BP OIL

BP Oil Company
2868 Prospect Park Drive, Suite 360
Rancho Cordova, California 95670-6020
(916) 631-0733

AR 11-6-89

November 3, 1989

Mr. Rafat Shahid
Alameda County
Hazardous Materials Division
Alameda County Dept. of Environmental Health
80 Swan Way, Room 200
Oakland, CA 94621

RE: BP OIL FACILITY #11133
2220 98TH AVENUE
OAKLAND, CA 94603

BP OIL FACILITY #11132
3201 35TH AVENUE
OAKLAND, CA 94601

Dear Mr. Shahid:

Please find enclosed proposed work plans for expanded hydrogeological assessments to be performed at the subject facilities.

We are prepared to begin work on these projects upon receipt of your comments and approval.

Please feel free to contact me if you have any questions.

Cordially,

W.J. Hollis dj

W.J. Hollis
Environmental Coordinator

WJH:dj

cc: Scott Hugenberger (w/attachment)
Regional Water Quality Control Board
1111 Jackson St., Room 6000
Oakland, CA 94607

Mr. David Noe (w/attachment)
Mobil Oil Corporation
3800 W. Alameda Ave., Suite 700
Burbank, CA 95105

Mr. Al Sevilla (w/o attachment)
Alton Geoscience, Inc.
1170 Burnett Avenue, Suite S
Concord, CA 94520

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

BP Oil Company
Service Station #11132
3201 35th Avenue
Oakland, California

INTRODUCTION

This work plan presents the proposed scope of work to conduct a Phase II site investigation of subsurface contamination at BP Oil Station #11132, located at 3201 35th Avenue, Oakland, California. The proposed scope of work is based on the results of the preliminary site investigation work conducted by other consulting firms, to determine the nature of soil and ground water contamination. The initial investigation work also included monitoring of the soil and ground water contamination at the site.

The primary intent of this proposed supplemental investigation is to: (1) obtain additional information to conduct the 5-step investigative process of the San Francisco Bay Regional Water Quality Control Board (RWQCB), (2) confirm the nature and extent of subsurface contamination, and (3) develop an appropriate course of action for remediation.

SITE HISTORY

In August 1986, a consultant was retained by Mobil Oil Corporation to install three monitoring wells to assess ground water quality following excavation of contaminated soil. The latest round of sample collection and analysis indicated that total petroleum hydrocarbon (TPH) constituents are present in all the samples from the three wells at levels up to 69 parts per million (ppm).

SCOPE OF WORK

The proposed supplemental site investigative work and remedial planning study will be conducted in accordance with applicable regulations and guidelines of Alameda County

Department of Environmental Health (ACDEH) and the RWQCB, San Francisco Bay Region. The scope of proposed work for further investigation includes the following tasks:

Task A: Review Available Information and Acquire Necessary Permits

Collect and review information pertinent to the site and ongoing investigative work. This will include research of information on nearby water wells and review of reports and data related to any ongoing site investigation at nearby sites, as well as review of all available data and studies on the site.

A work plan will be submitted to the appropriate regulatory agencies for review. Prior to commencement of field work, procure all necessary drilling, well, and encroachment permits, scheduling of field activities, and location of underground utility lines.

Task B: Perform Aquifer Analysis and Testing

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

Task C: Conduct Qualitative Shallow Water Survey

To accurately determine the lateral extent of ground water contamination, and properly install additional monitoring and recovery wells, a qualitative sampling and analysis of the shallow ground water will be conducted. The qualitative survey is essentially a screening process to assist in determining the most appropriate locations of the additional monitoring wells necessary to fully define the lateral extent of contamination, or for installation of recovery well(s) for ground water remediation.

The procedure to be used will be based on the soil gas survey technique in combination with the methods for ground water sampling (such as the Hydropunch).

All samples collected will be analyzed onsite for the specified constituents, using field instruments or a mobile laboratory.

The location of the sampling points will be determined in the field, using results of previous investigations and onsite sample analysis. Samples will be analyzed for total petroleum hydrocarbons (TPH), and possibly for benzene, toluene, ethylbenzene, and xylenes (BTEX).

Task D: Install Additional Ground Water Monitoring and Recovery Well

Based on the results of Tasks A, B and C, install four additional ground water monitoring wells to confirm/assess the extent of ground water contamination. Two wells will be installed off-site, generally to the north, and two onsite to the west and south of the existing wells. One or more of the wells will be installed as a recovery well based on specifications determined through aquifer testing and physical analysis of soil sample collected during monitoring well construction. The exact locations of the wells will be determined based on results of the above tasks.

The wells will be drilled using a CME 55 or 75 drilling rig with 10-inch-diameter hollow stem augers, following the standard procedures and requirements of regulatory agencies. Encroachment permits will be obtained for the wells that will be installed offsite before commencing with drilling. A ground penetrating radar (GPR) survey and/or other geophysical methods may be required to determine the location of any underground utilities prior to drilling.

During drilling, soil samples will be collected at 5-foot intervals beginning at 5 feet below grade to the capillary fringe of the first saturated zone encountered. Samples will be collected from the saturated zone for analysis of physical properties to determine aquifer characteristics. Soil samples

will be obtained through a split spoon sampler lined with stainless steel tubes. The samples recovered for chemical analysis will be sealed airtight with Teflon tape and plastic caps, wrapped with tape, labeled, and placed immediately into a cooler with dry ice.

Each soil boring will be converted to ground water monitoring wells to a depth of about 20 feet below the top of the first saturated zone encountered (to an estimated depth of 40 feet below grade).

Each monitoring well will be constructed of clean 4-inch-diameter Schedule 40 PVC pipe, with 0.020-inch perforations, and the required gravel packs. The recovery well will be installed and constructed based on site-specific hydrogeologic conditions and the nature of contamination encountered.

All well construction will be in accordance with Alameda County Department of Environmental Health and RWQCB guidelines. The top of each monitoring well will be secured with water-tight locking caps and christy boxes finished flush with the ground surface.

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

The additional monitoring wells will be properly developed and sampled, in accordance with the regulatory guidelines. Water samples will be collected from each of the wells (including the accessible existing wells) after proper development and purging. Samples will be placed in clean containers, labeled, and placed in cold storage for transport to a state-certified laboratory for analysis.

Both additional wells and the existing wells will be surveyed as to location and elevation in reference to an established benchmark or a common datum to within 0.01 foot. Water level from each well will also be measured to the nearest 0.01 foot. Utilizing this data, a ground water gradient profile map will be developed.

Task F: Analyze Soil and Ground Water Samples

Soil and ground water samples will be transported to a state-certified laboratory for analysis following proper chain of custody procedures. Soil samples will be analyzed for total petroleum hydrocarbons (TPH) as gasoline with benzene, toluene, ethylbenzene, and xylene (BTEX) distinction by EPA method 8015/8020.

Water samples will be analyzed for the same constituents above, using EPA methods 8015/602. All samples will be analyzed on a standard two week turnaround time.

Task G: Analyze Data and Laboratory Results

Upon completion of the sample analysis and background research, a detailed evaluation of results and available information will be conducted to determine the extent and nature of subsurface contamination, following the 5-step investigative process of RWQCB. This will include:

- Interpretation of geologic and hydrogeologic information and analysis of aquifer characteristics.

- Preparation of ground water level contour maps, geologic cross sections, and hydrocarbon concentration maps.

- Definition of hydrocarbon contamination plume.

- Assessment of the potential short- and long-term impacts of contamination on the beneficial uses of ground and surface water.

- Development of appropriate remediation plan, including interim measures to minimize potential environmental impact.

The appropriate course of action will be developed based on evaluation of technical, economic, environmental, and legal factors. One or a combination of the following strategies will be

considered before any remedial measure can be implemented:

1) Request regulatory agencies for closure of the case.

2) Conduct further site characterization and monitoring to adequately define the nature and extent of subsurface contamination.

3) Conduct a feasibility study and develop a remediation plan.

Task H: Prepare Report

A report presenting the findings, conclusions, and recommendations will be prepared and submitted to the Alameda County Department of Environmental Health and the RWQCB. The report will also include the proposed scope of work for a remediation plan and feasibility study, estimated budget, laboratory results, sampling documentation, boring logs, field notes, and sampling protocol.

SITE SAFETY PLAN

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

IMPLEMENTATION SCHEDULE

The site investigation work proposed herein will be completed and a report submitted within 90 days after receipt of written approval of the proposed scope of work for supplemental site investigation/characterization. The schedule for completion of major activities or tasks is as follows:

Activity	Estimated Days After Work Plan Approval
Aquifer Testing	20
Monitoring and Recovery Well Installation	25
Sampling and Laboratory Analysis	45
Data Analysis	60
Report Preparation	70

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 involved.

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

BP Oil Company
Service Station #11133
2220 98th Avenue
Oakland, California

INTRODUCTION

This work plan presents the proposed scope of work to conduct a Phase II site investigation of subsurface contamination at BP Oil Station #11133, located at 2220 98th Avenue, Oakland, California. The proposed scope of work is based on the results of the preliminary site investigation work conducted by other consulting firms, to determine the nature of soil and ground water contamination. The initial investigation work also included monitoring of the soil and ground water contamination at the site.

The primary intent of this proposed supplemental investigation is to: (1) obtain additional information to conduct the 5-step investigative process of the San Francisco Bay Regional Quality Control Board (RWQCB), (2) confirm the nature and extent of subsurface contamination, and (3) develop an appropriate course of action for remediation.

SITE HISTORY

In June 1987, three underground storage tanks were removed at the site. A consultant retained by Mobil Oil Corporation collected samples from the tank pit for laboratory analysis. The samples contained detectable levels of total petroleum hydrocarbons (TPH) as gasoline. In May 1988, three ground water monitoring wells were installed to assess the nature of subsurface contamination, if any. Samples collected in June 1988 from two of the wells contained petroleum hydrocarbon constituents; one contained TPH at a level of 76,000 parts per billion (ppb).

SCOPE OF WORK

The proposed supplemental site investigative work and remedial planning study will be conducted in accordance with applicable regulations and guidelines of Alameda County

Department of Environmental Health and the RWQCB, San Francisco Bay Region. The scope of proposed work for further investigation includes the following tasks:

Task A: Review Available Information and Acquire Necessary Permits

Collect and review information pertinent to the site and ongoing investigative work. This will include research of information on nearby water wells and review of reports and data related to any ongoing site investigation at nearby sites, as well as review of all available data and studies on the site.

A work plan will be submitted to the appropriate regulatory agencies for review. Prior to commencement of field work, procure all necessary drilling, well, and encroachment permits, scheduling of field activities, and location of underground utility lines.

Task B: Perform Aquifer Analysis and Testing

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

Task C: Conduct Qualitative Shallow Water Survey

To accurately determine the lateral extent of ground water contamination, a qualitative sampling and analysis of the shallow ground water will be conducted. The qualitative survey is essentially a screening process to assist in determining the most appropriate locations of the additional monitoring wells necessary to fully define the lateral extent of contamination, or for installation of recovery well(s) for ground water remediation.

The procedure to be used will be based on the soil gas survey technique in combination with the methods for ground water sampling (such as the Hydropunch).

All samples collected will be analyzed onsite for the specified constituents, using field instruments or a mobile laboratory.

The location of the sampling points will be determined in the field, using results of previous investigations and onsite sample analysis. Samples will be analyzed for total petroleum hydrocarbons (TPH), and possibly for benzene, toluene, ethylbenzene, and xylenes (BTEX).

Task D: Install Additional Ground Water Monitoring and Recovery Well

Based on the results of Tasks A, B and C, install four additional ground water monitoring wells to confirm/assess the extent of ground water contamination. Two wells will be installed off-site, generally to the east, and two onsite, west of the pump islands. One or more of the wells will be installed as a recovery well based on specifications determined through aquifer testing and physical analysis of soil sample collected during monitoring well construction. The exact locations of the wells will be determined based on results of the above tasks.

The wells will be drilled using a CME 55 or 75 drilling rig with 10-inch-diameter hollow stem augers, following the standard procedures and requirements of regulatory agencies. Encroachment permits will be obtained for the wells that will be installed offsite before commencing with drilling. A ground penetrating radar (GPR) survey and/or other geophysical methods may be required to determine the location of any underground utilities prior to drilling.

During drilling, soil samples will be collected at 5-foot intervals beginning at 5 feet below grade to the capillary fringe of the first saturated zone encountered. Samples will be collected from the saturated zone for analysis of physical properties to determine aquifer characteristics. Soil samples will be obtained through a split spoon sampler lined with stainless steel tubes. The samples recovered for chemical analysis will be sealed airtight with Teflon tape and plastic caps, wrapped with tape, labeled, and placed immediately into a cooler with dry ice.

Each soil boring will be converted to ground water monitoring wells to a depth of about 20 feet below the top of the first saturated zone encountered (to an estimated depth of 30 to 40 feet below grade). Each monitoring well will be constructed of clean 4-inch-diameter Schedule 40 PVC pipe, with 0.020-inch perforations, and the required gravel packs. The recovery well will be installed and constructed based on site-specific hydrogeologic conditions and the nature of contamination encountered.

All well construction will be in accordance with Alameda County Department of Environmental Health and RWQCB guidelines. The top of each monitoring well will be secured with water-tight locking caps and christy boxes finished flush with the ground surface.

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SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.	Client Project ID:	Paradiso, Oakland, 98th/Bancroft	Sampled:	Jan 9, 1990
P.O. Box 996	Sample Descript:	Soil, Composite A	Received:	Jan 9, 1990
Benicia, CA 94510			Extracted:	Jan 11, 1990
Attention: Mardo Kaprealian, P.E.	Lab Number:	001-0956 A-B	Analyzed:	Jan 12, 1990
			Reported:	Jan 12, 1990

LABORATORY ANALYSIS

Analyte	Detection Limit mg/kg	Sample Results mg/kg
Lead	0.25	15

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Belinda C. Vega
Project Manager

SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Kaprealian Engineering, Inc.	Client Project ID:	Paradiso, Oakland, 98th/Bancroft	Sampled:	Jan 9, 1990
P.O. Box 996	Sample Descript.:	Soil, Composite A	Received:	Jan 9, 1990
Benicia, CA 94510	Analysis Method:	EPA 5030/8015/8020	Analyzed:	Jan 11, 1990
Attention: Mardo Kaprealian, P.E.	Lab Number:	0010956 A-B	Reported:	Jan 12, 1990

TOTAL PETROLEUM FUEL HYDROCARBONS WITH BTEX DISTINCTION (EPA 8015/8020)

Analyte	Detection Limit mg/kg (ppm)	Sample Results mg/kg (ppm)
Low to Medium Boiling Point Hydrocarbons	1.0	N.D.
Benzene	0.05	N.D.
Toluene	0.1	N.D.
Ethyl Benzene	0.1	N.D.
Xylenes	0.1	N.D.

Low to Medium Boiling Point Hydrocarbons are quantitated against a gasoline standard.
Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Belinda C. Vega
Project Manager