

SHD 4/10/97

Should be reported when emergency temp conditions exist @ 1 week apart  
Flow gauge on vacuum line  
which lab will they take it to.  
do at 3' and 5'  
air toxics  
duplicate sample

ENVIRONMENTAL PROTECTION  
97 AUG 12 PM 3:02



**Chevron**

August 8, 1997

Ms. Eva Chu  
Alameda County Health Care Services  
Department of Environmental Health  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

**Chevron Products Company**  
6001 Bollinger Canyon Road  
Building L  
San Ramon, CA 94583  
P.O. Box 6004  
San Ramon, CA 94583-0904

**Marketing - Sales West**  
Phone 510 842-9500

**Re: Former Chevron Service Station # 9-1723  
9757 San Leandro Blvd.  
San Leandro, California**

Dear Ms. Chu:

Enclosed is a Work Plan for a soil vapor investigation, that was prepared by our consultant Cambria Environmental Technology, Inc., for the above noted site. This soil vapor investigation is to obtain site specific data for vapor phase hydrocarbons to complete a risk assessment for the site.

We had discussed the previously submitted Draft Tier 2 Risk Based Correction Action (RBCA) plan and it was agreed that it would be appropriate to develop more site specific data before the RBCA report was finalized. On July 9, 1997, you requested that a Work Plan be submitted for your review prior to any work being performed.

For this soil vapor investigation, Chevron proposes to advance four soil borings at the locations corresponding to the highest benzene concentrations in the soil. Three borings will be advanced to 3 feet below grade and one to 8 feet below grade. Soil vapor samples will be collected in summa canisters at 3 feet below grade in borings SV-1, SV-3 and SV-4, and at 3 feet, 5 feet, and 8 feet below grade in boring SV-2 (see Figure 1). The soil samples will be analyzed for BTEX by analytical method TO-14.

If you have any questions, regarding the enclosed work plan contact Mr. Chuck Headlee of Cambria, at (510) 420-0700 or you may contact me at (510) 842-9136.

Sincerely  
CHEVRON PRODUCTS COMPANY

Philip R. Briggs  
Site Assessment and Remediation Project Manager

Enclosure

cc. Ms. Bette Owen, Chevron

Mr. Curtis Peck, Chevron, CRTC/HES/Richmond, CA/Rm. 208



August 6, 1997

Mr. Phil Briggs  
Chevron Products Company  
6001 Bollinger Canyon Rd, Building L  
San Ramon, CA 94583-0804

Re: **Investigation Workplan**  
Former Chevron Service Station 9-1723  
9757 San Leandro Boulevard  
Oakland, California

Dear Mr. Briggs:

Cambria Environmental Technology, Inc. (Cambria) is pleased to submit this work plan for a soil vapor investigation at the site referenced above (Figure 1). The objective of the proposed work is to obtain site-specific data for vapor-phase hydrocarbons to complete a risk assessment for the site. The site background and Cambria's proposed scope of work for this investigation are presented below.

## **SITE BACKGROUND**

The site is a former Chevron service station located in a primarily commercial and industrial area at 9759 San Leandro Boulevard in Oakland, California. The site is currently used for automobile and trailer parking. To date, ten ground water monitoring wells have been installed and twenty-three soil borings have been drilled at the site.

CAMBRIA  
ENVIRONMENTAL  
TECHNOLOGY, INC.  
1144 65TH STREET,  
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OAKLAND,  
CA 94608  
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FAX: (510) 420-9170

**Site Setting, Geology, and Hydrology:** The site is essentially flat, approximately 25 ft above mean sea level, and is located about one mile east of San Francisco Bay. Site stratigraphy comprises primarily alluvial plain and stream channel deposits consisting of low permeability clayey silt, silt, and sandy silts of low to moderate permeability with occasional gravel lenses of moderate to high estimated permeability. Ground water is encountered about 9 to 10 ft bgs and flows to the west at a gradient of 0.004 ft/ft.

**Hydrocarbon Distribution in Soil:** The highest hydrocarbon concentrations detected in soil samples collected during previous investigations were 1,800 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPHg) and 99 ppm benzene in the vicinity of the former underground storage tanks (USTs).

Mr. Phil Briggs  
August 6, 1997

# CAMBRIA

**Hydrocarbon Distribution in Ground Water:** Ground water has been gauged and analyzed since November 1993. TPHg and benzene have been detected in site wells in steadily decreasing concentrations over time. For example, the maximum benzene concentration was 2,000 ppb in well MW-8 on November 12, 1993 but has decreased to 280 ppb in the same well on May 25, 1997.

## PROPOSED SCOPE OF WORK

To assess the hydrocarbon concentrations in soil vapor near the former USTs, where the highest concentrations of hydrocarbons in soil and ground water are found, Cambria proposes to perform the tasks described below.

**Underground Utility Location:** Cambria will contact an underground utility locator to clear the boring locations prior to advancing the sampling equipment.

**Site Health and Safety Plan:** Cambria will prepare a site safety plan to protect site workers. The plan will be kept on site at all times and signed by all site workers.

**Permits:** Cambria will obtain soil boring permits from Alameda County Department of Public Works prior to beginning field operations.

**Soil Borings and Soil Vapor Sample Collection:** Cambria will advance four soil borings at the locations corresponding to the highest benzene concentrations in soil. Three borings will be advanced to 3 ft below ground surface (bgs) and one to 8 ft bgs using hydraulic-push technology. Soil vapor samples will be collected in summa canisters at three ft bgs in borings SV-1, SV-3, and SV-4, and at 3 ft, 5 ft, and 8 ft bgs in boring SV-2. Cambria's standard field procedure for hydraulic-push borings and soil vapor sampling is presented in Attachment A.

**Chemical Analysis:** Soil vapor samples will be analyzed for benzene, toluene, ethyl-benzene, xylene (BTEX) by analytical method TO-14.

**Soil and Water Disposal:** Any soil cuttings will be stockpiled on plastic and covered with plastic on site pending analysis and proper disposal. Any waste water will be stored in drums pending proper disposal.

Mr. Phil Briggs  
August 6, 1997

CAMBRIA

**Reporting:** After the analytical results are received, a subsurface investigation report will be prepared that, at a minimum, will contain:

- A summary of the site background and history,
- Descriptions of the soil vapor sampling methods,
- Tabulated soil vapor analytical results,
- A figure illustrating the soil vapor boring locations,
- Analytical reports and chain-of-custody forms,
- Soil and water disposal methods,
- A discussion of the hydrocarbons in soil vapor distribution.

## SCHEDULE

Cambria will perform this investigation soon after receiving the soil boring permits and written work plan approval. We will submit our investigation report about three to four weeks after finishing the field work.

We appreciate this opportunity to provide Chevron with environmental engineering services. Please call if you have any questions or comments.

Sincerely,  
**Cambria Environmental Technology, Inc.**



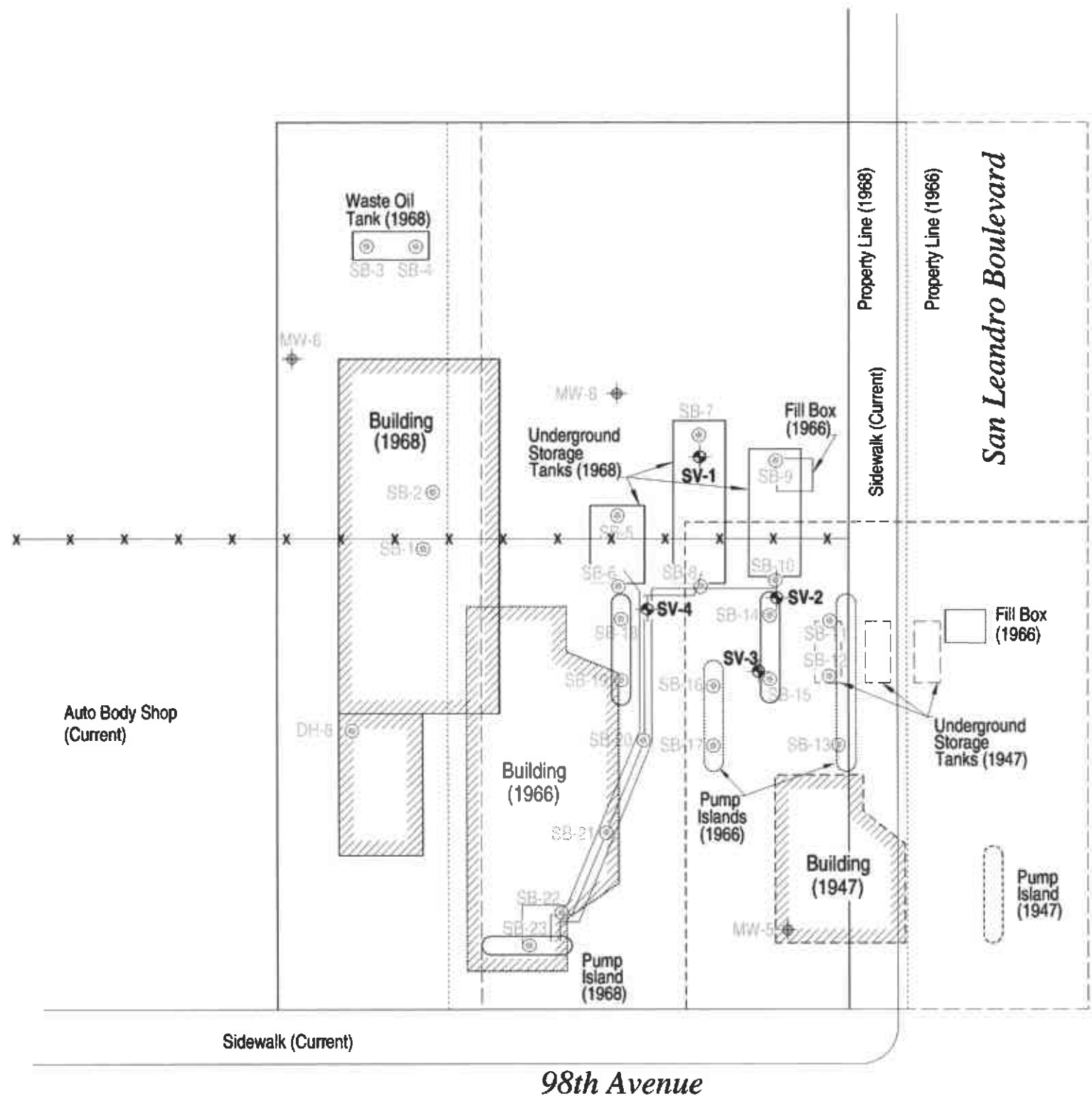
Chuck Headlee  
Project Geologist



Bob Clark-Riddell  
Principal Engineer

Attachments: A - Standard Field Procedures

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EXPLANATION	
MW-1 ◆	Monitoring Well Location
SV-1 ◆	Proposed Soil Vapor Sample Locations
SB-1 ●	Soil Boring Location

**CAMBRIA**  
Environmental Technology, Inc.

Chevron Service Station No. 9-1723  
9757 San Leandro Boulevard  
Oakland, California

Proposed Soil Vapor Sample  
Locations

FIGURE  
**1**

F:\PROJECT\CHEVRON\9-1723\FIGURES\SOL-VPR.DWG

**ATTACHMENT A**

Standard Field Procedures

## STANDARD FIELD PROCEDURES FOR GEOPROBE® SOIL VAPOR SAMPLING

This document describes Cambria Environmental Technology's standard field methods for Geoprobe® soil vapor sampling. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

### Objectives

Soil vapor samples are collected and analyzed to characterize subsurface contaminant distribution and to assess whether vapor-phase subsurface contaminants pose a threat to human health or the environment.

### Soil Vapor Sampling

Geoprobe® cuttingless drill rigs allow for rapid sample retrieval and can move quickly between boring locations. The drill-rig uses a hydraulic-push advancement method and is equipped with a variety of ground water, soil and vapor sampling systems to assure sample collection in most hydrogeologic environments. Since the hollow drill rods are pushed into the ground, rather than augured, the stratigraphy forms a vapor seal between the surface and subsurface environments ensuring that the surface and subsurface gases do not mix. Once the desired soil vapor sampling depth has been reached, the Geoprobe® operator installs disposable polyethylene tubing with a threaded adaptor that screws into the bottom of the rods. The screw adaptor ensures that the vapor sample comes directly from the bottom of the drill rods and does not mix with other vapor from inside the rod or from the ground surface. The operator then pulls up on the rods and exposes about six inches of the desired stratigraphy by leaving an expendable drive point at the maximum depth. The required volume of soil vapor is then purged through the polyethylene tubing using a standard vacuum pump. The soil vapor can be sampled for direct injection into a field gas chromatograph, pumped into inert tedlar bags using a "bell jar" sampling device, or allowed to enter a vacuum canister. Once collected, the vapor sample is transported under chain-of-custody to a state-certified laboratory. The ground surface immediately adjacent to the boring is used as a datum to measure sample depth. The horizontal location of each boring is measured in the field relative to a permanent on-site reference using a measuring wheel or tape measure. Drilling and sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

### Sample Storage, Handling and Transport

Samples are stored out of direct sunlight in coolers and transported under chain-of-custody to a state-certified analytic laboratory.

### Field Screening

After collecting a vapor sample for laboratory analysis, Cambria often collects an additional vapor sample for field screening using a portable photo-ionization detector (PID), flame-ionization detector (FID), or GasTech® combustible gas detector to measure volatile hydrocarbon vapor concentrations. These measurements are used along with the field observations, odors, stratigraphy and ground water depth to help select the best location for additional borings to be advanced during the field mobilization.

### Grouting

The borings are filled to the ground surface with neat cement poured or pumped through a tremie pipe.