CAMBRIA

October 13, 2006

Mr. Barney Chan
Alameda County Health Care Services (ACEHS)
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: **Remedial Action Workplan**
Former Chevron Station 9-3322
7225 Bancroft Blvd.
Oakland, California
ACEHS Case No. RO274
Cambria Project No. 31J-1806

Dear Mr. Chan:

Cambria Environmental Technology, Inc. (Cambria) is submitting this Remedial Action Workplan on behalf of Chevron Environmental Management Company (Chevron). This workplan is being submitted in response to your October 1, 2006 (August 1, 2006) letter requesting remediation of light non-aqueous phase liquids (LNAPL) observed in monitoring well MW-1. Presented below are a site description, history of previous remedial activities, and a description of the proposed remedial approach.

SITE DESCRIPTION

The site currently operates as the Silver Gas service station. It is located on a parcel bordered by Bancroft Avenue to the northeast, Halliday Avenue to the southwest, 73rd Avenue to the southeast and a residential property to the northwest (Figure 1). The surrounding area is primarily residential with Eastmont Mall located to the north across Bancroft Avenue. A Union 76 branded service station is located across Bancroft Avenue to the northeast. The site elevation is approximately 40 feet above mean sea level and the topography slopes gently towards San Francisco Bay approximately two miles to the west. Arroyo Creek, the nearest surface body of water, is located approximately 1,300-feet south of the site. The site currently contains three 10,000-gallon single-wall fiberglass underground storage tanks (USTs), five dispenser islands, and a small kiosk building (Figure 2). Chevron owned and operated the service station from approximately 1961 until September 2000 when the property and facilities were sold to Malwa Petroleum Sales, LLC (Malwa). Malwa sold the property to the current owners, Mike and Dean Najdawi in July 2001.

Cambria Environmental Technology, Inc.

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Site Background

1981 UST Removal and Replacement: Chevron records indicate the current USTs were installed in 1981. These tanks represent at least the second generation of USTs at the site. In 1981, no regulations requiring soil or groundwater sampling existed to document conditions associated with the fuel system. As a result, no records of 1981 soil or groundwater conditions are available.

August 1996 Product Line Removal and Replacement: In August 1996, Gettler-Ryan Inc. (GR) of Dublin, California removed and replaced product piping at the site. Touchstone Developments of Santa Rosa, California collected compliance soil samples between two and four feet below grade (fbg). Samples taken beneath the product lines and dispenser islands contained up to 500 milligrams per kilogram (mg/kg) total petroleum hydrocarbons as gasoline (TPHg) and 4.2 mg/kg benzene in the vicinity of the center pump island. Hydrocarbon concentrations in all other samples were below detection limits. Records indicate that approximately 300 cubic yards of soil and pea gravel were excavated during product line removal activities.

January 1998 Well Installation: In January 1998, GR observed Bay Area Exploration Services, Inc. (BAES) install 2-inch diameter monitoring wells MW-1 through MW-3. Hydrocarbons were detected in soil at maximum concentrations of 23 mg/kg TPHg and 0.053 mg/kg benzene in MW-1 at 15 fbg. TPHg was detected in groundwater samples between 24,000 micrograms per liter (μg/L) in well MW-2.and 130,000 μg/L in MW-3. Benzene was also detected in groundwater samples at a maximum concentration of 12,000 μg/L in well MW-3. Methyl tertiary butyl ether (MTBE) was detected in groundwater at a maximum concentration of 8,000 μg/Lin well MW-3.

July 1998 Well Survey: In July 1998, GR conducted a search of California Department of Water Resources records to identify domestic and municipal supply wells within a 0.5-mile radius of the site. Seven wells were located within the search area, but none were identified as domestic or municipal wells.

January 1999 Well Installation: In January 1999, GR observed BAES install 2-inch diameter monitoring wells MW-4 through MW-6 to further define the extent of hydrocarbons in soil and groundwater beneath the site. No hydrocarbons were detected in soil samples from any of the three wells. However, groundwater from MW-6 contained 14,000 μg/L TPHg and 5,600 μg/L benzene.

July 2000 Baseline Investigation: In July 2000, Cambria observed Vironex Inc. of San Leandro, California advance soil borings B-1 and B-2 and install monitoring well MW-7. The purpose of the investigation was to provide information of environmental conditions beneath the site at the time of property transfer. Maximum hydrocarbon concentrations of 140 mg/kg TPHg and 0.88 mg/kg benzene were detected in a soil sample collected from boring B-2 at 18 fbg. MTBE was

initially detected in boring B-2 at 18 fbg at 1.7 mg/kg by EPA Method 8020. This was shown to be a false positive result as no MTBE was detected by the more precise EPA Method 8260B analysis. The highest hydrocarbon concentrations detected in groundwater were 11,000 µg/L TPHg and 4,300 µg/L benzene in well MW-7. The highest MTBE concentration detected in groundwater by EPA Method 8260B was 2,000 µg/L in boring B-1. Not enough groundwater accumulated in boring B-2 to sample.

September 2000 Additional Baseline Investigation: In September 2000, Cambria observed V&W Drilling of Rio Vista, California advance borings SB-4 through SB-6. The purpose of this investigation was to provide additional environmental data to satisfy real estate and lending requirements of the station operator for purchase of site facilities. No MTBE was detected in soil samples. The highest hydrocarbon concentrations detected were 1,400 mg/kg TPHg and 3.1 mg/kg benzene at 24 fbg in boring SB-5. No groundwater samples were collected.

Site Conditions

Soil Lithology: The site is underlain primarily by interbedded clay, silt, and gravel. Fine grained materials consisting of clay to sandy clay exist between the surface and 11 to 15 fbg. Clayey gravel grading to sandy gravel underlies the clay layer to the maximum depth explored of 36.5 fbg. A five-foot thick silt layer was observed from 20 to 25 fbg along the northwestern area of the property during installation of wells MW-3 through MW-6.

Groundwater: The site is located within the East Bay Plain Groundwater Basin. Groundwater usually occurs between 13 and 20 fbg, but has been measured from 7 to 22 fbg. General groundwater flow direction varies from north to northwest, at an average gradient of 0.08.

Hydrocarbon Distribution in Groundwater: LNAPL has been observed in well MW-1 since November 2000 at a maximum thickness of 0.74 ft in February 2006. The highest TPHg concentration detected in groundwater was 250,000 µg/L in well MW-1 in August 2003. The highest hydrocarbon concentrations detected during the Third Quarter 2006 monitoring event were 30,000 µg/L TPHg and 8,100 µg/L benzene in well MW-7.

RECOMMENDED REMEDIAL APPROACH

Surfactant solutions emulsify LNAPL found in formation pore spaces. The emulsification of the LNAPL greatly increases its mobility and, therefore, the ability to remove it by vacuum-enhanced fluid recovery.

Cambria believes that this site is a good candidate for surfactant injection treatment. Site attributes conducive to this technology include the fact that the LNAPL footprint and its accumulated thickness are small. The surfactant solution (essentially food-grade biodegradable soap) works by decreasing the interfacial surface tension between oil and water, creating a micro-emulsion of oil in water. This significantly increases the mobility of LNAPL and, during water extraction, can thereby significantly enhance LNAPL recovery from a well. Ideally the soil volume around the well can be cleared of the majority of LNAPL mass, leaving low residual LNAPL mass in soil pores. This reduced residual mass will have decreased mobility, inhibiting its migration. Additionally, LNAPL removal often initiates a decreasing trend of dissolved hydrocarbon concentrations in groundwater.

A typical surfactant solution consists of approximately 2 percent surfactant in water. The surfactants we plan to use for remediation are non-toxic, biodegradable and are engineered specifically based on analysis of the LNAPL samples. The general protocol for enhancing recovery of LNAPL around a single well is as follows:

2% surfactant solution will be injected at low pressure or gravity fed into the LNAPL source zone area around MW-1. The rate of application will be low to minimize potential outward displacement of LNAPL during the surfactant application step. The surfactant solution will then be allowed to equilibrate in the source area smear zone for a period of 24 hours to envelop and micro-emulsify the LNAPL. This application will be followed by a 24 hour enhanced vacuum fluid recovery (EVFR) event, using a mobile vacuum truck, to remove the surfactant and emulsified LNAPL from the source area. The water removed will be visually inspected hourly for the presence of surfactant and emulsified LNAPL from the formation. The actual duration of the EFVR event will be dictated by the diminishing returns of LNAPL and surfactant concentrations observed in water produced from the well. Typically, the volume withdrawn is at least three times the volume of applied surfactant solution. Extraction will cease when the recovery of surfactant and LNAPL becomes negligible.

The efficacy of the surfactant remediation will be evaluated by measuring LNAPL thickness (if any) post-remediation. We will monitor for post-treatment LNAPL rebound in the well on a weekly basis in the month following the extraction, followed by monthly monitoring for approximately three months. Changes in the dissolved plume will be monitored via the current quarterly groundwater monitoring program. Because the emulsion creates greater surface area contact between hydrocarbons and water, a temporary increase in dissolved hydrocarbon concentrations can occur. However, this spike is short lived and typically not observed after a few months. With the overall hydrocarbon mass removal during this process, the increase in dissolved hydrocarbon concentrations are only temporary and have historically decreased to lower than pre-treatment concentrations where this technology has been used.

Potential advantages of surfactant treatment for recovering mobile and residual LNAPL include:

- LNAPL below the water table can be recovered.
- Recovery is not restricted by LNAPL viscosity or volatility, or the thickness of the smear zone.
- Recovery does not depend on dewatering the smear zone.
- It is potentially an efficient, low cost method to improve the success of temporary vacuum-enhanced fluid recovery treatments in removing sufficient LNAPL to prevent its re-entry into wells.

SCHEDULE

Prior to performing this remedial action, Chevron requires a review be performed by their in-house Remediation System Review Team (RSRT). If the remediation approach should change after the review process an addendum to this workplan documenting the proposed change in scope will be submitted to ACEHS.

Assuming the endorsement of the RSRT, for the surfactant to influence the largest area of the smear zone, the injection should be performed when groundwater is at its highest elevations. According to historical groundwater monitoring reports, groundwater is at its highest elevation between April and May. Therefore Cambria proposes that the work be performed in April of 2007. Cambria will submit an investigation report within 60 days after completion of the fieldwork.

CLOSING

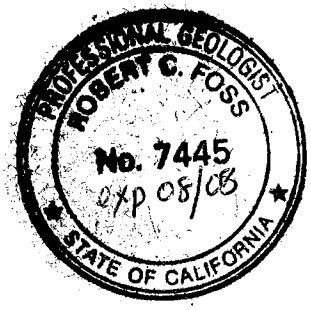
We appreciate your assistance with this project. Please call Laura Genin at (510)-420-3367 or Robert Foss at (510) 420-3348 if you have any questions regarding this proposed scope of work.

Sincerely,
Cambria Environmental Technology, Inc.

Laura Genin
Project Geologist

Robert Foss

Robert Foss, P.G. #7445
Associate Geologist



Figures: 1 – Site Vicinity Map
2 – Site Plan

cc: Mr. Satya Sinha, Chevron Environmental Management Company, P.O. Box 6012, San Ramon, CA 94583
Mr. Dean Najdawi, 7725 Bancroft Avenue, Oakland, CA 94605-2407

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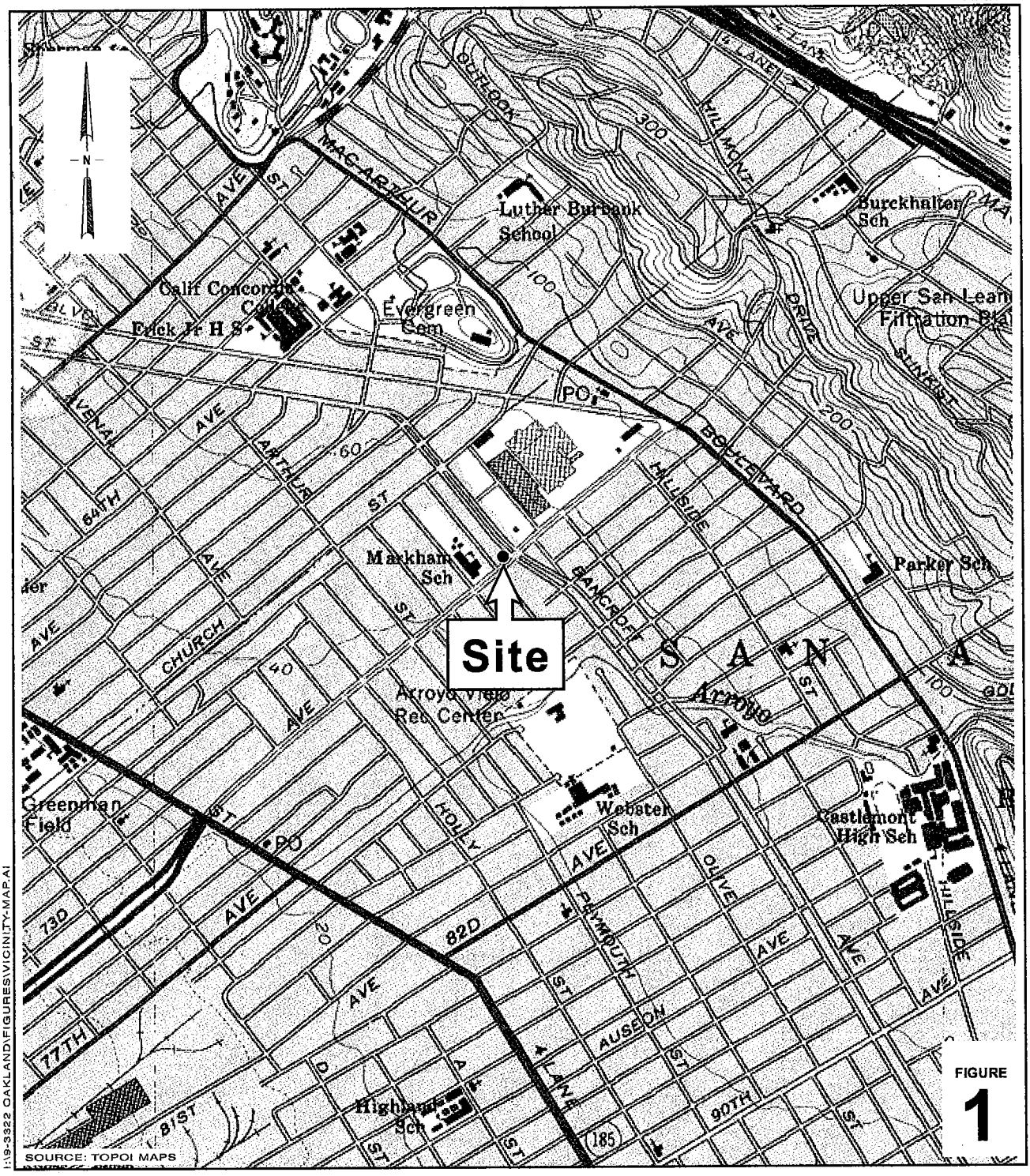

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FIGURE 1

0 1/8 1/4 1/2 1

SCALE : 1" = 1/4 MILE

Chevron Service Station 9-3322

7225 Bancroft Avenue

Oakland, California

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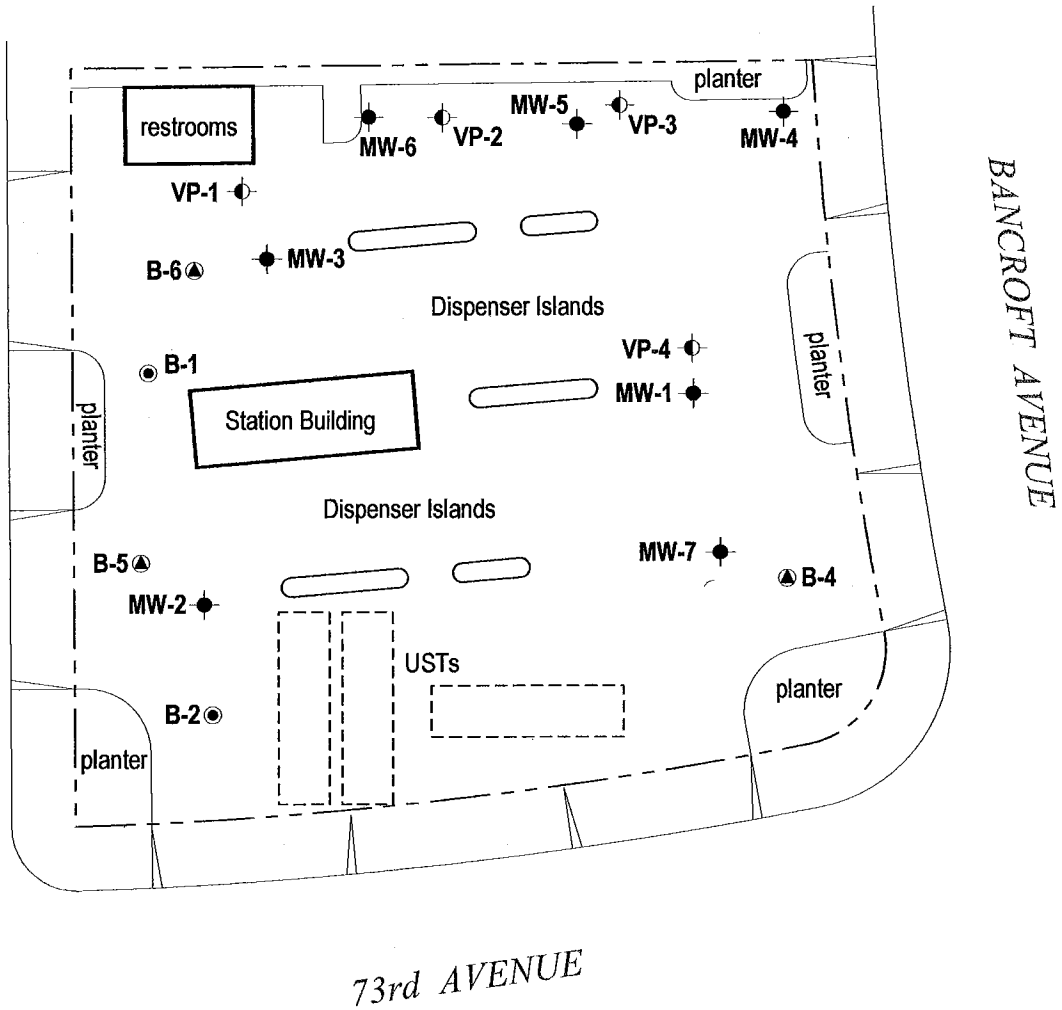
Vicinity Map



EXPLANATION

MW-1	Monitoring well location
VP-1	Vapor probe location
SB-1	Previous soil boring location
SB-4	Soil boring location from September 25, 2000 investigation

N

0 15 30

Scale (ft)

FIGURE

2

I:\9-3322\FIGURES\SITEPLAN.DWG

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Oakland, California

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Site Plan