ALTON GEOSCIENCE, INC.

August 6, 1990

Mr. William Hollis
BP Oil Company
Aetna Building, Suite 360
2868 Prospect Park Drive
Rancho Cordova, California 95670-6020

04-90-081
30-103

Subject: Proposed Scope of Work for
Phase II - Supplemental Site Investigation
and Remedial Planning Study
BP Oil Service Station No. 11109
4280 Foothill Boulevard
Oakland, California

Dear Mr. Hollis:

Alton Geoscience, Inc. is pleased to submit this proposal to conduct a Phase II - Supplemental Site Investigation and Remedial Planning Study of subsurface contamination at BP Oil Service Station No. 11109, located at 4280 Foothill Boulevard, Oakland, California. This proposal is in accordance with our recommendations presented in the Preliminary Site Investigation Report dated February 16, 1990. Upon your acceptance of this proposal, a work plan should be prepared and submitted to the appropriate regulatory agencies for their review and approval prior to commencing with field work.

The estimated budget to conduct the proposed supplemental site investigation is $30,500, as shown in the attachment. The budget will not be exceeded without prior authorization from BP Oil Company. Actual billing will be on a time and materials basis in accordance with Alton Geoscience's current pricing schedule.

Quarterly monitoring of the ground water wells is also proposed for your consideration. The estimated budget for four quarters of ground water monitoring is $14,400.

1000 Burnett Avenue, Suite 140 • Concord, CA 94520 • (415) 682-1582 • Fax 682-8921

We are prepared to begin work upon receipt of your written authorization to proceed and a signed professional services contract. Please call if you have any questions or need additional information.

Sincerely,

ALTON GEOSCIENCE, INC.

Al Sevilla, R.C.E. 26392
Division General Manager

Enclosures

PROPOSED SCOPE OF WORK
FOR
PHASE II - SUPPLEMENTAL SITE INVESTIGATION
AND REMEDIAL PLANNING STUDY

BP Oil Company
Service Station No. 11109
4280 Foothill Boulevard
Oakland, California

INTRODUCTION

This work plan presents the proposed scope of work to conduct a Phase II - Supplemental Site Investigation and Remedial Planning Study of subsurface contamination at BP Oil Company Service Station No. 11109, located at 4280 Foothill Boulevard, Oakland, California. The proposed scope of work is based on the results of a preliminary site investigation study conducted by Alton Geoscience, Inc. to determine the nature and extent of subsurface contamination at the site.

The primary intent of the proposed supplemental investigation is to: (1) define the nature and extent of subsurface contamination; and (2) develop an appropriate course of action for further investigation and/or remediation.

PROJECT BACKGROUND

In March 1989, Mobil Oil Corporation contracted Target Environmental Services to conduct a soil gas survey at the site as part of a property transfer program to investigate the potential of subsurface hydrocarbon contamination onsite. The survey revealed the presence of detectable concentrations of petroleum hydrocarbon constituents in the soil vapor samples.

Isoconcentration contour maps and chromatogram data generated during the survey suggest two potential sources of hydrocarbon contamination of the subsurface soil: one west of the main building and one between the eastern pump island and the underground storage tanks field. Contaminant migration to the southwest appears to be limited. The southeastern extent of the soil gas contaminant plume was not defined since it extends beyond the limits of the survey or property.

In April 1989, two 2-inch-diameter ground water monitoring wells were installed at the site. Soil samples taken from unspecified depths during well construction were analyzed for total petroleum hydrocarbons (TPH) with benzene, toluene,

incomplete investigation - ~~at~~ ~~ten~~ no analysis every 5 feet, etc

ethylbenzene, and total xylenes (BTEX) distinction. The results of the analysis showed 15 parts per million (ppm) TPH in the soil sample from Boring B-1. Borings B-1 and B-2 were converted into Monitoring Wells MW-1 and MW-2. Only the ground water sample from MW-1 was analyzed for BTEX constituents.

No info on why only one well sampled

In January 1990, Alton Geoscience installed two 4-inch-diameter ground water monitoring wells onsite. Soil samples from the borings for both wells were taken at intervals of about 5 feet and analyzed for TPH as gasoline (TPH-G) with BTEX distinction. The only soil sample with any detectable levels of TPH-G and total xylenes was from MW-4 from a depth of 25 feet. A trace (0.04-foot thickness) of free-floating product was observed in Monitoring Well MW-1. Ground water samples from the other three wells onsite were analyzed and found to contain TPH-G levels of up to 1,400 parts per billion (ppb) TPH-G and benzene of up to 15 ppb.

Recent depth to water measurements in the wells ranged from 17.45 to 21.19 feet below grade, while ground water elevation ranged from approximately 16.27 to 20.28 feet above mean sea level. The ground water flow direction is toward the northeast, with a gradient of approximately 0.05 foot per foot.

SCOPE OF WORK

Alton Geoscience proposes to perform the required supplemental site investigation in accordance with the applicable regulations and guidelines of the San Francisco Bay Regional Water Quality Control Board (RWQCB). The scope of work is as follows:

Task A: <u>Review Available Information and Acquire Necessary Permits</u>

Alton Geoscience will collect and review information pertinent to the site including ongoing site investigation work at nearby sites. A copy of the proposed scope of work will be submitted to the appropriate regulatory agencies for review. Prior to commencement of field work, procure all necessary drilling and ground water well permits; schedule field activities; and locate underground utility lines.

Task B: Install Exploratory Soil Borings and Ground Water Monitoring Wells

To investigate the lateral and vertical extent of soil and ground water contamination, up to seven additional exploratory soil borings will be drilled using a CME-75 drill rig equipped with 8- and 10-inch-diameter hollow stem augers. Procedures for drilling, soil sampling, well installation and development, and water sampling and analysis will be in accordance with the applicable requirements and guidelines of RWQCB.

During drilling, soil samples will be collected at 5-foot intervals beginning at 5 feet below grade. Soil samples will be obtained through a split-spoon sampler lined with stainless steel tubes. The samples recovered for analysis will be sealed airtight with Teflon tape and plastic caps, and placed immediately into an iced cooler.

Four of the seven soil borings will be converted to ground water monitoring wells to a depth of about 15 feet below the top of the first saturated zone unless a competent clay zone is encountered. It is estimated that the ground water table is at a depth of about 20 to 30 feet below grade. The wells will be constructed of clean, 2- or 4-inch-diameter polyvinyl chloride (PVC) pipe in accordance with RWQCB requirements. The top of each well will be secured with locking caps and watertight boxes finished flush with the ground surface. The remaining three borings will be drilled and sampled until ground water is encountered to determine the extent of any soil contamination around the perimeter of the underground fuel tank field.

Task C: Develop, Sample, and Survey Ground Water Monitoring Wells

The ground water monitoring wells will be properly developed and sampled in accordance with RWQCB guidelines. Water samples will be collected in sterile containers and transported to a state-certified laboratory for analysis. Each well will be surveyed from top of casings to within 0.01 foot accuracy relative to a common datum and an established benchmark with respect to location and elevation.

Task D: Analyze Soil and Ground Water Samples

Soil and ground water samples will be transported to a state-certified laboratory and analyzed for TPH-G, BTEX, and organic lead, using appropriate standard Environmental Protection Agency (EPA) methods. The samples will be analyzed on a 1-week turnaround time.

Task E: Perform Aquifer Analysis and Testing

Depending on the site-specific condition, either a 1-day pump test or slug test will be performed to determine hydrogeologic characteristics of the aquifer, including hydraulic conductivity and/or transmissivity. A laboratory permeability test of selected soil samples collected during installation of monitoring wells will also be conducted.

Task F: Analyze Data and Laboratory Results

Upon completion of the sample analysis and aquifer analysis and testing, a detailed analysis of results and available information will be conducted to determine the extent and nature of subsurface contamination. This will include interpreting geologic and hydrogeologic information and assessing the potential short- and long-term impacts of contamination on the beneficial uses of ground water and surface water.

Based on the results of the investigation and data analysis, Alton Geoscience will develop appropriate courses of action by considering one or a combination of the following:

1. Further site characterization to adequately define the extent of subsurface contamination.

2. Remediation of subsurface contamination.

Task G: Conduct Feasibility Study and Conceptual Design of Remediation Plan

Based on the results of the above tasks, a detailed feasibility study of alternative technologies for remediation of ground water will be conducted. The study will include a detailed evaluation of alternative technologies, considering technical, economic, environmental, and legal factors. Economic comparison of alternatives will consider

both capital and operating costs as well as the present worth or life cycle cost of each alternative.

Once an appropriate remediation alternative has been selected, a conceptual design of the selected system will be prepared including process layout; design parameters; engineering cost estimate; equipment manufacturer's specifications; and estimated implementation schedule.

Task H: Prepare Report

A preliminary report presenting our findings, conclusions, and recommendations will be submitted to BP Oil Company for review and approval prior to submittal to the Alameda County Department of Environmental Health and the RWQCB. The report will include all the information required by the regulatory agencies. Two copies of the preliminary report will be submitted to BP Oil Company. Upon receipt of comments, Alton Geoscience will then prepare the final report and submit five copies to BP Oil Company.

Task I: Ground Water Monitoring

In accordance with RWQCB requirements, ongoing monitoring and sampling of ground water shall be conducted for the duration of the investigation and remediation. At minimum, the wells will be monitored and sampled for 12 months after the investigative work is completed. Ground water sampling and analysis will be performed quarterly for four quarters. The need for further ground water monitoring and sampling will be determined based on the results of the supplemental site investigation.

Water levels will be measured in each monitoring and sampling event. Quarterly ground water samples will be analyzed in a state-certified laboratory for the same constituents specified in Task D. Prior to collection of samples, each well will be purged following standard procedures. Purged ground water will be stored in containers for proper disposal.

Results of each monitoring event will be submitted in a quarterly report. The report, which will summarize the results and findings of the preceding

monitoring and sampling event, will be submitted no later than the fifteenth day of the following month.

SITE SAFETY PLAN

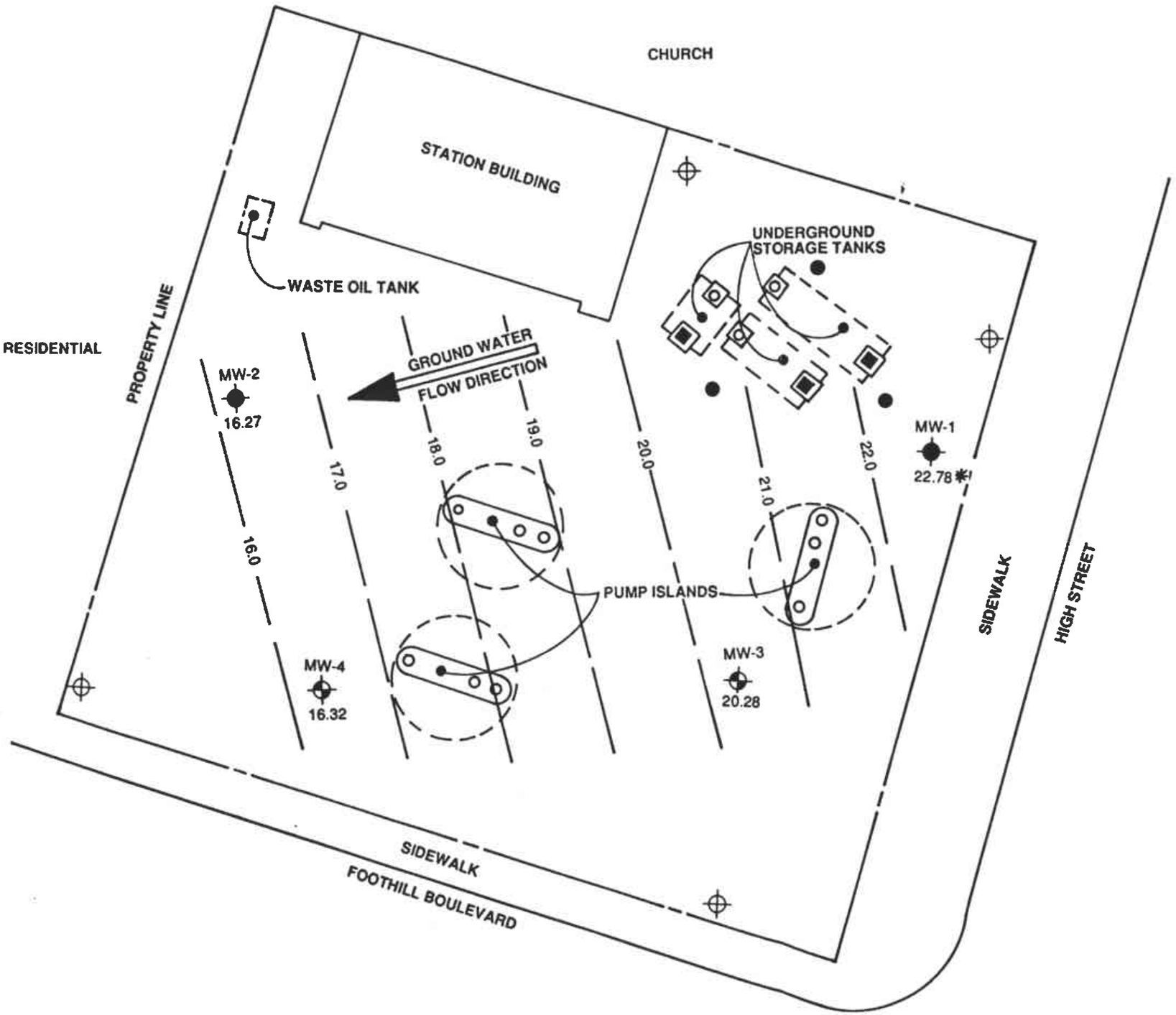
All field procedures and activities related to the conduct of the site investigation work will be in accordance with the site safety plan (SSP) to be developed for the project. The SSP will be developed in compliance with applicable requirements of the California Department of Health Services (Cal-DHS) and the Federal and State Occupational Safety and Health Administration (OSHA and Cal-OSHA), respectively.

IMPLEMENTATION SCHEDULE

The proposed site investigation work will be completed and a report submitted within 80 days after receipt of written approval of the work plan for supplemental site investigation/characterization. The schedule for completion of major activities or tasks is as follows:

Task/Activity	Estimated Days After Work Plan Approval Until Completion
- Review Information/Permit Preparation	10
- Soil Borings/Well Installation	20
- Well Development/Sampling	25
- Sample Analysis	40
- Aquifer Analysis and Testing	45
- Data Analysis	60
- Feasibility Study/Remediation Design	70
- Report Preparation	80

This schedule may be subject to revision depending on timely receipt of work plan approval and information required to complete the site investigation. Any changes to the schedule will be communicated in advance to the appropriate agencies and parties.



SOURCE: PROPERTY MAP PROVIDED BY MOBIL OIL CORPORATION

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SCALE IN FEET

LEGEND:

- EXISTING MONITORING WELL BY ALTON
- EXISTING MONITORING WELL BY OTHERS
- 22.0 — GROUND WATER ELEVATION CONTOUR FROM FEBRUARY 5, 1990. VALUES IN FEET ABOVE MAIN SEA LEVEL.
- * GROUND WATER ELEVATION FOR MW-1 TAKEN JANUARY 31, 1990.
- PROPOSED MONITORING WELL
- PROPOSED SOIL BORING

FIGURE 2 SITE PLAN

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