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April 8, 2004

Ms Eva Chu
Alameda County Health Care Services
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502

Re: **Investigation Workplan**
Chevron Service Station 9-1740
6550 Moraga Avenue
Oakland, California

Dear Ms Chu:

On behalf of Chevron Environmental Management Company (ChevronTexaco), Cambria Environmental Technology, Inc. (Cambria), is submitting this Investigation Workplan for the site referenced above. Cambria drilling three soil borings for three temporary wells to further define the extent of hydrocarbons in groundwater beneath the site. The site description, site background, and Cambria's detailed proposed scope of work are presented below.

SITE BACKGROUND

The site is an active service station located at the northwest corner of the intersection of Moraga Avenue and Mountain Boulevard, in a mixed commercial and residential area of Oakland, California (Figure 1). Under a ground lease agreement, Chevron began station operations in 1936. According to ChevronTexaco records, site improvements were made prior to 1936, indicating station operations existed prior to Chevron's involvement. Site configuration information prior to 1960 is not available. The site's current configuration includes a station building with two service bays, three 10,000-gallon double-walled fiberglass underground storage tanks (USTs), three dispenser islands, and associated product piping. Groundwater flows in the south-southwest. Depth to groundwater is currently between 6.19 and 6.86 feet below grade (fbg).

Previous Investigations

1960 Re-configuration: Chevron reconfigured the site in 1960 with a station building, two service bays, four (three gasoline and one diesel) 10,000-gallon single wall fiberglass USTs, one 1,000-gallon used-oil UST, two dispenser islands, and associated product piping.

Cambria Environmental Technology, Inc.

4111 Citrus Avenue
Suite 9
Rocklin, CA 95677
Tel (916) 630-1855
Fax (916) 630-1856

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1990 Monitoring Well Installation: In 1990 Touchstone Developments Environmental Management installed monitoring wells C-1 through C-4 which have been monitored quarterly since 1991. Soil samples collected from borings C-1, C-2, and C-4 contained up to 442 mg/kg total petroleum hydrocarbons in gasoline (TPHg) and up to 2 mg/kg benzene. No TPHg or benzene was detected in soil samples from C-3.

1992 Used Oil UST Replacement: In 1992 the 1,000-gallon used-oil UST was replaced. At that time, a previously unknown 550-gallon used-oil UST was discovered adjacent to the used-oil UST and was subsequently removed.

1992 Well Abandonment: Monitoring well C-1 was abandoned during replacement of the used oil UST.

1996 Diesel UST Removal and Gasoline UST Replacement: In 1996, Chevron replaced its gasoline fuel USTs, dispensers, and product piping and permanently removed the diesel UST. Soil samples collected during UST replacement contained up to 1,200 mg/kg TPHg, 1,100 mg/kg total petroleum hydrocarbons in diesel (TPHd), and 3.9 mg/kg benzene.

1999 Oxygen Release Compound® (ORC): In June 1999, ORC was installed in wells C-2 and C-4. Subsequent monitoring events showed TPHg, benzene, and methyl tertiary butyl ether (MTBE) concentrations had dropped significantly in these wells.

2004 Receptor Survey: In February 2004 a Department of Water Resources (DWR) well survey was executed. One domestic well and one irrigation well were found within a 2,000-ft radius. Both wells are west of the site. A reservoir is located approximately 1,600 feet northwest of the site and Sausal Creek is located approximately 2,000 feet east of the site.

PROPOSED SCOPE OF WORK

The objective of this investigation is to further define the extent of hydrocarbons in groundwater. To meet this objective, Cambria proposes drilling three soil borings SB-5 through SB-7 for temporary wells C-5 through C-7. One located in the parking lane of Moraga Avenue, down-gradient of the USTs and dispenser islands to define the down-gradient extent of the hydrocarbon plume in groundwater. The second is located between the USTs and the dispenser islands, and another located on the north side of the dispense islands to define the source area. The locations of the soil borings/temporary monitoring wells are presented in Figure 2. Our detailed scope of work is presented below.

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Underground Utility Location: Cambria will contact Underground Service Alert to clear the well locations with utility companies. All three locations will be cleared to 8 fbg using an airknife vacuum truck prior to drilling.

Site Health and Safety Plan: Cambria will prepare a site safety plan to be reviewed and signed by all site workers and to be kept onsite at all times.

Permits: Cambria will obtain well permits from the Alameda County Public Works Agency Water Resources Section, prior to beginning field operations/sampling.

Soil Borings: Cambria proposes drilling soil borings SB-5 through SB-7. After clearing to 8 fbg, each boring will be advanced to approximately 25 fbg and completed as temporary monitoring wells C-5 through C-7. The borings will be advanced using an air-rotary drill rig equipped with drive casing as needed to keep the boring open during completion. Soil will be logged and sampled at 5 ft intervals.

Well Installation: The three temporary monitoring wells will be screened from approximately [redacted] fbg. Screen intervals may be modified based on field observations. The wells will be 2-inch diameter, constructed using 0.020 slotted schedule 40 PVC pipe with Monterey Sand #2/12. Standard field procedures are presented in Attachment A.

Soil Sample Selection: Soil samples will be selected for chemical analyses based on field screening for hydrocarbon vapors using a photo-ionization detector (PID), visual observation of soil characteristics such as discoloration, sample depth relative to the capillary fringe, and soil-texture considerations.

Chemical Analysis: Selected soil samples and all groundwater samples will be analyzed for:

- TPHg and TPHd by EPA Method 8015M.
- Benzene, toluene, ethylbenzene, and xylene (BTEX), fuel oxygenates MTBE, di-isopropyl ether (DIPE), tert-butyl alcohol (TBA), tert-amyl methyl ether (TAME), ethyl tert-butyl ether (ETBE), and lead scavengers 1, 2-dichloroethane (1,2-DCA) and ethylene dibromide (EDB) by EPA method 8260B.

Reporting: After the analytical results are received, a subsurface investigation report will be prepared containing:

- A summary of the site background and history,
- Descriptions of the drilling and soil sampling methods,
- Boring logs,

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- Tabulated soil and groundwater analytical results,
- A figure illustrating well locations,
- Analytical reports and chain-of-custody forms,
- A discussion of lateral and vertical extent of hydrocarbons in soil and groundwater, and
- Conclusions and recommendations regarding the findings of the assessment.

SCHEDULE AND CLOSING

Cambria will carry out this scope of work upon receiving written approval from the Alameda County Health Care Services. We will submit our investigation report approximately six weeks after receiving analytical results.

Please contact Bruce Eppler (ext. 102) at (916) 630-1855 with any questions or comments regarding the site or this workplan.

Sincerely,
Cambria Environmental Technology, Inc.

Kiersten Connor
Staff Geologist

Christopher B. Dennis, R.G.
Senior Geologist

REGISTERED GEOLOGIST
CHRISTOPHER B. DENNIS
No. 7184
9/30/05
STATE OF CALIFORNIA

Figures: 1 - Site Vicinity Map
2 - Proposed Monitoring Well Locations

Attachments: A - Standard Field Procedures for Boring and Wells

cc: Ms. Karen Streich, Chevron Environmental Management Company, P.O. Box 6012, L4052 San Ramon, CA 94583-0804

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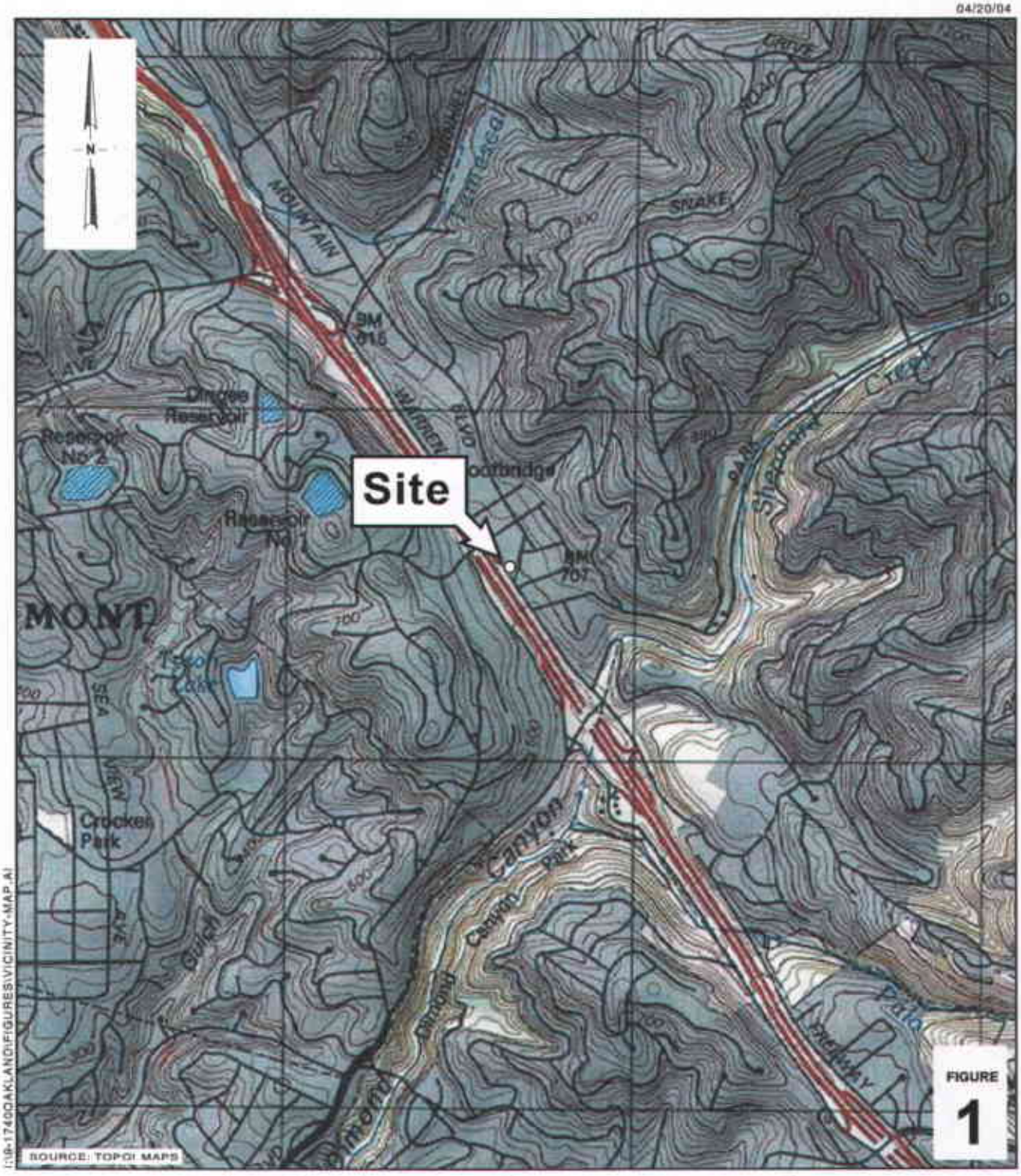

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SCALE : 1" = 1/4 MILE

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Chevron Service Station 9-1740

6550 Moraga Avenue

Oakland, California

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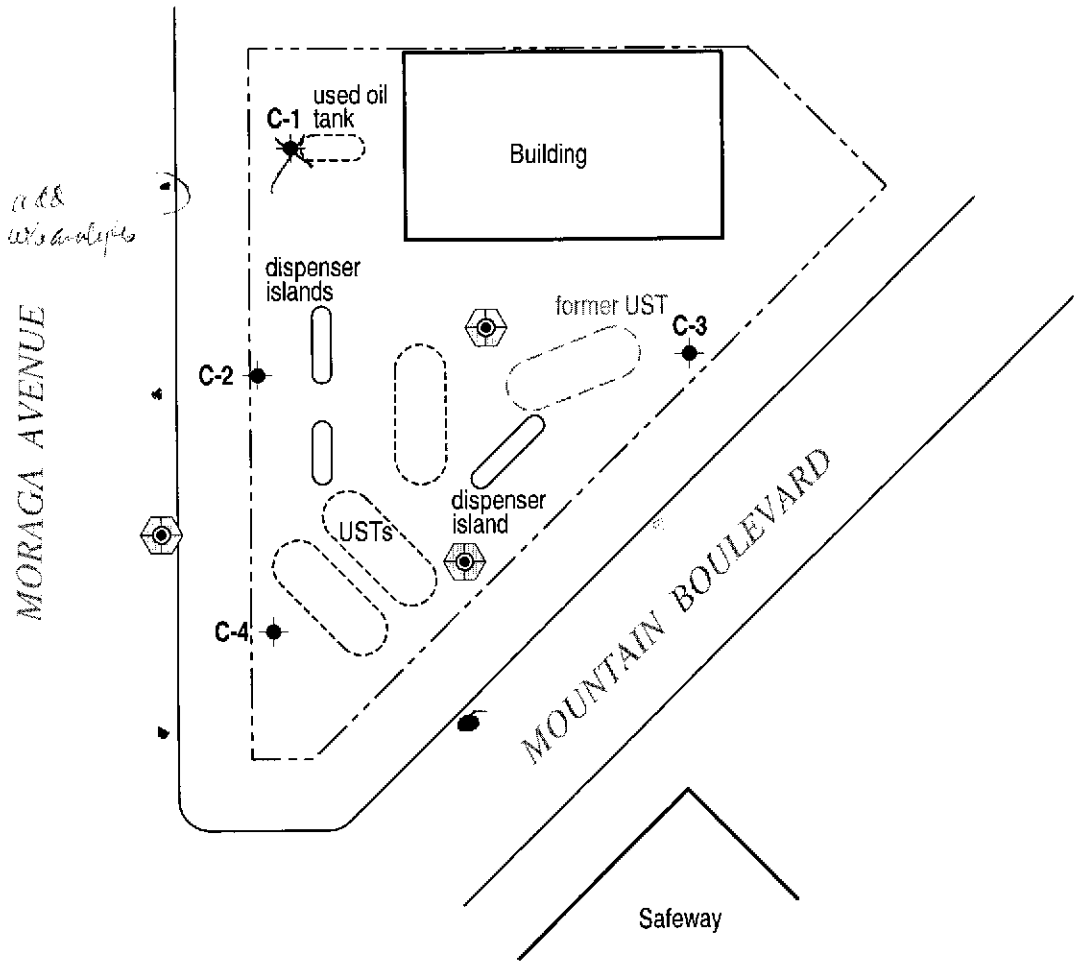
Vicinity Map



EXPLANATION

- Proposed soil boring location
- C-1 Monitoring well location

0 15 30

Scale (ft)

FIGURE

2

I:\9-RCK\LIN9-1740 OAKLAND\FIGURES\STEP1.ANDING

Chevron Service Station 9-1740

6550 Moraga Avenue

Oakland, California

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Site Plan

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ATTACHMENT A

Standard Field Procedures for Borings and Wells

STANDARD FIELD PROCEDURES FOR MONITORING WELL INSTALLATION

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

DRILLING AND SAMPLING

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®. Prior to drilling, the first 8 ft of the boring are cleared using an air or water knife and vacuum extraction. This minimizes the potential for impacting utilities.

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 4o 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 groundwater 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 groundwater 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 4oC, 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.

MONITORING WELL INSTALLATION, DEVELOPMENT AND SAMPLING

Well Construction and Surveying

Groundwater monitoring wells are installed to monitor groundwater quality and determine the groundwater elevation, flow direction and gradient. Well depths and screen lengths are based on groundwater depth, occurrence of hydrocarbons or other compounds in the borehole, stratigraphy and State and local regulatory guidelines. Well screens typically extend 10 to 15 fee below and 5 feet 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 feet 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 feet above the well screen. A two feet 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 groundwater surging and extraction. Surging agitates the groundwater and dislodges fine sediments from the sand pack. After about ten minutes of surging, groundwater 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 groundwater are extracted and the sediment volume in the groundwater 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.

Groundwater Sampling

Depending on local regulatory guidelines, three to four well-casing volumes of groundwater are purged prior to sampling. Purging continues until groundwater pH, conductivity, and temperature have stabilized. Groundwater 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 4oC, 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.

Waste Handling and Disposal

Soil cuttings from drilling activities are usually stockpiled onsite and covered by plastic sheeting. At least three individual soil samples are collected from the stockpiles and composited at the analytic laboratory. The composite sample is analyzed for the same constituents analyzed in the borehole samples in addition to any analytes required by the receiving disposal facility. Soil cuttings are transported by licensed waste haulers and disposed in secure, licensed facilities based on the composite analytic results.

Groundwater removed during development and sampling is typically stored onsite in sealed 55-gallon drums. Each drum is labeled with the drum number, date of generation, suspected contents, generator identification and consultant contact. Upon receipt of analytic results, the water is either pumped out using a vacuum truck for transport to a licensed waste treatment/disposal facility or the individual drums are picked up and transported to the waste facility where the drum contents are removed and appropriately disposed.