

March 16, 1990
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Harsch Investments
235 West MacArthur Blvd.
Oakland, CA 94616

Attention: Mr. Herman Engbers

Subject: Proposal for Observation of Soil Excavation and Remediation,
and Proposed Site Characterization Work Plan:
Groundwater Contamination at Former Texaco Station, South Shore
Shopping Center, Park Street and Shore Line Drive,
Alameda, California

Gentlemen:

We are pleased to present (1) a proposal for observation of the excavation of soil contaminated with petroleum products, and (2) a proposed work plan for site exploration to characterize the groundwater contamination at the site. This work is intended to provide the information required by the Alameda County Hazardous Materials Division. This work is intended to evaluate the extent of soil and groundwater contamination at the former Texaco gas station. Soil contamination will be documented during site excavation. Groundwater contamination will be characterized in order to provide a basis for a groundwater remediation plan.

SCOPE OF WORK

Task 1 - Observation of Soil Excavation and Remediation at Former Texaco Station

Using the available data, a letter describing the proposed excavation and treatment by aeration of soil contaminated with petroleum products on the Texaco Station site will be prepared for submittal to the regulatory agencies. It is anticipated that the Alameda County Department of Environmental Health (DEH), and the Bay Area Air Quality Management District (BAAQMD) will be contacted regarding this planned remediation. We will observe the excavation of soil by your contractor, and use a portable organic vapor analyser (OVA) to guide the excavation. Soil samples will be collected from the sides and bottom of the excavation for laboratory testing to document whether petroleum contaminants remain in the soil at the limits of the excavation. Soil samples will be collected from the excavated soil to characterize its petroleum content. Based upon the content of petroleum the soil may either be removed to an approved waste landfill, or treated by aeration on site prior to offhaul to an appropriate landfill. The proposed aeration methods would not be applicable to heavier petroleum products such as diesel for which other treatment methods would

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have to be considered. The number of laboratory tests needed cannot be estimated prior to beginning the excavation. For purposes of cost estimating, it is assumed that 300 cy of gasoline contaminated soil will be excavated. For budget purposes, about 15 tests of soil for total petroleum hydrocarbons, and BTEX are assumed during excavation, and another 15 tests are assumed for on site remediation. A report will be prepared describing the remediation activities and the laboratory test results.

This task cannot proceed until stockpiled soil on the Texaco site from the cleaners excavation is removed.

Task 2 - Site Contamination Characterization

We have discussed the preliminary findings of site exploration with the Alameda County representative, Mr. Ari Levi, by telephone. This proposed work plan is intended to provide the site contamination information required by the County. The work plan includes two parts; Part 1 is a soil gas survey, and Part 2 includes groundwater monitoring wells, sampling of soil and groundwater, and laboratory analysis of soil and groundwater. The Part 1 soil gas survey will be performed prior to locating wells, to provide a broad evaluation of extent of contaminants at the site. The soil gas survey is an effective tool for providing a preliminary evaluation of the lateral extent of soil and groundwater contamination at the site. If permission for access can be obtained, the soil gas survey will be extended to the south side of Shore Line Drive to evaluate possible off-site migration of contaminants. The Part 2 exploration will include two groundwater monitoring wells, with laboratory analysis of soil and groundwater samples.

PART 1 - SOIL GAS SURVEY

Task 2-1 - Soil Gas Survey

A soil gas survey will be performed at the former Texaco gas station site, and will extend northward and westward about 150 feet. This survey will extend across the underground fuel tanks at the South Shore Car Wash. The survey will also extend to the south side of Shore Line Drive, if access can be obtained for that property. The soil gas survey will be performed by a subcontractor, Tracer Research Corporation, or suitable alternate subcontractor. It is planned to drive temporary soil gas probes to within a couple feet of groundwater at about 50 to 100 foot centers on a grid across the site. Soil gas will be extracted from each point and will be tested for total petroleum hydrocarbons and benzene, toluene, ethyl benzene, and xylenes, and purgeable halocarbons. The results will be presented on maps showing the contours of concentrations of contaminants. This data will guide the locations of borings and wells for the Part 2 Exploration at the site.

Work on this subtask cannot begin until the stockpiled soil from the cleaners excavation on the Texaco site is removed.

PART 2 - EXPLORATION

Task 2-2 - Exploratory Borings and Wells

The soil gas survey data will be reviewed and used as a guide in locating borings and groundwater monitoring wells. The locations of wells may be modified from the program described below, based upon the soil gas survey results.

Former Texaco Station

Two groundwater monitoring wells will be installed at the former Texaco gas station site. Soil samples will be collected at five foot depth intervals in the wells. One well is planned to be located at the northwest corner of the Texaco station site in the anticipated upgradient direction, at a point that is between the existing underground tanks at the South Shore Car Wash and the location of the former tanks at the Texaco station. This well will be constructed using 2 inch diameter PVC well casing. The screened section will be backfilled with a sand filter material, a bentonite seal will be placed above the sand, and cement-bentonite grout will be placed above the bentonite to the surface. A locking cover will be placed over the well. The screened section will be placed to extend above the anticipated water table, to allow possible floating petroleum product to enter the well. Based on the results of a soil gas survey, a second monitoring well will be installed on the Texaco station site. This well may be constructed using 4-inch diameter PVC well casing, and it will be installed using the methods described above. The larger diameter casing would allow this well to be used as a groundwater extraction well, if needed for remediation. This well will be located to reduce impact on the planned site development.

Prior to sampling, the wells will be surveyed to establish their location and elevation. The elevations will be tied to nearby monitoring wells for the former dry cleaners site via the use of a common datum or elevation bench work. Each well will be developed by pumping or bailing. The water removed in development will be placed in drums for temporary on-site storage. Prior to the stabilized water level will be measured in each well on the former Texaco station site sampling. Care will be taken to observe evidence of floating product in the wells prior to the start of well purging. About 3 to 5 casing volumes will then be removed prior to sampling groundwater from each well. Water samples will be collected using a teflon bailer. Water samples will be placed in bottles prepared by the analytical laboratory. Bottles will be labeled, placed in a cool ice chest, and will be transported under chain-of-custody procedures to a California approved commercial analytical laboratory.

Task 2 - 3 Laboratory Analysis

Soil samples from borings and wells at the former Texaco station will be tested for Total Petroleum Hydrocarbons (TPH, as gasoline), and for benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA Methods 8015/8020. Soil samples will also be tested for total organic lead. Groundwater samples from the wells at the former Texaco station site will be tested for TPH as gasoline, BTEX using EPA methods 3015/8020, total organic lead, and purgeable halocarbons using EPA Method 601.

Fuel fingerprint tests will be performed on selected soil and groundwater samples from the former Texaco Station site. These will be compared to fuel fingerprint tests performed on a sample of fuel from the South Shore Car Wash north of the site.

Task 2-4 - Analysis and Report

The results of the above tasks will be reviewed and analysed to provide opinions regarding the lateral extent of soil and groundwater contamination at the site. The evaluation will include an assessment of the approximate groundwater flow direction and gradient at the site. There is a potential that groundwater will be influenced by tides at this site. The report will contain figures and drawings showing the approximate lateral extent of soil and groundwater contamination, along with boring logs, and laboratory data. A discussion of the need for, and methods of groundwater remediation alternatives will be presented. Some additional evaluation of hydrogeologic characteristics of the underlying materials may be required for remediation design.

ESTIMATED COST AND SCHEDULE

The estimated cost for this proposed scope of work is shown in Table 1. All charges will be in accordance with our current Schedule of Charges attached. Assuming removal of the stockpiled soil, the observation of excavation, and on-site remediation of contaminated soil of Task 1 might require one to two months from the start of work by Harsch's subcontractor to complete. The pace of the excavation work will depend upon work by Harsch's subcontractor.

Several weeks may be required after your notice to proceed before a vapor survey contractor is available. The vapor analysis work can be completed within one week following arrival of the Tracer equipment on the site. The results of the soil gas survey will be reviewed and the planned well locations will be available within about one week after the completion of the soil gas survey. The drilling of borings and wells could be completed within one additional week. Well development and water sampling could be completed within an additional week. Laboratory testing will require about three weeks to complete. The report can be available about one week after laboratory analysis results are available. Thus, assuming the currently stockpiled soil is removed, we anticipate that the report for Task 2 will be available within eight to ten weeks following authorization to proceed.

AUTHORIZATION

To authorize this scope of work please initial below and sign the addendum to our agreement. Please return one copy of the signed and initialed document to our office.

Sincerely,

WOODWARD-CLYDE CONSULTANTS



Albert P. Ridley, C.E.G.
Senior Associate



Ulrich Luscher, Ph.D., P.E.
Senior Managing Principal

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Client Initials _____