

C A M B R I A

ENVIRONMENTAL  
PROTECTION  
September 30, 1998

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Mr. Scott O. Seery, CHMM  
Alameda County Department of Environmental Health  
Hazardous Materials Division  
1131 Harbor Bay Parkway, Suite 250  
Alameda, California 94502-6577

Re: **Subsurface Investigation Work Plan**  
Shell-branded Service Station  
1784 150<sup>th</sup> Avenue  
San Leandro, California  
WIC #204-6852-1404  
Cambria Project #240-612



Dear Mr. Seery:

Cambria Environmental Technology, Inc. (Cambria) is pleased to submit this work plan on behalf of Equilon Enterprises LLC (Equilon) for the site referenced above. This work plan is in response to the Alameda County Department of Environmental Health, Hazardous Materials Division (ACDEH) May 18, 1998 letter which requested: "the need to perform an additional round of soil vapor collection in an attempt to corroborate the initial soil vapor survey study (SVS) data".

Cambria proposes conducting the additional round of soil vapor collection concurrently with the soil and ground water investigation described in Cambria's *Meeting Summary and Work Plan Addendum* (work plan addendum) dated May 1, 1998 and approved in the ACDEH letter dated May 18, 1998. As described in the work plan addendum, Cambria will complete three GeoProbe borings on the residential property southwest of the Shell-branded service station site (Figure 1). In addition to collection of soil and ground water samples for each boring, Cambria will collect soil vapor samples and soil physical property samples.

A previous soil vapor survey (SVS) was conducted by Weiss Associates (WA) in July 1996 and summarized in the WA report, *Soil Vapor Survey Report*, dated February 7, 1997. In the initial SVS, vapor samples were collected for on-site analysis, utilizing a portable gas chromatograph, and off-site laboratory analysis at Air Toxics LTD of Folsom, California. Cambria will not perform on-site analysis during this SVS. To be consistent with the initial WA SVS, Cambria will have all vapor samples analyzed off-site at Air Toxics LTD of Folsom, California.

Oakland, CA  
Sonoma, CA  
Portland, OR  
Seattle, WA

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The on-site analytical results in the initial WA SVS were not used in the WA *RBCA Summary Report* (RBCA) dated April 27, 1998. Therefore, only Air Toxics LTD laboratory results will be used in future risk screen modeling to be consistent with WA's previous RBCA methodology. Cambria's protocol for the soil vapor sample collection is presented in Attachment A.

Presented below are a site background and our proposed scope of work and schedule for this investigation.

## SITE BACKGROUND

**Site Location:** The site is an active service station located at the southern corner of the intersection of 150<sup>th</sup> and Freedom Avenues in San Leandro, California (as shown on Figure 1). The site is about 50 feet above mean sea level and the local topography slopes towards San Francisco Bay, about 6 miles to the west. The site is located in a mixed residential/commercial area.

**Site Lithology:** Sediments beneath the site are Quaternary alluvial deposits derived from sedimentary and igneous rocks of the Diablo Range. The site is adjacent to the Hayward Fault. The site is underlain by low estimated permeability sediments (clay) with interspersed moderate estimated permeability sediments.

**Ground Water Flow:** Historically, ground water gradient has ranged from 0.0008 ft/ft to 0.017 ft/ft. Based on ground water elevation data, the ground water flow direction has varied between northwest and southwest. Ground water is typically 20 to 30 feet beneath ground surface (bgs).

## SCOPE OF WORK

The objective of the SVS portion of this investigation is to collect in-situ vapor and physical soil property samples for a modified Tier II RBCA evaluation of the potential risk to off-site receptors by hydrocarbon vapor migration. Soil vapor, soil chemical, and physical soil property samples will be collected from each boring location. Our proposed scope of work is detailed below.


**Boring Locations:** Cambria will install three Geoprobe borings within the common area of the residential property southwest of the Shell-branded service station site (Figure 1). In addition to soil and ground water samples, Cambria will collect in-situ soil vapor samples and soil property samples. The borings will be installed to about 25 to 30 ft below grade and we will collect either soil and/or soil vapor samples every 3 ft for analysis.

**Soil Vapor Analyses:** In-situ soil vapor samples will be collected from each boring designated for soil vapor collection in Summa-type canisters at 3 ft minimum intervals and analyzed for TPHg and BTEX.

**Soil Property Analyses:** Soil samples from each boring designated for soil sample collection will be analyzed for dry bulk density, moisture content, porosity, and fraction organic carbon.

**SCHEDULE**

Cambria is currently pursuing right of entry agreements from the adjacent property owners to the southwest of the site. We are in the process of identifying property owners through the City of Oakland Zoning Department and sending such property owners Equilon's standard Right of Entry agreement presented in Attachment B. Due to the uncertainty of obtaining Right of Entry agreements from all subject property owners, Cambria proposes the following schedule for completion of the SVS and monitoring well installations described in Cambria's January 9, 1998 *Corrective Action Plan*:



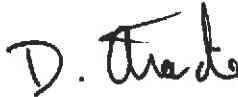
***SVS and GeoProbe Investigation:*** The earliest Cambria expects to obtain right of entry agreements for all subject property owners is by October 16, 1998. Should we secure entry agreements by October 16, 1998, the SVS and GeoProbe investigation will begin the week of October 26, 1998. If all Right of Entry agreements have not been secured by October 16, 1998, then Cambria will begin the SVS and GeoProbe investigation one week after obtaining all entry agreements until the rainy season begins. Should the rainy season begin and soils become saturated, Cambria will postpone the SVS and GeoProbe investigation until Spring of 1999.

***Monitoring Well Installations:*** Cambria will begin the installation of the additional monitoring wells after conducting the SVS and GeoProbe investigation and addressing issues raised regarding the RBCA evaluation. Installation of MW-7 will depend upon the results of the boring samples from the GeoProbe investigation.

**CLOSING**

We appreciate your continued assistance with this project. Please contact Darryk Ataide at (510) 420-3339 if you have any questions or comments.

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



Darryk Ataide  
Project Environmental Scientist



Diane Lundquist P.E.  
Principal Engineer



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cc: Karen Petryna, Equiva Services LLC, P.O. Box 8080 Martinez, California 94553

Attachment: A - Standard Field Procedures

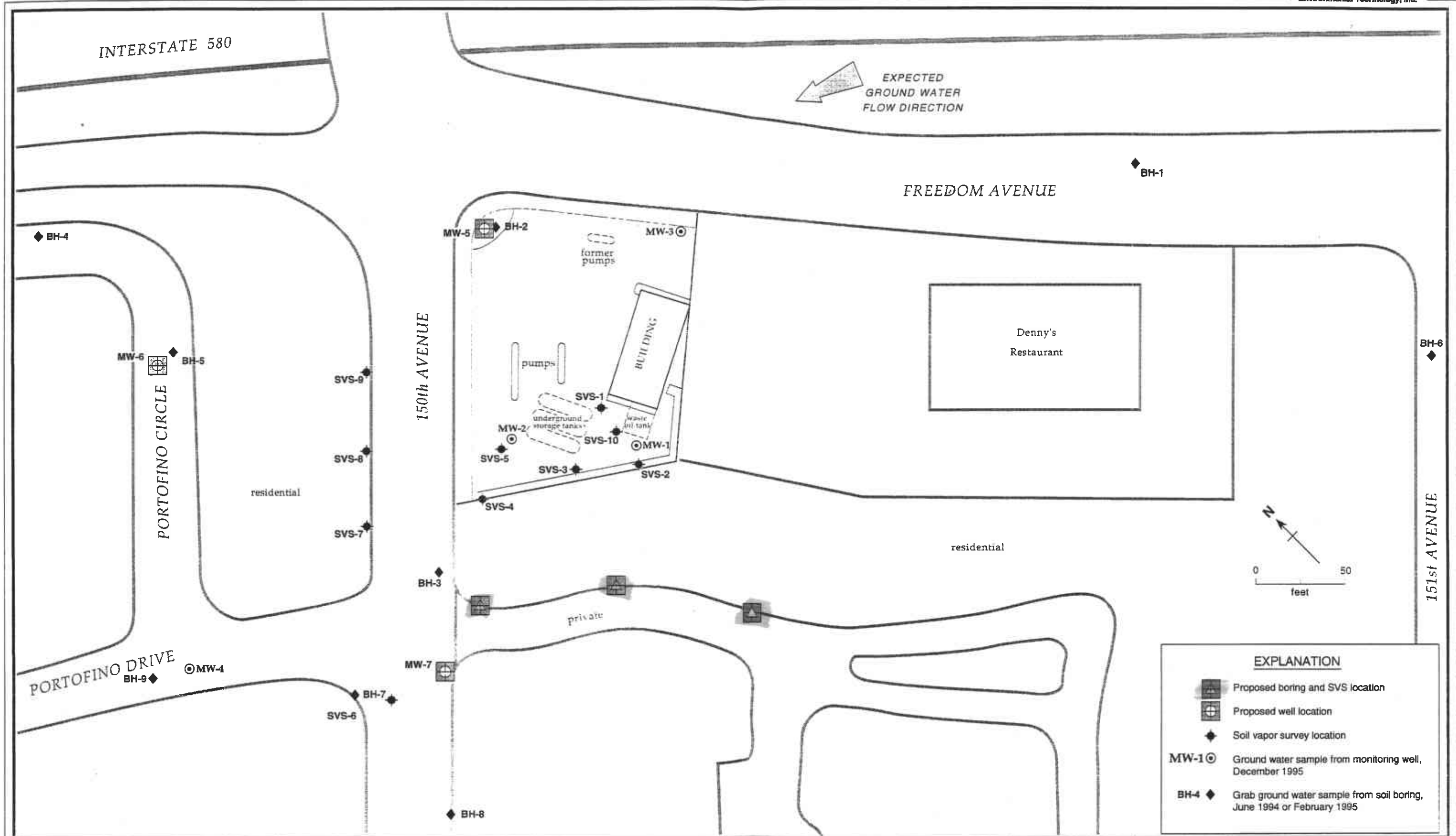


Figure 1. Proposed Monitoring Well and Boring Locations - Shell Service Station WIC #204-6852-1404, 1784 150th Avenue, San Leandro, California

**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 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 Summa 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.