FUGRO WEST, INC.

44 Montgomery Street, Suite 1010
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June 21, 1995
Proposal No. 9537-0430

Ms. Juliet Shin
Hazardous Materials Specialist
Alameda County Health Care Services
Environmental Protection Division
1131 Harbor Bay Parkway, #250
Alameda, CA 94502-6577

Proposed Work Plan
Former Bill Chun Service Station
2301 Santa Clara Avenue
Alameda, California

Dear Ms. Shin,

On behalf of Mr. Wayne Chun, Fugro West, Inc., (Fugro) is pleased to provide you with the attached copy of the Proposed Work Plan (PWP) for the former Bill Chun Service Station site located at 2301 Santa Clara Avenue in Alameda, California.

This PWP is being submitted to you for your review and approval. It is Mr. Chun's intention that, upon your approval, the PWP will be submitted to the California State Fund Program for approval and work will be subsequently initiated.

Fugro appreciates the opportunity to prepare this correspondence for you. If you have any questions or comments, please contact me at (415) 296-1041.

Sincerely,

FUGRO WEST, INC.

Stephen J. Boudreau
Regional Branch Manager
Senior Environmental Engineer

SJB:dlb

Attachment

cc: Wayne Chun

FUGRO WEST, INC.

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San Francisco, CA 94104
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June 21, 1995
Proposal No. 9537-0430

Mr. Wayne Chun
265 Heron Drive
Pittsburg, CA 94565-1916

Proposal for Free Product Recovery, Ground Water Assessment and Ground Water Migration Control Services
2301 Santa Clara Avenue
Alameda, California

Dear Mr. Chun,

Fugro West, Inc., (Fugro) is pleased to provide you with this proposal to perform free product recovery, additional ground water assessment, and ground water migration control activities at the former Bill Chun Service Station site located at 2301 Santa Clara Avenue in Alameda, California (Subject Property). The scope of work addressed within this proposal is based on correspondence from the Alameda County Department of Environmental Health, Environmental Protection Division (EPD), dated February 28, 1995. The proposed scope of services consists of the following tasks:

Task No.	Description
Task 1.0	Technical Work Plan
Task 2.0	Free Product Recovery
Task 3.0	Additional Ground Water Assessment
Task 4.0	Ground Water Migration Control
Task 5.0	Reporting

The following sections describe each task and a proposed schedule.

TASK 1 - TECHNICAL WORK PLAN

Prior to initiating field activities, a Technical Work Plan (TWP) will be prepared and submitted to the EPD. The TWP will define the proposed scope of work and detailed procedures/protocols to be employed in conducting the free product recovery, additional ground water assessment, and ground water migration control activities. In accordance with the California Code of Regulations (CCR) Title 23, Article 11, the EPD has 60 days to approve or disapprove the TWP. Therefore, upon EPD approval of the TWP or after 60 days from the date of submittal of the TWP and with proper notification to the EPD, the TWP will be implemented.

TASK 2.0 - FREE PRODUCT RECOVERY

In accordance with Fugro's previous scope of work, Fugro conducted weekly free product recovery from wells MW-5 and MW-7 from August 12, 1994, until November 9, 1994. As indicated in Fugro's *Third Quarter 1994 Ground Water Monitoring Report*, dated January 1995, free product continues to be detected in MW-5 and MW-7. As requested by the EPD, Fugro proposes to perform free product recovery in the two subject wells.

Previous free product recovery activities were conducted using periodic manual bailing (once a week) and resulted in the recovery of a total of less than one gallon free product. Based on this result, Fugro proposes to use passive recovery bailers (PRBs) to recover free product from the wells. The PRBs include a membrane which permits the flow of free product into the bailer and restricts the flow of water into the bailer. One bailer will be placed in each of the subject wells and will remain in the well for the extent of the free product recovery activities. On a regular basis, the PRBs will be emptied and replaced in the subject wells. The frequency of site visits for monitoring and emptying the PRBs will be adjusted based on the time required for the PRBs to be filled to capacity with free product. **Fugro estimates that free product recovery site visits will be initially performed twice a week and reduced to once a week after approximately one month.** The free product recovery activities will continue until no free product is detected in the wells. For the purpose of cost estimating, Fugro has assumed that site visits will be conducted for twelve weeks after the PRBs are installed.

TASK 3.0 ADDITIONAL GROUND WATER ASSESSMENT

Previous ground water monitoring and assessment activities conducted at the Subject Property have indicated that the ground water samples from the seven on-site monitoring wells and two of the off-site Hydropunch® borings exhibited detectable levels of petroleum hydrocarbons. As stated by the EPD, this indicates that the ground water contaminant plume may be migrating off-site. Therefore, the EPD has requested that additional ground water assessment be conducted to define the extents of the plume in the north, south, and east directions.

To assist in defining the ground water contaminant plume, Fugro will collect one ground water sample from each of approximately ten locations using a Powerpunch® ground water sampling device. Prior to any subsurface drilling activities, Fugro will notify Underground Service Alert. In addition, Fugro will utilize a private subsurface location service to assist in locating and avoiding damage to underground utilities. Two of the Powerpunches® will be placed within the fill of the utility trench along Oak Street to assist in assessing whether the trench is acting as a preferential conduit for plume migration. The ten Powerpunch® ground water samples will also be used to assess the potential for contamination from off-site sources. These potential off-site sources include the former Shell Gas Station south of the Subject Property, the former UST at the Towata's Flower Shop east of the Subject Property, and the former UST (Tank 3) at the Alameda Police Station north of the Subject Property (Figure 1). Ground water samples collected using the Powerpunch® will be analyzed by a state-certified laboratory for total petroleum hydrocarbons as gasoline (TPH-g), benzene, toluene, ethylbenzene, and xylenes (BTEX), and total petroleum hydrocarbons as diesel (TPH-d). In addition, two samples collected near boring HP-3 will be analyzed for chlorinated hydrocarbons.

If the analytical results for the ten ground water samples indicate that the extents of the ground water plume have been delineated, a total of four ground water monitoring wells will be installed. Three of the monitoring wells will be installed in EPD's requested plume definition directions (i.e., north, east, and south of the Subject Property). The fourth monitoring well will be placed downgradient from MW-7 to assist in the definition of the free product plume. Ground water samples collected following well installation and development will be analyzed for TPH-g, BTEX, and TPH-d. In addition, the ground water sample collected from the monitoring well located downgradient of boring HP-3 will be analyzed for chlorinated hydrocarbons.

TASK 4.0 GROUND WATER MIGRATION CONTROL

The following sections describe ground water migration control activities including aquifer testing, system design and permitting, system construction, system operation and maintenance.

4.1 Aquifer Testing

A 48-hour continuous pumping aquifer test will be conducted by pumping ground water from MW-1. The aquifer test will be performed using an electronic datalogger, four electronic pressure transducers, and an electric submersible pump. The transducers will be used to measure water level drawdown in four nearby monitoring wells. Pumping effluent will be placed in a holding tank on site for later disposal. Fugro assumes that the extracted ground water will be pumped from the holding tank through the proposed ground water treatment system and discharged to the sanitary sewer. Because system design and construction will require an estimated eight weeks after the aquifer test is performed, Fugro assumes the water generated by the aquifer test will be stored on-site for approximately ten weeks.

Values of transmissivity and storativity will be calculated from the pump test data using computer modeling software. Assumptions made while executing the computer models will be documented. The results of the data analysis will be included in a technical report (see Section 5.0 of this proposal).

4.1 System Design, Permitting, and Construction

The calculated aquifer parameters will be used in designing a ground water extraction/treatment system to control the migration of ground water off of the Subject Property. If approved by the East Bay Municipal Utilities District (EBMUD), the extracted ground water will be treated using GAC and discharged to the local sanitary sewer. The discharge permit will include sampling, monitoring, and reporting requirements regarding system operations, as well as EBMUD's fees and other charges for disposal. Such charges will be based on discharge volumes and contaminant concentrations which can not be estimated until the aquifer test is completed. Therefore, this cost estimate does not include any such fees or charges.

The proposed migration control system design is based on the assumption that migration control can be achieved by extracting ground water from two existing monitoring wells at a total system flow rate of less than five gallons per minute. The system will include two controllerless pneumatic pumps, a 5-HP air compressor, a 250-gallon surge tank with two level switches, an LEL discharge monitor, two 1,000-pound GAC canisters, associated piping, fittings, valves, and an electrical control box with a Ground Fault Interrupter switch and appropriate circuit breakers.

Fugro will obtain necessary construction permits from the City of Alameda Building Department Permit Office (ABDPO) prior to commencing system construction. The estimated costs of the permits presented herein are based on information provided by ABDPO. The actual costs of the permits will be determined by ABDPO when the permit applications are processed. Fugro will utilize subcontractors to perform trenching, install piping, mount and connect the system components, and connect the system to an existing electrical supply. Fugro has assumed that the

system will be constructed inside the existing site building, and that an appropriate electrical power supply for the proposed system exists at the proposed system location. If an appropriate electrical power supply does not currently exist, Fugro will provide one at additional cost.

4.3 System Operation and Maintenance

Fugro expects this proposed interim migration control system to remain in operation until remediation is determined to be complete or as otherwise requested by the EPD. For estimating purposes, Fugro has assumed that the system will operate for a period of six months. The operation and maintenance activities for the duration of the six month period will consist of weekly site visits to monitor the system, perform routine maintenance, and collect required system influent and effluent samples. Estimated operation and maintenance costs do not include use of electricity, fees or other charges related to discharge of treated water, carbon analysis or disposal costs, parts or repairs exceeding routine scheduled maintenance, or additional (beyond one monthly sample for TPH-g/BTEX/TPH-d) system monitoring sampling and reporting costs associated with the sewer discharge permit. The usable lifetime of the carbon in the treatment canisters will not be known until actual system operations data is available. Therefore, this cost estimate does not include costs to analyze, replace, or dispose of spent carbon.

TASK 5.0 REPORTING

Fugro will be prepare a technical report presenting the findings after the ground water assessment and aquifer testing activities. The report of findings will include project background information, field activities/methodologies, findings, conclusions, and recommendations.

In addition, once the ground water migration control/treatment system has been implemented, Fugro will prepare and submit to EBMUD a monthly status report. The status report will document Fugro's observations of the system during the weekly site visits and the analytical results of the ground water samples collected.

SCHEDULE AND ASSUMPTIONS

Fugro is prepared to begin work on this project upon receipt of your written authorization to proceed.

The estimated costs and schedule described above are based on the following assumptions:

- The Alameda County Department of Environmental Health, Environmental Protection Division (EPD) will not disapprove the Technical Work Plan (TWP).
- Free product is not detected in any wells except MW-5 and MW-7. Recovery of free product from additional wells can be performed at additional cost.
- Free product in MW-5 and MW-7 will be reduced to a sheen within 12 weeks of commencing free product recovery from those wells.

- The proposed ten Powerpunch® sample locations will provide adequate characterization of the extent of hydrocarbons in ground water. If necessary, additional assessment can be conducted at additional cost.

- Migration control can be achieved by extracting ground water from two existing monitoring wells at a total system flow rate of less than five gallons per minute.

- Treatment by GAC will be appropriate for the actual flow rates and hydrocarbon concentrations which will result if the proposed system is constructed and operated.

- The EBMUD will approve a permit to discharge treated ground water to the sewer system. Fugro assumes a connection to the local sewer system exists inside the existing site building.

- The EBMUD permit will require laboratory analysis of two samples at system startup (one influent sample and one effluent sample to be analyzed for TPH-g, BTEX, and TPH-d), and one sample per month of system operations (one effluent sample analyzed for TPH-g, BTEX, and TPH-d). Additional required sampling and analysis can be conducted at additional cost.

- EBMUD monthly fees and charges for discharge are not included in this cost estimate. Any such fees or charges will be invoiced at cost plus 15 percent.

- The proposed system will be constructed inside the existing site building, and an appropriate electrical power supply exists at the proposed system location.

- The usable lifetime of the carbon in the treatment canisters will not be known until actual system operations data is available. Therefore, this cost estimate does not include costs to analyze, replace, or dispose of spent carbon.

- The system will operate for six months.

- This estimated schedule includes regular turn around times for sample analyses of five days. Faster turn around times are available from the laboratory at higher costs.

- Fugro and its subcontractors will have reasonable access to the Subject Property and adjoining public and private properties during regular business hours. This cost estimate does not include cost for securing access to any public or private property. If requested, Fugro can assist in arranging access to off-site properties at additional cost.

- Inclement weather may delay field work and could delay the project.

- Subsurface utilities, structures, or other features are not located in proposed drilling locations. If any such facilities are encountered, or interfere with drilling placement or progress, additional work may be required at additional cost.

- Fugro will not be responsible for damage to utilities, features of the Subject Property or other properties, or the environment resulting from site work within the scope of this proposal.

- Unless otherwise requested, the owner will be responsible for the disposal of the soil cuttings, groundwater, and other fluids generated during free product recovery, and site drilling and sampling activities. At your request, Fugro can provide costs for characterization and subsequent disposal of such materials.

Fugro appreciates the opportunity to submit this proposal and looks forward to the opportunity to complete this project. Please contact us at (415) 296-1041 if you have any questions.

Sincerely,

FUGRO WEST, INC.

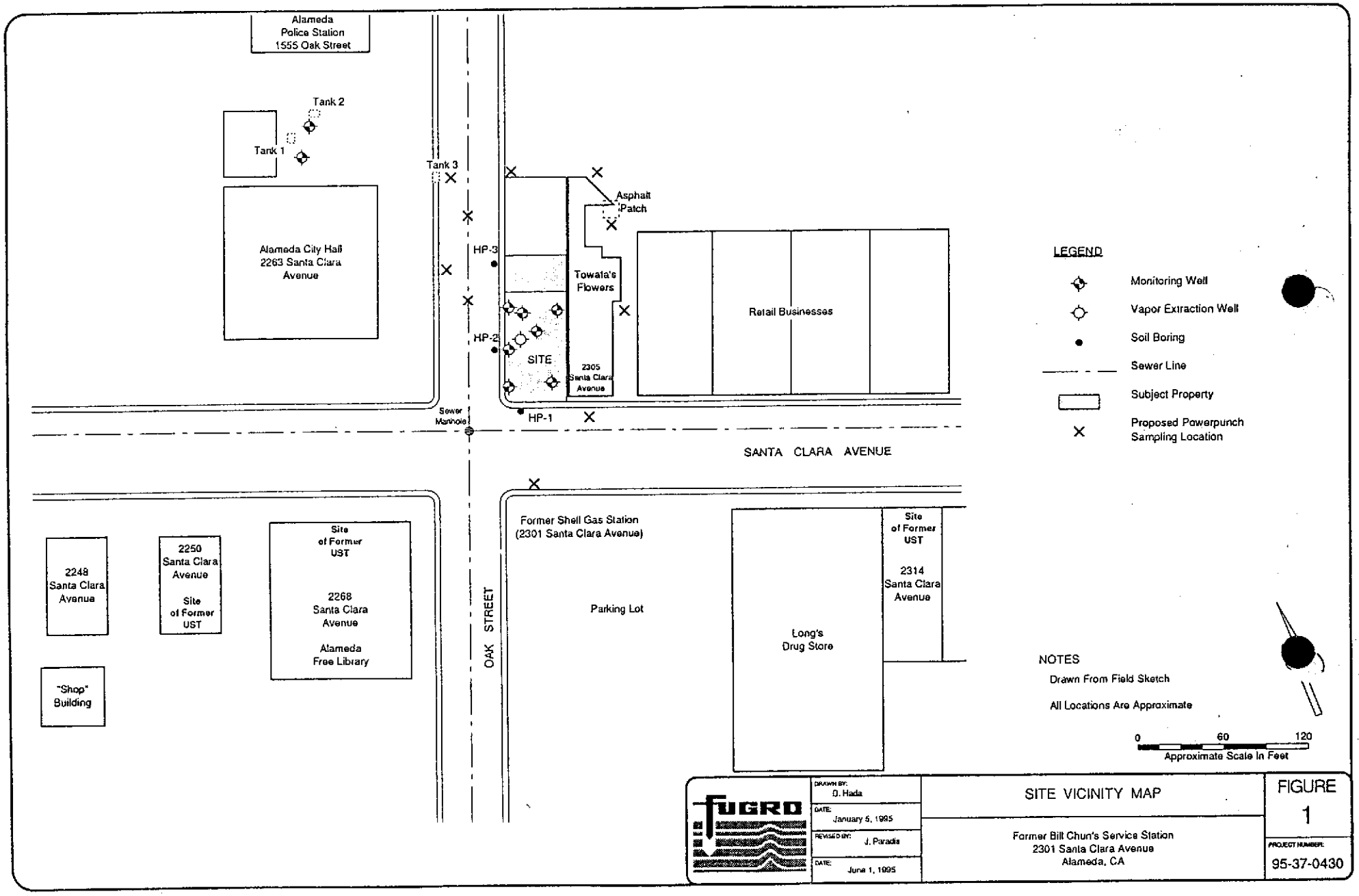
William E. Bassett, Jr./ss

William E. Bassett, Jr.
Environmental Scientist

Stephen J. Boudreau
Regional Branch Manager
Senior Environmental Engineer

SJB:dlb

Attachment



FUGRO

DRAWN BY: D. Hada
DATE: January 5, 1995
REVISED BY: J. Paradis
DATE: June 1, 1995

SITE VICINITY MAP

Former Bill Chun's Service Station
2301 Santa Clara Avenue
Alameda, CA

FIGURE
1

PROJECT NUMBER:
95-37-0430