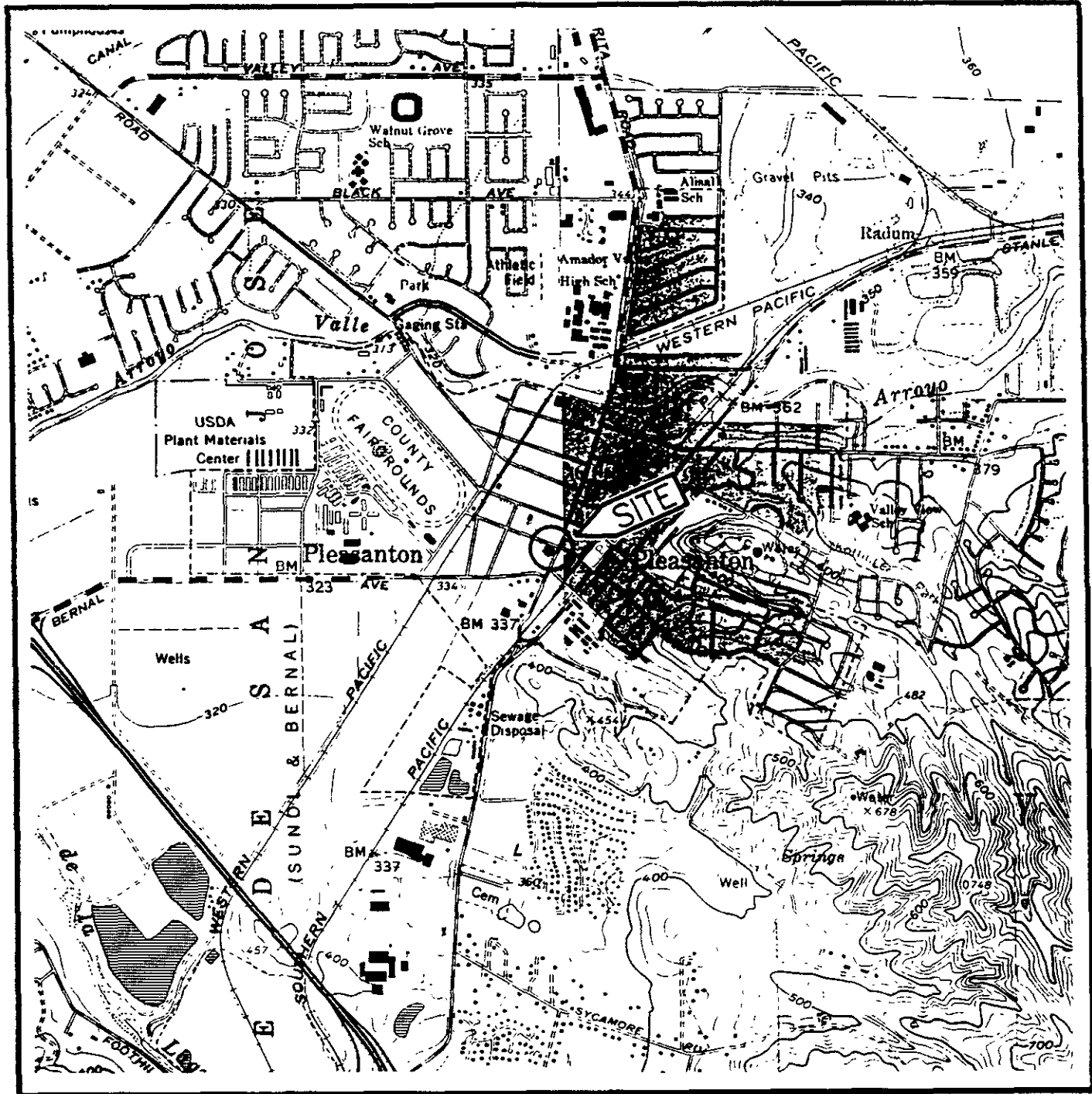


JoEllen Kuzmaul
Project Geologist



Joan E. Tiernan
Registered Civil Engineer
No. 044600

Attachments: Site Vicinity Map, Plate P-1
 Generalized Site Plan, Plate P-2
 Monitoring Well Construction, Plate P-3
 Field Procedures



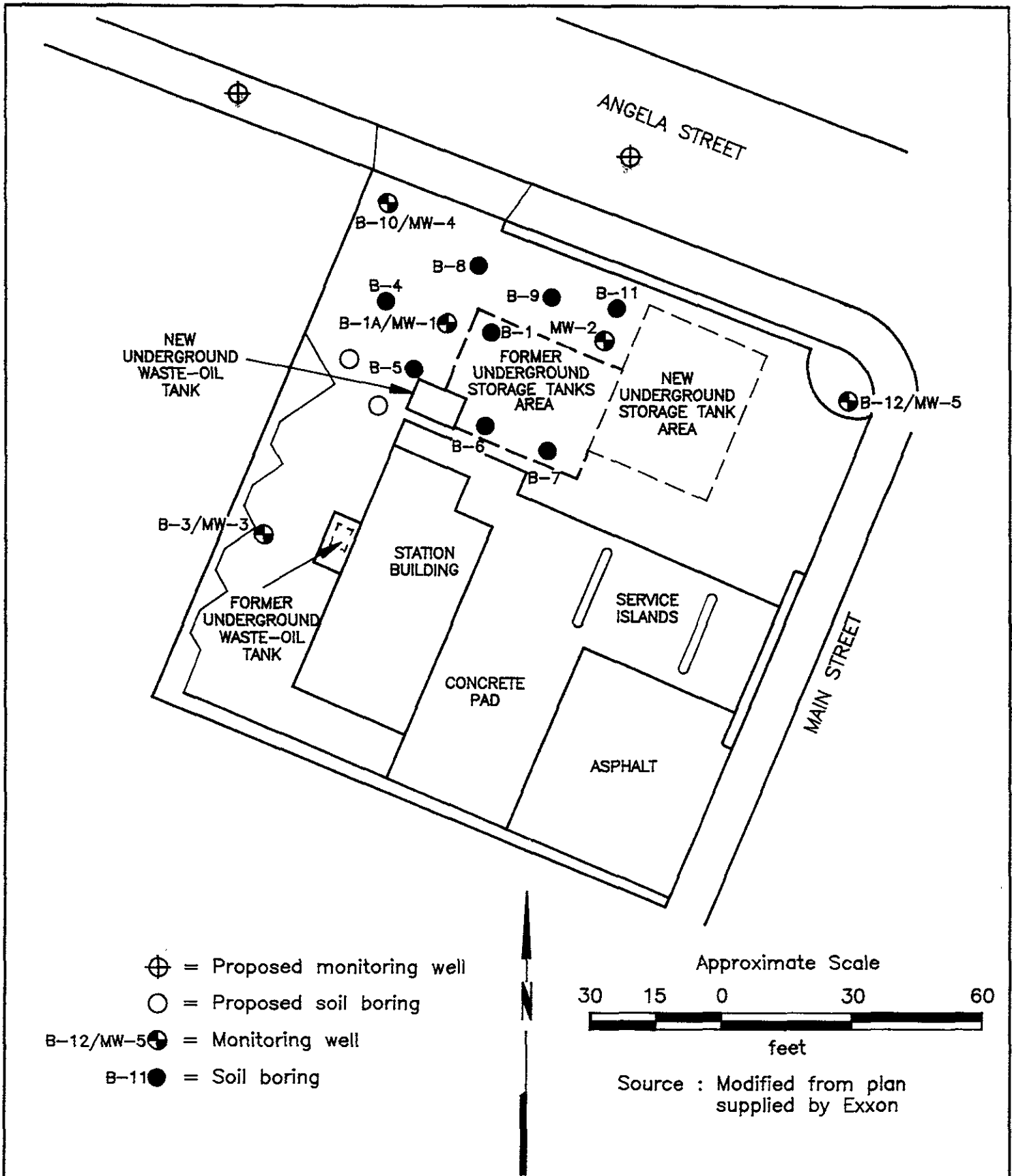
Source: U.S. Geological Survey
 7.5-Minute Quadrangle
 Dublin/Livermore, California
 Photorevised 1980



PROJECT NO. 19025-3W

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

PLATE
P - 1



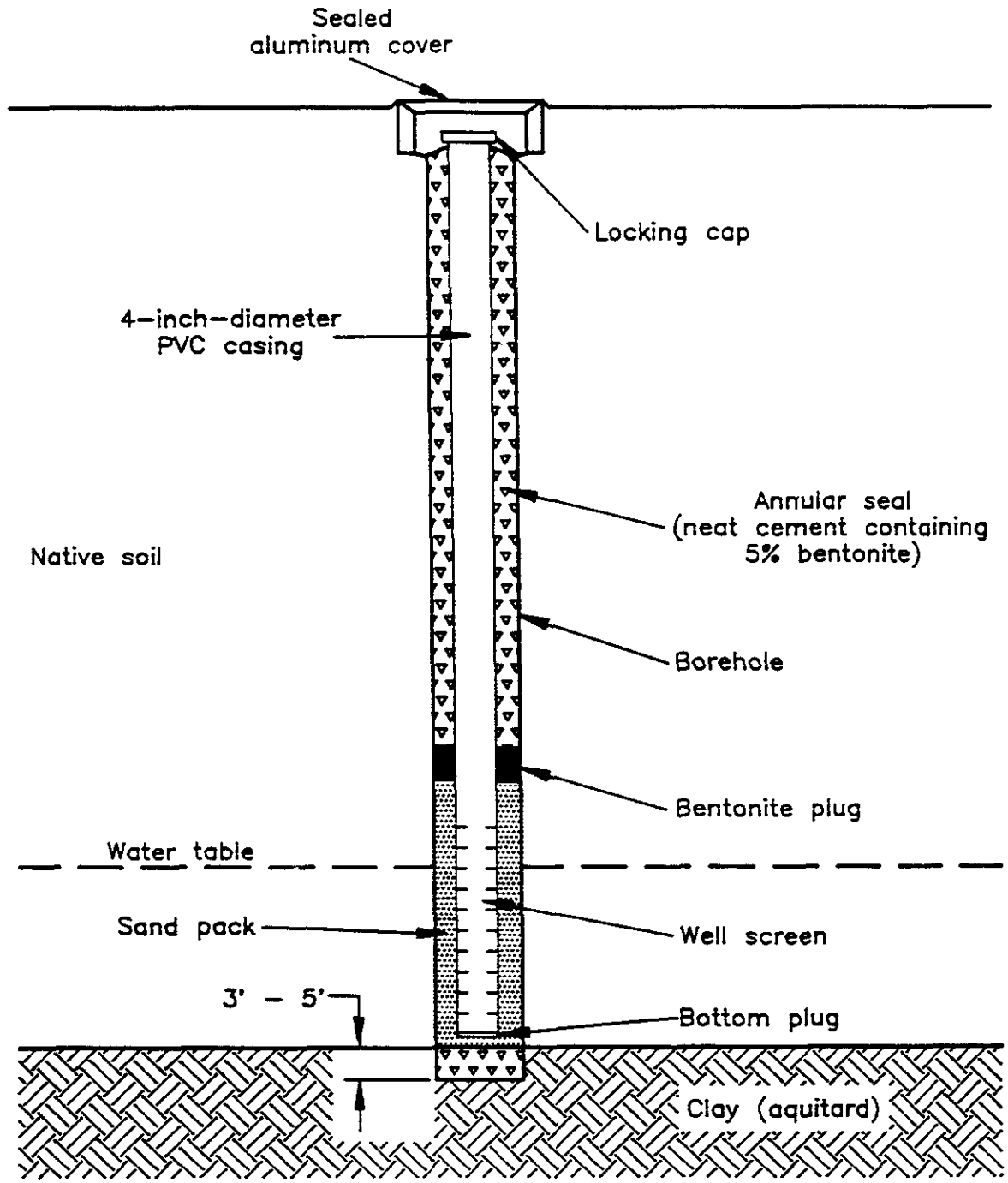
PROJECT NO. 19025-3W

PROPOSED WELL LOCATIONS
Exxon Service Station 7-7003
349 Main Street
Pleasanton, California

PLATE

P - 2

Ground-water monitoring well



Not to scale



MONITORING WELL CONSTRUCTION

PLATE

Exxon Service Station 7-7003

349 Main Street

Pleasanton, California

P - 3

PROJECT NO. 19025-3W

FIELD PROCEDURES

Work described in this work plan will be performed according to the following procedures.

Site Safety Plan

Field work at the site will be performed during this investigation on behalf of Exxon in accordance with the AGS Site Safety Plan. This safety plan will describe the basic safety requirements for the subsurface environmental investigation, for drilling soil borings, and for installation of monitoring wells at the site. The Site Safety Plan is applicable to personnel and subcontractors of AGS, which will be briefed on the contents of the plan before work begins. A copy of the Site Safety Plan will be kept at the site and will be available for reference by appropriate parties during work at the site.

Drilling and Soil Sampling

Before drilling begins, AGS will acquire well installation permits from the Alameda County Flood Control and Water Conservation District (Zone 7), and will contact Underground Service Alert to delineate public utility lines. A private utility locator service will be subcontracted to mark private underground utilities, and each borehole will be hand-augered to an approximate depth of 5 feet as an added safety measure.

The borings will be drilled with a Mobil B-61 (or similar) truck-mounted drill rig. Eight-inch-diameter, continuous flight, hollow-stem augers will be used to drill each boring. Ten-inch-diameter augers will be used to ream borings intended for well installation. The augers will be steam-cleaned prior to each use to minimize the possibility of cross-contamination. Drilling will be performed under the observation of a field geologist, and the earth materials in the boring will be logged as drilled. Soil samples will be logged in accordance with the Unified Soil Classification System. Drilling will be stopped if any unsaturated clay layer (aquitard) greater than 5 feet thick is encountered below the ground-water surface.

During drilling, soil samples will be collected at 2-1/2- to 5-foot intervals and at lithologic changes or suspected hydrocarbons. A California-modified, split-spoon sampler (2.5-inch-inside-diameter) equipped with clean brass sleeves will be used to collect the samples. The samples will be collected by advancing each boring to a point just above the sampling depth, then driving the sampler through the hollow center of the auger and into the native soil. The sampler will be driven 18 inches with a standard 140-pound hammer dropped 30 inches. The number of blows required to drive the sampler each successive 6 inches will be counted and recorded to give an indication of soil consistency. A soil sample from each recovered sample interval will be analyzed in the field with a photoionization detector (PID) or a similar instrument and those data will be recorded on the boring logs.

Soil samples selected for potential laboratory analysis will be sealed with aluminum foil, plastic end caps, and tape. The samples will be labeled, placed on ice in an insulated cooler, and transported to a state-certified laboratory for analysis. A Chain of Custody Record will be initiated in the field and will accompany the samples to the laboratory. A copy of the Chain of Custody Record will be included in the final report.

Soil Cuttings

While drilling is in progress, the relative concentration of hydrocarbons in the cuttings will be assessed with a PID or a similar instrument. Soil cuttings will be stockpiled temporarily onsite. The cuttings will be placed on and covered with plastic pending the results of laboratory analysis.

Construction of Monitoring Wells

The monitoring wells will be constructed of flush thread-jointed, 4-inch-inside-diameter, Schedule 40 PVC casing. No chemical cements, glues, or solvents will be used in well construction. Approximately 20 feet of well screen will be placed below the measured ground-water surface and approximately 5 feet of screen will extend above the ground-water surface. This design should allow monitoring throughout the year despite expected seasonal fluctuations of the ground-water surface.

The screen slot size and sand pack were chosen based on the materials encountered in previous borings. The screened portion of each well will consist of factory-perforated casing with 0.010-inch-wide slots. The annulus of each well will be packed with No. 2 sorted sand from total depth to approximately 2 feet above the screened interval. A 1-foot-thick bentonite plug will be placed above the sand to keep neat cement out of the sand pack. The remaining annulus will be backfilled with a slurry of water and neat cement to a few inches below grade.

A locking well cap and padlock will be installed on each wellhead, and a traffic-rated, cast-aluminum or steel utility box with a PVC apron will be placed over each well and set with concrete flush with the surrounding surface. The box has a watertight seal to protect against surface-water infiltration and requires a specially designed wrench to open. This design discourages vandalism and reduces the possibility of accidental disturbance of the well.

Well Development and Ground-Water Sampling

The neat cement surrounding the non-perforated section of the well casing will be allowed to set for at least 72 hours prior to well development. Before the wells are developed, a sample will be collected from near the static surface of the ground water. Samples will be

collected by gently lowering approximately half the length of a Teflon bailer, cleaned with Alconox (a commercial detergent), past the air-water interface. Water samples will be evaluated subjectively for the presence of hydrocarbons. The presence of floating product is not anticipated; however, if floating product is observed in the sample, an oil-water interface probe will be used to measure its thickness. Wells that contain floating product will not be developed.

The newly installed wells will be developed by surging and pumping. The wells will be pumped until the extracted water appears free of sediment.

After the wells are developed, the water in the wells will be allowed to equilibrate for at least 72 hours prior to being purged and sampled. Wells will be purged of a minimum of 4 well volumes of water or until temperature, pH, and conductivity readings stabilize.

Ground water in each of the wells will be allowed to recover to greater than 80 percent of its static condition before a water sample is collected. Approximately half the length of a clean bailer will be lowered gently past the air-water interface to collect a sample from near the ground-water surface. Subjective evidence of hydrocarbons observed in the well will be recorded. The water samples will be decanted slowly into laboratory-cleaned, 40-milliliter glass vials and covered with Teflon-lined lids. The sealed samples will be labeled and promptly placed in iced storage. A Chain of Custody Record will be initiated in the field and will accompany the samples to a laboratory certified in the State of California for the analysis requested. A copy of the Chain of Custody Record will be included in our final report.

Purged Water

Water purged during the development and sampling of the monitoring wells will be temporarily stored onsite in labelled, Department of Transportation Type 17E, 55-gallon waste-liquid drums. At Exxon's request, AGS will arrange to have the water removed by a licensed waste-disposal contractor.

Laboratory Analyses

Soil samples will be selected for analyses based on PID readings and lithology. An estimated two soil samples from each borehole (e.g., the sample exhibiting the highest PID field readings and the sample collected from just above the saturated zone) will be selected for laboratory analysis. The selected samples will be analyzed in the laboratory for total petroleum hydrocarbons as gasoline (TPHg) by modified Environmental Protection Agency (EPA) Method 8015, benzene, toluene, ethylbenzene, and total xylene isomers (BTEX) by EPA Method 8020, and organic lead by the method described by the California Department of Health Services.

Water samples will be analyzed for TPHg by modified EPA Method 8015, BTEX by EPA Method 602, and organic lead and ethylene dibromide by the methods described by the California Department of Health Services. The sample from the well near the waste-oil tank will be analyzed for total oil and grease by Standard Method 503E and volatile organic compounds by EPA Method 601.

Chain of Custody procedures will be followed for all samples submitted for analysis.