psi Information To Build On
Engineering • Consulting • Testing

ENVIRONMENTAL PROTECTION

99 APR -9 AM 9:54

Want to install small (½") dia. well using Geoprobe and pre packed filter. This is not re-imbursable by clean up fund because wells tend to silt up & need redevelopment. However this site is underlain w/ sands + little silts.

April 8, 1999

Mr. Rod Freitag, P.E.
Environmental Program Manager
County of Alameda
Engineering & Environmental Management Department
1401 Lakeside Drive, 11th Floor
Oakland, CA 94612

RE: Transmittal, Workplan, Soil and Groundwater Investigation
Alcopark Fueling Facility, Oakland, California

Dear Mr. Freitag:

As requested, Professional Service Industries is transmitting the attached Workplan, Soil and Groundwater Investigation for the Alcopark Fueling Facilities, Oakland, California. In accordance with your directions, a copy of this report is also being transmitted to Alameda County Department of Environmental Health. Please call me with any comments or questions on this report at (510) 785-1111.

Sincerely,

Timothy R. O'Brien, RG/CEG/CHG
Senior Geologist

Fax 29530
Fax 208-9530
R. Freitag

Enclosure

cc: Ms. Eva Chu, Alameda County Department of Environmental Health

\GEOHW SYS\TRANSFER\PROJECT ALM\DAGSA ALCOPARK\FREIT408.DOC

WORKPLAN
SOIL AND GROUNDWATER INVESTIGATION
ALCOPARK FUELING FACILITIES
OAKLAND, CALIFORNIA

APR 1998

prepared for

ALAMEDA COUNTY GENERAL SERVICES AGENCY
1401 Lakeside Drive, 11th Floor
Oakland, California

prepared by

Professional Service Industries, Inc.
1320 West Winton Avenue
Hayward, California 94545
(510) 785-1111

April 8, 1998
575-9G028

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STATEMENT OF LIMITATIONS AND PROFESSIONAL CERTIFICATION

Information provided in this Workplan, prepared by Professional Service Industries, Inc. (PSI), is intended exclusively for the use of County of Alameda, General Services Agency (GSA) for the evaluation of subsurface conditions as it pertains to the subject site. The professional services provided have been performed in accordance with practices generally accepted by other geologists, hydrologists, hydrogeologists, engineers, and environmental scientists practicing in this field. No other warranty, either expressed or implied, is made. As with all subsurface investigations, there is no guarantee that the work conducted will identify any or all sources or locations of contamination.

PSI reserves the right to deviate from the proposed scope of services outlined in this Workplan as needed to obtain the required information. If such deviation is necessary, PSI will make every attempt to seek prior approval from the client and the regulatory agency overseeing this project.

This Workplan is issued with the understanding that GSA is responsible for ensuring that the information contained herein is brought to the attention of the appropriate regulatory agency. This Workplan has been reviewed by a geologist who is registered in the State of California and whose signature and license number appear below.

Frank R. Poss
Senior Hydrogeologist

Timothy R. O'Brien, RG/CEG/CHG
Senior Geologist

1. INTRODUCTION

Professional Service Industries, Inc. (PSI) has been retained by the County of Alameda, General Services Agency (GSA) to prepare this workplan to further assess soil and groundwater conditions at Alcopark parking garage. There are two sites located at the garage.

The first site contains active USTs, located at the southeast corner of 13th and Jackson Streets; the second site contains closed in-place USTs, located at the northeast corner of 12th and Jackson Streets. The site locations are presented on Figures 1 and 2.

The scope of work consists of the following tasks:

- Prepare a site specific Health and Safety Plan.
- Obtain City of Oakland encroachment and excavation (drilling) permits. Obtain a Alameda Department of Public Works drilling permit.
- Mark the drilling locations and notify Underground Service Alert 72 hours prior to initiating drilling activities. A private utility locating company will also be employed to clear the boring locations.
- Drill one Geoprobe soil boring to obtain soil samples. Use a PID to screen the soil samples collected in the borings. Install a small diameter groundwater monitoring well in the Geoprobe soil boring. Develop and sample the groundwater monitoring well.
- Drill one hand auger boring in the Alcopark maintenance garage adjacent and downgradient of the former fuel dispenser location.
- Transport soil and groundwater samples to McCampbell Analytical of Pacheco, California, a California State certified laboratory.
- Sample Wells MW-1 and MW-6 for chemical analysis.
- Analyze soil and groundwater samples for Total Petroleum Hydrocarbons as Gasoline (TPH-G) by EPA Method 8015M; Benzene, Toluene, Ethylbenzene, total Xylenes (BTEX), and Methyl Tertiary Butyl Ether (MTBE) by EPA Method 8020. Groundwater samples will be analyzed by EPA Method 8260, if needed, to confirm elevated MTBE concentrations.
- Prepare a report summarizing the findings of the investigation, an evaluation of the groundwater plume stability, and suitability of the sites for administrative closure.

1.1 SITE BACKGROUND

1.1.1 Site Location No. 1, Northeast Corner of 12th and Jackson Streets

Alameda GSA closed two 10,000 gallon USTs in-place at the site in 1994. The USTs previously stored gasoline. The USTs were located outside the building adjacent to the City street. Piping extended from the USTs to dispensers located in the maintenance garage.

The tanks had not been used since the early 1980s (GSA, 1999). Soil and groundwater samples collected in support of in-place closure indicated low concentrations of petroleum hydrocarbons in soil and measurable concentrations of petroleum hydrocarbons in groundwater (ESE, 1993).

The Alameda County Environmental Health Department (ACEHD) requested additional investigation of the site. That investigation was performed by PSI in January, 1999. A limited amount of petroleum hydrocarbon contamination was detected (PSI, 1999). Subsequent to that investigation, the ACEHD requested the fuel delivery piping be investigated (ACEHD, 1999c).

1.1.2 Site Location No. 2, Southeast Corner of 13th and Jackson Streets

The GSA operates two 10,000-gallon USTs to fuel County vehicles. Three groundwater monitoring wells were installed at the Alcopark fueling station in March, 1989 to assess environmental conditions subsequent to the repair of a line leak at Dispenser No. 1. Initial sample results indicated the presence of BTEX in the groundwater. Subsequent sample results indicated the presence of TPH-G. Based on the analytical data, it was surmised that contaminants detected on-site were emanating from a source area located upgradient of the site. Sampling activities were halted in 1992 pending investigation of an upgradient source (GSA, 1997).

In May, 1997 the ACEHD instructed GSA to resume groundwater monitoring at the facility (ACEHD, 1997b). Sampling resumed in July, 1997. Analytical data from that sampling event indicated elevated TPH-G, BTEX, and MTBE. ACEHD directed GSA to investigate the extent and stability of the plume (ACEHD, 1997b). To better define groundwater conditions downgradient of the USTs, two borings were drilled in March, 1998. Based on groundwater monitoring events performed since March, 1998, the ACEHD directed GSA to better define the extent of groundwater contamination (ACEHD, 1999c).

1.1.2.1 Storage Tank System Upgrades

In September of 1992, overfill protection, spill containment, and automatic tank gauging were installed on the two underground tanks. In July and August of 1996, additional

upgrade work was done to comply with Title 23 of the California Code of Regulations. This included replacement of underground single-walled steel piping with double-wall fiberglass piping, and installation of dispenser sumps, piping sumps, and sump leak sensors (GSA, 1997).

1.2 PROJECT OBJECTIVES

The objectives of the project at Site No. 1 are to determine if petroleum leaked from the piping and degraded soil or groundwater quality. Because the exact location of the piping is unknown, and is impossible to determine accurately, soil and groundwater samples collected downgradient of the former dispenser location will provide data for the evaluation.

The objectives of the project at Site No. 2 are to better define groundwater quality downgradient of the USTs.

1.3 PROJECT SCHEDULE

The project schedule is presented on Figure 3.

2. PRE-FIELD ACTIVITIES

This section describes the tasks required prior to implementing the drilling program. The tasks include:

- Submit a Well Construction Permit to the Alameda County Public Works Department.
- Obtain City of Oakland encroachment and excavation (drilling) permits.
- Prepare a site specific health and safety plan.
- Mark the borehole locations on-site and inform Underground Service Alert of the planned drilling activities.

2.1.1 Well Construction Permit Application

In accordance with well construction requirements in Alameda County, a well construction permit will be submitted to the Alameda County Public Works Department. The Public Works Department will also be scheduled to be on-site to inspect the annular seal or boring grout placement.

2.1.2 City of Oakland Encroachment and Excavation Permits

In accordance with City of Oakland requirements for constructing wells in the City street, a City of Oakland Encroachment and Excavation Permits are required. PSI will obtain the permit and schedule an on-site inspection if deemed necessary by City of Oakland personnel.

2.1.3 Preparation of Site Specific Health and Safety Plan

Prior to the commencement of field activities at the site, a site-specific Health and Safety Plan (HSP) will be developed in compliance with 29 CFR 1910.120. The HSP will address the potentially hazardous materials and physical hazards that may be encountered during field activities at the site.

2.1.4 Utility Clearance

Upon approval of this workplan, PSI will mark the drilling locations with white paint. At least 72 hours prior to drilling activities, PSI will contact Underground Service Alert (USA) to identify subsurface utilities that may exist in the areas of investigation. In addition, the boring locations will be cleared by a private underground utility locating service.

3. SUBSURFACE INVESTIGATION

This section describes the soil and groundwater investigation at the site. The objectives of the investigation are to collect samples representative of site conditions and install a groundwater monitoring well to allow further interpretation of groundwater conditions.

3.1 SOIL BORINGS

Two soil borings will be drilled to further investigate the soil and groundwater conditions at the site. The borings will be advanced far enough to allow collection of grab groundwater samples. One boring will be drilled far enough to install a groundwater monitoring well.

Soil borings will be continuously logged by a PSI geologist using the Unified Soil Classification System (USCS). The work will be performed under the supervision of a State of California Registered Geologist.

3.1.1 Soil Boring at Site No. 1

Boring SB-8 will be drilled using a hand auger to collect soil and groundwater samples for chemical analysis. The boring will be located as shown on Figure 2. The boring location was selected to provide information on the soil and groundwater quality downgradient of the former fuel dispensers, which were located in the Alcopark maintenance garage.

The boring will be drilled by a PSI geologist using a hand auger. Soil samples will be collected in the boring at three foot intervals for lithologic logging and evaluation of the presence of volatile organic compounds.

Samples for chemical analysis will be collected in stainless steel sleeves using a drive sampler. The sleeves will be capped using Teflon sheet, plastic end caps, and duct tape. Each sample will be labeled using a permanent ink marking pen. Samples will be stored in a cooler containing ice and maintained under chain of custody protocol.

Representative sample material will be collected from the hand auger at three foot intervals, placed in plastic Ziploc bags, and labeled. The soil gas will be allowed to equilibrate in the bag for at least 10 minutes. Holes will be punched through the sample bags using the steel probe of the PID to allow collection of a soil gas VOC concentration measurement. The PID measurements will be recorded on the boring logs.

3.1.1.1 Selection of Soil Sample for Chemical Analysis

One soil sample will be selected for the chemical analyses described in Section 4. Samples for chemical analysis will be selected based on field measured PID readings; the soil sample interval containing the highest concentration of total VOCs will be selected for

submittal to the analytical laboratory. If no measurable concentration of VOCs is observed in the soil boring, a sample from the capillary fringe will be collected for chemical analysis.

If an elevated concentration of MTBE is detected in a sample and an elevated concentration of TPH-G also exists in the sample, the sample will be chemically analyzed by EPA Method 8260 to confirm the MTBE concentration as recommended by guidance documents (LLNL, 1998).

3.1.1.2 Grab Groundwater Sampling

Upon completion of the boring, a grab groundwater sample will be collected. The grab groundwater sample will be collected using a disposable Teflon bailer. Field work for groundwater sampling will be conducted in accordance with the procedures described in Appendix A. Samples will be stored in a cooler containing ice and maintained under chain of custody protocol.

Upon collection of the groundwater samples, the boring will be grouted with neat cement and capped with concrete to match the thickness of the existing concrete slab.

3.1.2 Soil Boring at Site No. 2

Boring MW-7 will be drilled to collect soil samples for chemical analysis and to install a groundwater monitoring well. The boring will be located as shown on Figure 2. The boring location was selected to provide information on the downgradient extent of the MTBE groundwater plume.

what diameter casing? well const. detail.

The boring will be drilled using the direct push Geoprobe drilling technique. Fisch Environmental Services of Apple Valley, California will provide drilling services. The boring will be logged by a PSI geologist using the unified soil classification system.

Soil samples will be collected in the boring at four foot intervals for lithologic logging and evaluation of the presence of volatile organic compounds. The boring will extend deep enough to install a groundwater monitoring well. The anticipated depth of the well is 35 feet below ground surface.

Samples for chemical analysis will be collected in plastic liners. The samples will be capped using Teflon sheet, plastic end caps, and duct tape. Each sample will be labeled using a permanent ink marking pen. Samples will be stored in a cooler containing ice and maintained under chain of custody protocol.

Representative sample material will be collected from the sample interval, placed in plastic Ziploc bags, and labeled. The soil gas will be allowed to equilibrate in the bag for at least 10 minutes. Holes will be punched through the sample bags using the steel

3.2 MONITORING WELL SAMPLING

Four wells exist at the site. The ACEHD is no longer requiring wells MW-4 and MW-5 to be sampled for chemical analysis (ACHED, 1999c). The remaining wells (MW-1 and MW-6) and the new well to be installed (MW-7) will be sampled for chemical analysis. The samples will be chemically analyzed as described in Section 4. Groundwater elevations will be monitored in all site monitoring wells.

3.2.1 Groundwater Elevation Measurements

Prior to groundwater sampling, depth to groundwater will be measured from the top of the well casings in each monitoring well. The monitoring wells will then be sampled without purging as requested in the ACEHD letter dated September 11, 1997.

Groundwater samples will be collected with disposable polyethylene tubing equipped with a check valve or a disposable Teflon bailer. The groundwater samples will be collected according to PSI's standard protocol, included in Appendix A. The groundwater samples will be stored in an ice chest at 4 degrees Celsius and maintained under chain of custody protocol.

3.2.2 Decontamination Procedures

To minimize the possibility of contaminant cross-contamination between sampling locations, most of the sampling equipment is disposable. To further minimize the possibility of cross-contamination, all re-usable sampling equipment will be cleaned with a non-phosphate detergent and rinsed twice with deionized water prior to use at a new sampling location. Sampling equipment includes:

- Stainless-steel sample barrel and tubes,
- Drilling equipment,
- Groundwater sampling equipment
- Sounders, and
- Development equipment.

3.2.3 Storage and Disposal of Generated Wastes

3.2.3.1 Solid Waste

All soil cuttings will be stored in DOT approved shipping containers. Drums will be labeled indicating the date of generation, the contents, and a PSI contact telephone number. The drums will be stored on-site in a location minimizing impact to site

operations. The disposition of the cuttings will be determined upon receipt of laboratory analytical results.

3.2.3.2 Liquid Waste

Water from the drilling equipment cleaning will be stored in a individually labeled drum. Disposition of the water will be determined upon receipt of laboratory analytical results of the soil and water samples.

4. LABORATORY ANALYSIS PROGRAM

The soil and groundwater samples collected during this investigation will be submitted to McCampbell Analytical, Inc. of Pacheco, California. McCampbell Analytical is a State of California Department of Health Services certified hazardous waste laboratory (Environmental Laboratory Accreditation Program [ELAP] #1644). A summary of the types of analyses and analytical methods is presented below.

All soil and groundwater samples submitted to the analytical laboratory will be analyzed for the following constituents by the indicated methods:

- Total Petroleum Hydrocarbons as Gasoline (TPH-G) in accordance with Environmental Protection Agency (EPA) Method 8015-m.
- BTEX and MTBE by EPA Method 8020.

If an elevated concentration of MTBE is detected in a sample and an elevated concentration of TPH-G also exists in the sample, the sample will be chemically analyzed by EPA Method 8260 to confirm the MTBE concentration as recommended by guidance documents (LLNL, 1998).

5. FIELD QUALITY ASSURANCE/QUALITY CONTROL

The following Quality Assurance/Quality Control (QA/QC) program describes equipment calibration and field documentation procedures that will be implemented by PSI personnel.

5.1 SAMPLE IDENTIFICATION

Soil samples collected in the field will be labeled according to standard protocol, as described in Appendix A.

5.2 CHAIN OF CUSTODY PROCEDURES

Chain of custody records will be used to document sample handling and shipping procedures. Chain of custody records will trace the samples from collection, through any custody transfers to the analytical laboratory. Information recorded on the Chain of custody records will include location of sample collection, sample identification (I.D.) number, date and time of collection, number and type of sample containers and analyses requested. The shipping conditions will also be described on the Chain of custody records. The name of the sampler(s) as well as the name of the person relinquishing the samples will be documented.

5.3 FIELD INSTRUMENTS

The following instruments will be used in the field for health and safety, as well as, site assessment purposes.

5.3.1 Organic Vapor Analyzer (OVA)

An organic vapor analyzer with a photo ionization detector (PID) will be calibrated daily using a reference calibration gas. Calibration gas is pre-bottled by a laboratory supply house and has a listed calibration value in parts per million for each specific gas. The field OVA will be used as an indicator of total petroleum hydrocarbons in soil samples and for health and safety purposes.

5.3.2 Temperature, pH, and Conductivity Meter

This meter will be calibrated prior to use each day. The meter will be used during well development to collect temperature, pH, and conductivity data. Laboratory supplied buffer and standard solutions will be used to calibrate the instrument.

6. DATA MANAGEMENT

A Daily Work Force Log will be completed by on-site personnel for each day in the field. The log will include the following items listed below:

- Project number;
- Project name and location;
- Name, Title and Company of person performing the work;
- Date work is being performed;
- Actual begin and end times of work;
- Description of work being performed;
- Additional notations, observations or remarks to further characterize or clarify work being performed;
- Equipment utilized on site; and
- Change orders issued during site activities.

6.1 DATA STORAGE

Project correspondence, field notes, maps, and data will be filed within the main Project File at PSI's Hayward office. Chemical data will be entered onto a spreadsheet program for ease of organization, review, and presentation of data in the report. Hard copy files within the main Project File may include, but not be limited to:

- Basic Data: Soil boring logs, field procedures, forms, maps, analytical data.
- Project Field Logs: The project notebook and all field memorandums.
- Correspondence: All written correspondence and telephone conversation records.
- Data Presentation: All maps and tables generated from basic data analyses.
- Data Verification: Documentation that all tables, maps and texts using basic information have been reviewed.

7. REPORT PREPARATION

Upon completion of the project activities described in this workplan, an investigation report will be prepared presenting the investigation methodology, analytical results, measurements collected, and conclusions. The final report will be reviewed and approved by a California Registered Geologist. The report will include the following elements:

- Title sheet,
- Signature page,
- Table of contents,
- Investigative summary,
- Introductory narrative of the project,
- Investigative methods,
- Investigative results and field observations,
- Data evaluation and discussion,
- Graphs, Tables and Figures,
- Summary table (s) indicating laboratory results,
- Contaminant concentrations, analytical methods, and detection limits,
- Copies of original laboratory documentation,
- Field procedure forms, and chain of custody records,
- Well Survey Results,
- Conclusions

REFERENCES

ACEHD, 1997a, Workplan Request Letter to Mr. Rodman Freitag, September 11.

ACEHD, 1997b, Continuation of Groundwater Monitoring Request Letter to Mr. Jim De Voss, May 20.

ACEHD, 1999a, Workplan Approval for Former Alcopark Fueling Facility, prepared by Ms. Eva Chu, January 27.

ACEHD, 1999b, Personnel Communication between Ms. Eva Chu of ACEHD and Mr. Timothy O'Brien of PSI concerning additional laboratory analysis request, February 10.

ACHED, 1999c, Additional Investigation Request Letter, prepared by Ms. Eva Chu, March 2.

ESE, 1993, Subsurface Investigation for USTs at Jackson and 12th Streets, 165 13th Street, Oakland, California, prepared for Alameda County General Services Agency, April 19.

GSA, 1997, RFP for Groundwater Investigation Services, December 2.

GSA, 1999, Request For Proposal (RFP) for Groundwater Services, January 8.

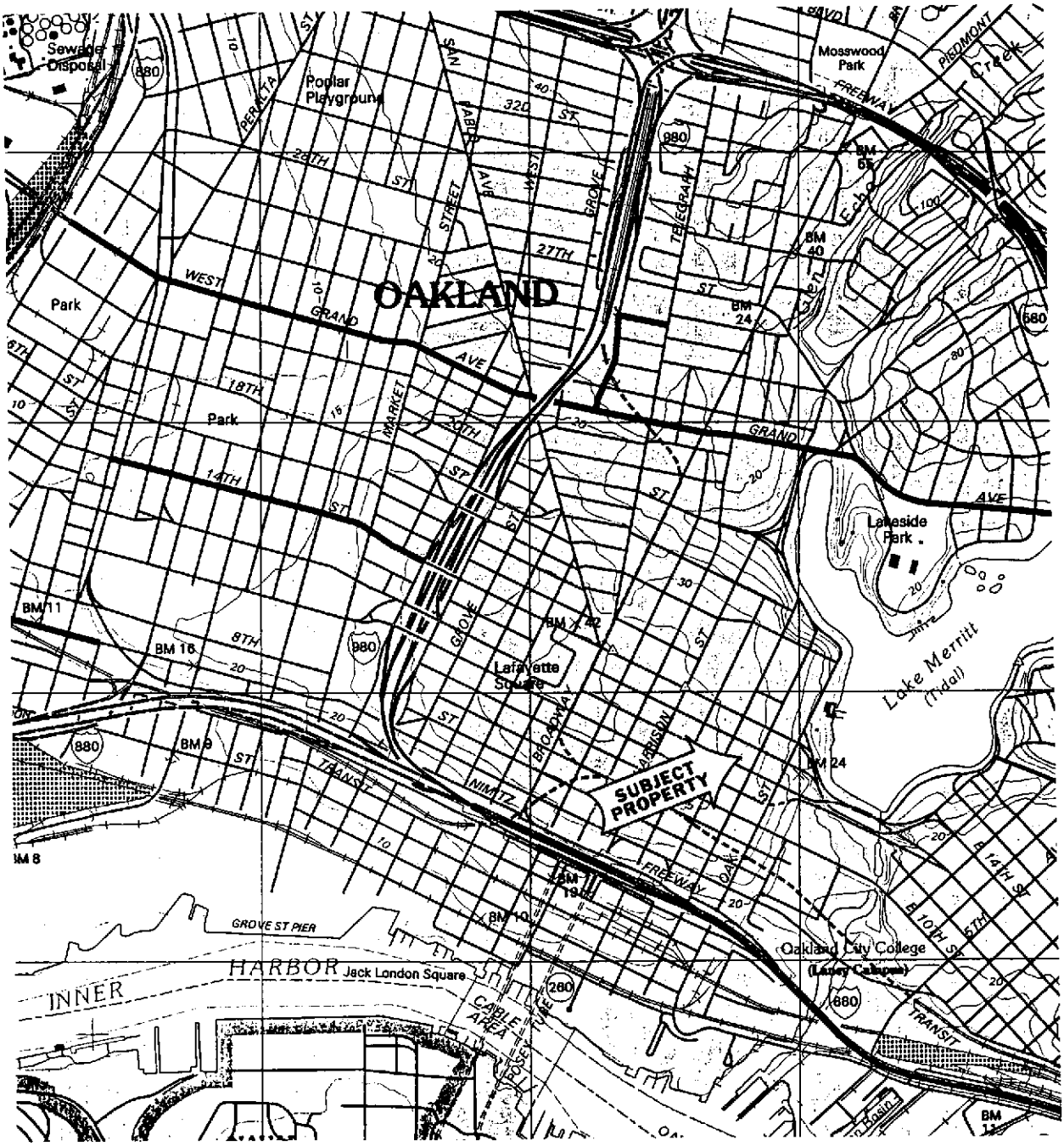
LLNL, 1998, An Evaluation of MTBE Impacts to California Groundwater Resources, prepared for California State Water Resources Control Board, June 11.

PSI, 1998a, Soil and Groundwater Investigation, Alcopark Fueling Facility, prepared for Alameda GSA, April 17.

PSI, 1998b, Groundwater Monitoring Report, Third Quarter, 1998, Alcopark Fueling Facility, prepared for Alameda GSA, August 12.

PSI, 1999, Soil and Groundwater Investigation, Former Alcopark Fueling Facility, prepared for Alameda GSA, February 25.

USGS, 1980, Oakland West, California, topographic map.



Environmental Geotechnical Construction
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1320 West Winton
Hayward, CA 94545
510-785-1111
Fax 510-785-1192

FIGURE 1 - SITE VICINITY MAP

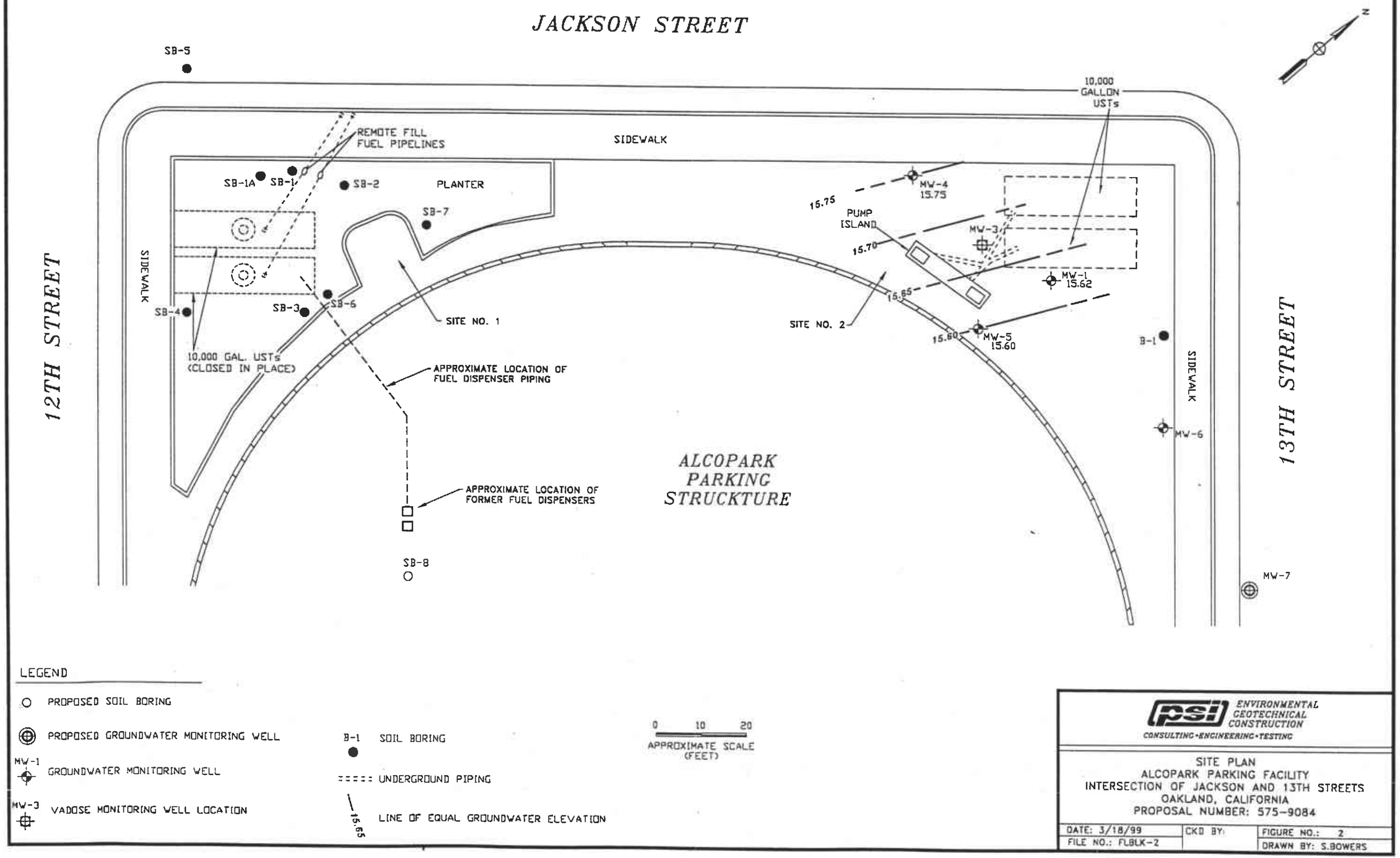
Alcopark Fueling Facilities
Oakland, California

PROJECT NO.:
9G028

SOURCE:
USGS Topographic Maps
Oakland West, CA
Oakland East, CA

DATE:
Photorevised 1993

N



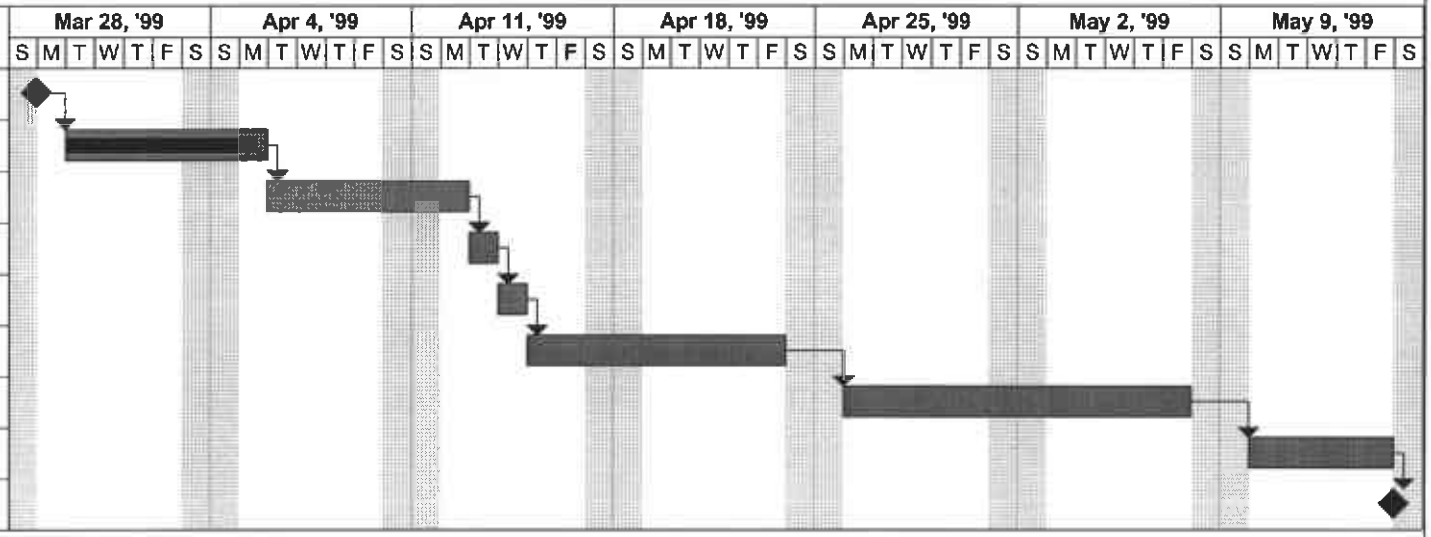
psi ENVIRONMENTAL GEOTECHNICAL CONSTRUCTION
CONSULTING • ENGINEERING • TESTING

SITE PLAN
ALCOPARK PARKING FACILITY
INTERSECTION OF JACKSON AND 13TH STREETS
OAKLAND, CALIFORNIA
PROPOSAL NUMBER: 575-9084

DATE: 3/18/99	CKD BY:	FIGURE NO.: 2
FILE NO.: FLBLK-2		DRAWN BY: S.BOWERS

PROJECT SCHEDULE
SOIL AND GROUNDWATER INVESTIGATIONS
ALCOPARK FUELING FACILITIES, OAKLAND, CA

ID	Task Name	Duration
1	Project Award	0d
2	Prepare Workplan	5d
3	Regulatory Review	5d
4	Drill Soil Borings/Install Well	1d
5	Sample Wells	1d
6	Laboratory Analysis	7d
7	Prepare Report	10d
8	Client Review	5d
9	Issue Final Report	0d



Project: Alcopark Facility
Date: 4/8/99

Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Milestone
Rolled Up Progress

F:\TRANSFER\PROJECT\ALMDAGSA\ALCOPARK\SCHED.MPP

FIGURE 3

APPENDIX A

FIELD PROCEDURES

APPENDIX A
FIELD PROCEDURES

I. DRILLING OF SOIL BORINGS AND COLLECTION OF SOIL SAMPLES

The following procedures will be used for the drilling and sampling of the soil borings drilled at the site:

1. Drilling will be conducted by Fisch Environmental under the supervision of PSI. Drilling equipment will be pressure washed at the beginning of the day and between soil borings.

2. Prior to the commencement of drilling activities at the site, Underground Service Alert (USA) will be contacted to identify underground utilities in the areas that the borings will be located.

3. Boring logs for the soil borings drilled at the site will be prepared under the supervision of a State of California-registered geologist. The soil cuttings observed during drilling will be described in accordance with the Unified Soil Classification System.

4. Soil samples will be collected using a continuous core, stainless steel sampler. Undisturbed soil samples are collected by pushing the sampler into the subsurface using a hydraulic press or percussion hammer.

5. Once the sampler has been retrieved the ends of the sample tube will be covered with Teflon sheets and capped with polyethylene end caps. The sample will be labeled and placed in a zip-lock bag in a chilled cooler pending delivery to the laboratory for analysis.

6. Soil samples will be assigned identification numbers such as S-B1-12, where "S" indicates a soil sample, "B1" indicates Boring 1 and "12" indicates that the sample was collected at 12 feet bgs. The samples will be labeled with the sampling designation, depth, date, client name, and project number.

7. Continuous core barrels will be washed between sampling intervals with Alconox soap followed by two deionized-water rinses.

8. Chain of custody procedures using chain of custody forms will be used to document sample handling and transportation.

9. A photo ionization detector (PID) will be used to monitor volatile organic compounds (VOCs) in the ambient air during drilling at the site in accordance with the site health and safety plan. VOC concentrations in the soil will be measured and recorded on the borings logs for depths that soil samples were collected. VOCs in the soil will be

measured at the sampling depths by punching holes in the sample tubes and inserting the PID probe into the hole. PID measurements will be recorded on the boring log.

10. Soil cuttings and steam wash water generated during drilling activities at the site will be contained in Department of Transportation (DOT) approved drums. The drums will be labeled with the contents, date, well or boring number, client name, and project number.

II FIELD DOCUMENTATION OF SAMPLING PROCEDURES

The following outline describes the procedures adhered by PSI for proper sampling documentation.

1. Sampling procedures will be documented in a field notebook that will contain:

    1. Sample collection procedures
    2. Date and time of collection
    3. Date of shipping
    4. Sample collection location
    5. Sample identification number(s)
    6. Intended analysis
    7. Quality control samples
    8. Sample preservation
    9. Name of sampler
    10. Any pertinent observations

2. Samples will be labeled with the following information:

    1. Sample number
    2. Well number
    3. Date and time sample was collected
    4. Sampler's name
    5. Sample preservatives (if required)

3. The following is the sample designation system for the site:

    For Borings and Hand-Auger Borings the samples will be labeled B-(Boring Number)-(Depth) (i.e. sample collected from boring 4 at 0.9 meters would be B4-0.9)

    For groundwater samples (W) (Boring Number) (i.e. WB4)

3. Handling of the samples will be recorded on a chain of custody form which shall include:

    1. Site name
    2. Signature of Collector
    3. Date and time of collection
    4. Sample identification number
    5. Number of containers in sample set
    6. Description of sample and container
    7. Name and signature of persons, and the companies or agencies they represent, who are involved in the chain of possession
    8. Inclusive dates and times of possession
    9. Analyses to be completed

III. GROUND-WATER SAMPLING

The following procedures will be used for ground water sampling:

1. All equipment shall be washed prior to entering the well with an Alconox solution, followed by two tap water rinses and a deionized water rinse.

2. Prior to purging wells, depth-to-water will be measured using an Solinst water-interface probe to an accuracy of approximately 0.01 foot. The measurements will be made to the top of the well casing on the north side.

4. Free floating product thickness and depth-to-ground water will be measured in wells containing free floating product using a Solinst oil-water interface probe to an accuracy of approximately 0.003 meters (0.01 foot). The measurements will be made to the top of the well casing on the north side.

5. Water samples will be collected with a polyethylene disposable bailer. The water collected will be immediately decanted into laboratory-supplied vials and bottles. The containers will be overfilled, capped, labeled, and placed in a chilled cooler, prior to delivery to the laboratory for analysis.

6. Chain of custody procedures, including chain of custody forms, will be used to document water sample handling and transport from collection to delivery to the laboratory for analysis.

7. Ground-water samples will be delivered to a State-certified hazardous waste laboratory within approximately 24 hours of collection.