CAMBRIA

5806

September 16, 1999

Barney Chan
Alameda County Health Care Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: **Former Shell Service Station**
2001 Fruitvale Avenue
Oakland, California
Incident # 97109122
Cambria Project # 241-1296

Mr. Chan,

Enclosed is Cambria's Investigation Work Plan dated September 14, 1999. Prior to implementing the work plan, Cambria Environmental Technology, Inc. (Cambria) is evaluating the potential for utilizing the newly-developed Oakland RBCA guidelines for the above-referenced site. Cambria has contacted Mr. Mark Gomez of the City of Oakland to obtain the information necessary to verify eligibility and develop revised SSTLs.

Please call us at (510) 420-0700 if you have any questions or comments.

Sincerely,
Cambria Environmental Technology, Inc.

Ailsa S. Le May, R.G.
Senior Geologist

Cc: Ms. Karen Petryna, Equiva Services LLC, P.O. Box 6249, Carson, CA 90749-6249
Mr. Tom Maher, Shell Oil Products Company, P.O Box 2099, Houston, TX 77252
Mr. David Harris, Trump, Alioto, Trump & Prescott LLP, 2280 Union Street, San Francisco, CA 94123
Mr. Jose Dorado, 3808 International Blvd., Suite A, Oakland, CA 94601

G:\Oakland2001\Response.Doc

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

Cambria Environmental Technology, Inc.

1144 65th Street
Suite B
Oakland, CA 94608
Tel (510) 420-0700
Fax (510) 420-9170

CAMBRIA

Mr. Barney Chan
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway #250
Alameda, California 94502

September 14, 1999

Re: **Investigation Work Plan**
Former Shell Service Station
2001 Fruitvale Avenue
Oakland, California
SAP Code 117941
Incident #97109122

Dear Mr. Chan:

On behalf of Equiva Services LLC (Equiva), Cambria Environmental Technology, Inc. (Cambria) is submitting this work plan for a subsurface investigation at the site referenced above. The work plan was requested by Alameda County Health Services Agency (ACHSA) in a letter dated August 13, 1999. The focus of this investigation is to identify the vertical and horizontal extent of hydrocarbons in the soil at the site. A site summary, our proposed scope of work, and a schedule for this investigation are presented below.

SITE BACKGROUND

Site Description: The site is currently a vacant lot located on the northern corner of Foothill Boulevard and Fruitvale Avenue in Oakland, California (Figure 1). It is a former Shell Service station and all underground storage tanks (USTs) are believed to have been removed.

Previous Investigation: On January 3, 1996, AllCal Property Services, Inc. (AllCal) of Hayward, California drilled five soil borings onsite and collected soil and groundwater samples. Soil samples collected at 21 feet below grade (fbg) beneath the former UST complex contained 830 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPHg) and 410 ppm total petroleum hydrocarbons as diesel (TPHd), and groundwater samples contained 3,400 parts per billion (ppb) TPHg, 40,000 ppb TPHd, and 9.6 ppb benzene. The laboratory described the TPHg and TPHd chromatographs as not matching the gasoline and diesel standards and suggested they may be a result of strongly aged gasoline and/or Stoddard solvent. Groundwater was encountered at depths ranging from 21.5 to 23 fbg during the investigation. These activities are summarized in AllCal's January 18, 1996 report entitled *Soil and Groundwater Investigation*.

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

Cambria Environmental Technology, Inc.

1144 65th Street
Suite B
Oakland, CA 94608
Tel (510) 420-0700
Fax (510) 420-9170

As a result of this investigation, AllCal filed an Unauthorized Release Report on February 1, 1999.

On March 31, 1999, Cambria drilled three borings (SBA through SBC) to collect the data necessary to define the extent of hydrocarbons in soil and groundwater beneath the property.

Boring SBA, located in the former waste oil tank area, contained the highest concentrations of petroleum hydrocarbons in soil with maximum concentrations of 61 ppm TPPH, 1,500 ppm TEPH, and 11,100 ppm TRPH. Benzene was detected at 0.57 ppm in soil from Boring SBA at a depth below groundwater. MTBE was detected at low concentrations by EPA Method 8020 in soil from Borings SBA and SBB at depths near the capillary fringe and below groundwater. Confirmation of using EPA Method 8260 did not detect MTBE in groundwater samples.

Boring SBB contained the maximum TPPH concentration of 5,100 ppb. Boring SBA contained the maximum TEPH and benzene concentrations of 28,000 and 13 ppb, respectively. MTBE was not detected in groundwater by EPA Method 8260. The concentrations of lead, PCE, and bis (2-ethylhexyl)phthalate detected in groundwater from Boring SBA exceed the California primary maximum contaminant levels for drinking water. Groundwater from this site is not a likely drinking water source.

Groundwater Depths: Groundwater is present at depths ranging from approximately 16 to 17 fbg.

Sediment Lithology: Lithology encountered while drilling the borings consisted primarily of clayey sand (SC) and clay (CL) to depths of approximately 21.5 to 25 fbg, underlain by sand (SP) to the total explored depth of 25 fbg.

PROPOSED SCOPE OF WORK

To delineate the extent of hydrocarbons in soil beneath the site, we propose installing three 4" diameter monitoring wells in the vicinity of the former waste oil UST and adjacent to the property boundaries along Foothill Boulevard and Fruitvale Avenue (Figure 1).

Our scope of work for this investigation includes the following tasks:

Utility Location: Cambria will notify Underground Service Alert (USA) at least 48 hours in advance of our drilling activities. USA will have the utilities in the site vicinity identified.

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 the necessary permits for the installation of the borings from the Alameda County Public Works Agency. Cambria will also obtain any necessary encroachment permits from the City of Oakland, California.

Monitoring Well Installation: Two 4-inch diameter groundwater monitoring wells will be installed adjacent to the site using a drill rig equipped with hollow-stem augers. We will collect soil samples at five foot intervals, at lithologic changes, and from just above the water table. We will select soil samples for chemical analysis based on observations of staining and odor and on the results of field screening with a volatile vapor analyzer. The wells will be developed using a combination of groundwater surging and extraction. Following development, the wells will be added to the next scheduled monitoring event for the site. The well top-of-casing elevation will be surveyed with respect to mean sea level. Our standard field procedures for monitoring well installations are presented as Attachment A.

Chemical Analysis: Selected soil samples will be analyzed for total petroleum hydrocarbons as diesel (TPHd) or gasoline (TPHg) by modified EPA Method 8015. Benzene, toluene, ethylbenzene, and xylenes (BTEX) and MTBE by EPA Method 8020. Groundwater samples collected during scheduled monitoring events will be analyzed for TPHg and TPHd by modified EPA Method 8015. BTEX and MTBE will be analyzed for by EPA Method 8020.

Reporting: After we receive the analytical results, we will prepare an investigation report that, at a minimum, will contain:

- A summary of the site background and history;
- Descriptions of the drilling, soil sampling, and well installation methods;
- Boring logs;
- Tabulated analytical results;
- Analytical reports and chain-of-custody forms;
- Soil and water disposal methods; and,
- A discussion of the hydrocarbon distribution in the subsurface.

SCHEDULE

Upon receiving written approval of this work plan from the ACHSA, Cambria will apply for the necessary permits and schedule drilling. We will provide you with 72-hour notice prior to field activities. We anticipate submitting our investigation report four to six weeks after completing the fieldwork.

CLOSING

We appreciate the opportunity to work with you on this project. Please call Troy Buggle at (510) 420-3333 if you have any questions or comments.

Sincerely,
Cambria Environmental Technology, Inc.

for

Eric Goldman
Senior Staff Scientist

Ailsa Le May, R.G.
Senior Geologist

Attachments:

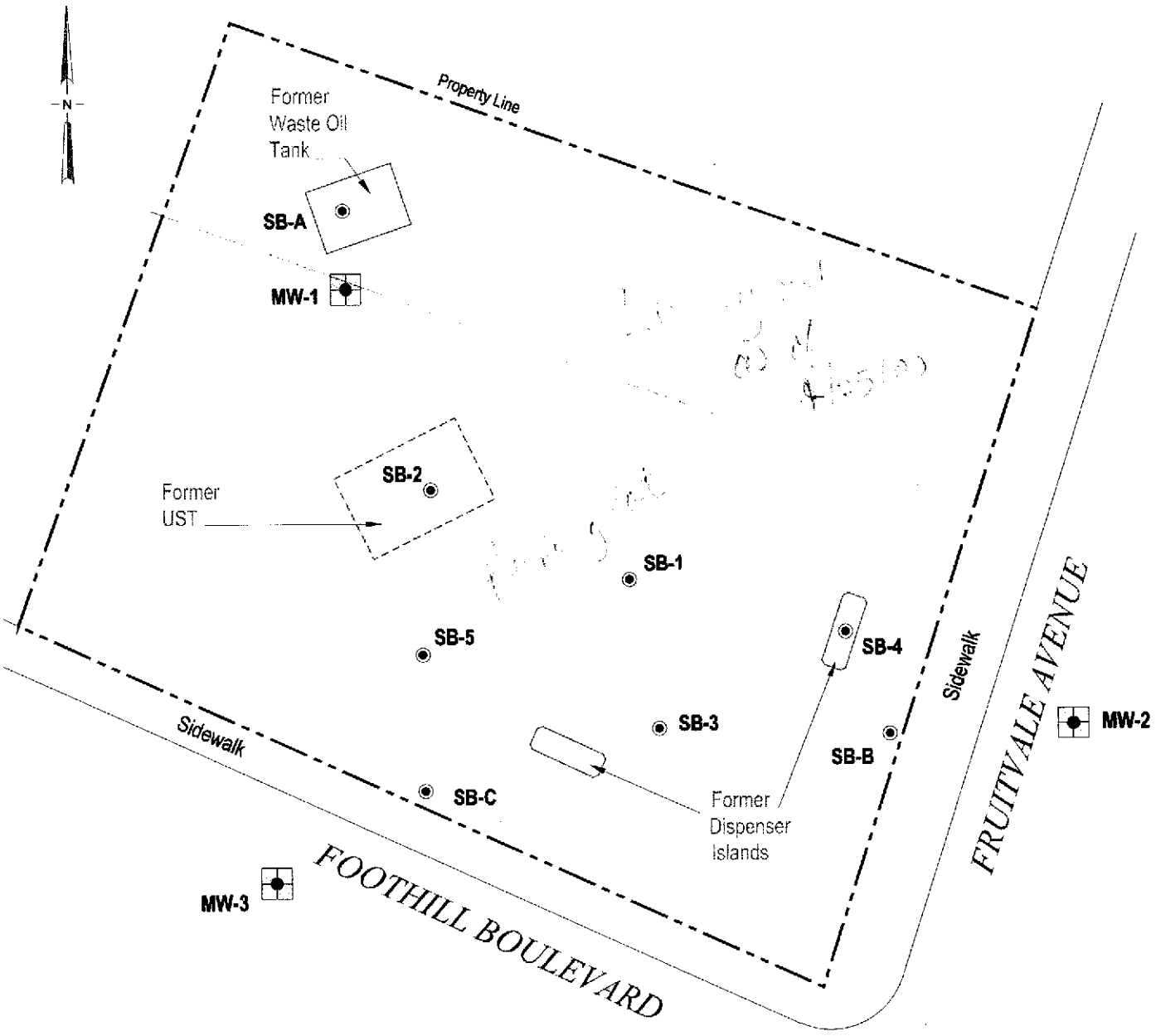
A - Standard Field Procedures for Monitoring Well Installation

Figures:

1 - Proposed Location of Monitoring wells at 2001 Fruitvale Avenue, Oakland, California.

cc: Ms. Karen Petryna, Equiva Services LLC, P.O. Box 6249, Carson, CA 90749-6249
Mr. Tom Maher, Shell Oil Products Company, P.O Box 2099, Houston, TX 77252
Mr. David Harris, Trump, Alioto, Trump & Prescott LLP, 2280 Union Street, San Francisco, CA 94123
Mr. Jose Dorado, 3808 International Blvd., Suite A, Oakland, CA 94601

Oak\2001fruitval\workplan.doc



EXPLANATION

MW-1 ⊕ Proposed monitoring well location

SB-1 ◉ Soil boring location

0 10 20

Scale (ft)

FIGURE

1

G:\OAK2001\FIGURES\PROPWELL.DWG

Former Shell Service Station
2001 Fruitvale Avenue
Oakland, California
Incident #97109122

CAMBRIA

Proposed Monitoring Well Location Map

ATTACHMENT A

Standard Field Procedures For Monitoring Wells

CAMBRIA

STANDARD FIELD PROCEDURES FOR MONITORING WELLS

This document presents standard field methods for drilling and sampling soil borings and installing, developing and sampling ground water monitoring wells. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

SOIL BORINGS

Objectives

Soil samples are collected to characterize subsurface lithology, assess whether the soils exhibit obvious hydrocarbon or other compound vapor or staining, and to collect samples for analysis at a State-certified laboratory. All borings are logged using the Unified Soil Classification System by a trained geologist working under the supervision of a California Registered Geologist (RG).

Soil Boring and Sampling

Soil borings are typically drilled using hollow-stem augers or direct-push technologies such as the Geoprobe®. Soil samples are collected at least every five ft to characterize the subsurface sediments and for possible chemical analysis. Additional soil samples are collected near the water table and at lithologic changes. Samples are collected using lined split-barrel or equivalent samplers driven into undisturbed sediments at the bottom of the borehole.

Drilling and sampling equipment is steam-cleaned prior to drilling and between borings to prevent cross-contamination. Sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

Sample Analysis

Sampling tubes chosen for analysis are trimmed of excess soil and capped with Teflon tape and plastic end caps. Soil samples are labeled and stored at or below 4° C on either crushed or dry ice, depending upon local regulations. Samples are transported under chain-of-custody to a State-certified analytic laboratory.

Field Screening

One of the remaining tubes is partially emptied leaving about one-third of the soil in the tube. The tube is capped with plastic end caps and set aside to allow hydrocarbons to volatilize from the soil. After ten to fifteen minutes, a portable volatile vapor analyzer measures volatile hydrocarbon vapor concentrations in the tube headspace, extracting the vapor through a slit in the cap. Volatile vapor analyzer measurements are used along with the field observations, odors, stratigraphy and ground water depth to select soil samples for analysis.

Water Sampling

Water samples, if they are collected from the boring, are either collected using a driven Hydropunch® type sampler or are collected from the open borehole using bailers. The ground water samples are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. An equipment blank may be analyzed if non-dedicated sampling equipment is used.

Grouting

If the borings are not completed as wells, the borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe.

MONITORING WELL INSTALLATION, DEVELOPMENT AND SAMPLING

Well Construction and Surveying

Ground water monitoring wells are installed to monitor ground water quality and determine the ground water elevation, flow direction and gradient. Well depths and screen lengths are based on ground water depth, occurrence of hydrocarbons or other compounds in the borehole, stratigraphy and State and local regulatory guidelines. Well screens typically extend 10 to 15 ft below and 5 ft above the static water level at the time of drilling. However, the well screen will generally not extend into or through a clay layer that is at least three ft thick.

Well casing and screen are flush-threaded, Schedule 40 PVC. Screen slot size varies according to the sediments screened, but slots are generally 0.010 or 0.020 inches wide. A rinsed and graded sand occupies the annular space between the boring and the well screen to about one to two ft above the well screen. A two ft thick hydrated bentonite seal separates the sand from the overlying sanitary surface seal composed of Portland type I,II cement.

Well-heads are secured by locking well-caps inside traffic-rated vaults finished flush with the ground surface. A stovepipe may be installed between the well-head and the vault cap for additional security.

The well top-of-casing elevation is surveyed with respect to mean sea level and the well is surveyed for horizontal location with respect to an onsite or nearby offsite landmark.

Well Development

Wells are generally developed using a combination of ground water surging and extraction. Surging agitates the ground water and dislodges fine sediments from the sand pack. After about ten minutes of surging, ground water is extracted from the well using bailing, pumping and/or reverse air-lifting through an eductor pipe to remove the sediments from the well. Surging and extraction continue until at least ten well-casing volumes of ground water are extracted and the sediment volume in the ground water is negligible. This process usually occurs prior to installing the sanitary surface seal to ensure sand pack stabilization. If development occurs after surface seal installation, then development occurs 24 to 72 hours after seal installation to ensure that the Portland cement has set up correctly.

All equipment is steam-cleaned prior to use and air used for air-lifting is filtered to prevent oil entrained in the compressed air from entering the well. Wells that are developed using air-lift evacuation are not sampled until at least 24 hours after they are developed.

Ground Water Sampling

Depending on local regulatory guidelines, three to four well-casing volumes of ground water are purged prior to sampling. Purging continues until ground water pH, conductivity, and temperature have stabilized. Ground water samples are collected using bailers or pumps and are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. An equipment blank may be analyzed if non-dedicated sampling equipment is used.

F:\TEMPLATE\SOPS\WELLS-GW.WPD