CAMBRIA

Transmittal

To:	Mr. Don Hwang
Company:	Alameda County Dept of Environmental Health
Address:	1131 Harbor Bay Parkway
	Alameda, CA 94502
Phone:	(510) 567-6746
From:	Robert Foss
Phone:	(510) 420-3348
Pages:	17 (including cover)
Date:	August 7, 2003
Re:	Additional Investigation Workplan
	Former Chevron SS #9-0020
	1633 Harrison Street, Oakland, CA

Alameda County
AUG 11 2003
Environmental Health

Mr. Hwang:

Attached is a copy of the Additional Investigation Workplan produced in response to the discussions of our June 10, 2003 meeting regarding conditions beneath the former Chevron Service Station #9-0020, located at 1633 Harrison Street in Oakland.

Please review the document and direct any questions or comments you may have to me at the phone number listed above. As stated in the workplan, we will begin permitting and scheduling of field activities upon receipt of your written approval of the proposed scope of work.

Sincerely,
Cambria Environmental Technology, Inc.

Robert Foss

Robert Foss, R.G.
Senior Project Geologist

cc: Ms. Karen Streich, Chevron Products Company
Ms. Jeriann Alexander, FugroWest, 1000 Broadway, Suite 200, Oakland, CA 94607
Mr. Martin Zone, Oakland Housing Authority, 1805 Harrison Street, Oakland, CA 94612

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August 6, 2003

Mr. Don Hwang
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502

Re: **Additional Investigation Workplan**
Former Chevron Station 9-0020
1633 Harrison Street
Oakland, California
Cambria Project No. 31D-1956

Dear Mr. Hwang:

Cambria Environmental Technology, Inc. (Cambria) has prepared this additional investigation workplan for the site referenced above on behalf of Chevron Products Company. Chevron and Cambria met with you and Martin Zone of the Oakland Housing Authority, along with their consultant, on June 10, 2003 to discuss requests made by Alameda County Department Environmental Health (ACDEH) in a letter dated September 10, 2003 and to discuss moving this site toward closure. Our objective is to acquire the necessary data to resolve issues contained in the letter and discussed at our June 10 meeting. A copy of the letter is included at Attachment A for your reference. The site background and our proposed investigation scope of work are described below.

SITE BACKGROUND

Site Description: The site is a former Chevron gasoline service station located on the southwest corner of the intersection of 17th and Harrison Streets in Oakland, California. Chevron operated a service station on the site until 1972 at which time it was shut down. Since that time the site has been operated as a parking lot. Local topography is flat and the site is approximately 40 ft above mean sea level (Figure 1). It is currently utilized as a parking lot with future development plans as a multi-story senior housing facility. The site is located in downtown Oakland in an area of commercial and multi-unit residential.

1988 Soil Vapor Survey investigation: A soil vapor survey was conducted in January 1988. Twenty-two samples were collected at eleven locations around the site. The highest hydrocarbon

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concentrations were detected in the vicinity of the former waste oil underground storage tank (UST) in the western central portion of the site.

1988 Monitoring Well Installation: Western Geologic Resources (WGR) drilled and installed wells MW-1 through MW-3 in October 1988. BTEX and total fuel hydrocarbons were not detected in groundwater samples. However, halogenated volatile organics (HVOs) were detected. These compounds were later identified as originating from another source, likely one of several nearby former dry cleaners.

1989 Soil Boring and Monitoring Well Installation: WGR drilled five soil borings and four wells (MW-4 through MW-8). TPHd was detected up to 600 ppm at 9.6 feet near the former waste oil UST. TPHg was detected at a reported concentration of 50,000 ppm at 23.5 fbg in MW-7 near the northeastern corner of the property.

June 1990 Offsite Well Installation: WGR installed four offsite wells, MW-9 through MW-12, in June 1990. The purpose of this was to delineate the extent of hydrocarbons down-gradient and cross-gradient of the subject site. No hydrocarbons were detected in any soil samples collected during this phase of investigation. However, a groundwater sample from well MW-9 contained 5,700 ppb TPHg and 47 ppb benzene. Offsite wells MW-10 through MW-12 contained HVOs which have been determined to have originated from other sources in the area.

October 1991 Offsite Well Installation: Pacific Environmental Group (PEG) installed well MW-13 to further evaluate the extent of dissolved hydrocarbon plume and up-gradient monitoring well MW-14 to investigate suspected (subsequently confirmed) offsite origination of HVOs. Additionally, four soil borings, B-A through B-D, were drilled to assess the extent of hydrocarbons in the vicinity of MW-7. This was due to the reported sample result of 50,000 ppm TPHg at 23.5 fbg in well MW-7. Only B-D contained detected hydrocarbons at 120 ppm TPHg and up to 1.8 ppm BTEX. The reported TPHg soil concentration of 50,000 ppm in well MW-7 is even more questionable due to the results of borings B-A through B-D.

November-December 1992 Offsite Well Installation: Groundwater Technology Inc. (GTI) installed offsite wells MW-15 and MW-16 to further delineate the dissolved hydrocarbon plume. No hydrocarbons were detected in soil samples collected at 20 and 30 fbg in well MW-15 and 10 and 20 fbg in well MW-16.

SVE Remediation System Installation and Operation: A soil vapor extraction system was installed and operated at the site from July 1, 1993 through December 12, 1993. Evaluation of the system showed minimal effectiveness. Augmentation of the system with additional wells was

evaluated and, due to low permeability soils, it was determined that efficiency would not be appreciably enhanced. The system was shut down in December 1993 and all system equipment was removed in December 1996.

January 1992 Soil Excavation: PEG oversaw removal of hydrocarbon impacted soil from the vicinity of well MW-4 and excavation of a 30-foot long by 5-foot deep trench across the area of the former USTs to confirm that the USTs had been removed from the site. Removal of the USTs was confirmed, however construction debris such as concrete slabs and piping were observed beneath the surface in the area of the former USTs.

PROPOSED SCOPE OF WORK

The objective of the proposed scope of work is to provide data regarding issues addressed in the ACEH department letter of September 10, 2002 and to further characterize soil conditions in anticipation of redevelopment excavation. In order to accomplish these goals, Chevron and Cambria intend to conduct the following activities.

Underground Utility Location: Cambria will contact Underground Services Alert (USA), an underground utility locating service, to identify utility locations on and near the site.

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, reviewed and signed by all site workers.

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

Soil Borings: Cambria will drill a boring in the immediate vicinity of well MW-7. The purpose of this boring is to verify or disprove the occurrence of 50,000 ppm TPHg reported in a sample collected at 23.5 fbg in well MW-7. Four borings were advanced near MW-7 in October 1991 to further investigate this reported result. However, the closest boring was approximately 10 feet to the northwest. Cambria's boring will be advanced within 5 feet of MW-7 and samples will be collected at depths concurrent with the previously reported hydrocarbon impacts (19 fbg and 23.5 fbg). These newly acquired data will be used in a revised RBCA evaluation for a commercial development scenario at the site.

Per our discussion of June 10, Cambria will advance a soil boring in the vicinity of the former USTs to analyze soil samples specifically for lead scavengers EDB and 1,2-DCA. Analyses for

these compounds was requested in the September 10, 2002 ADEH letter. This boring will be advanced, and samples collected, to a depth of approximately 20 fbg. Additionally, due to the planned development that includes subsurface parking and the excavation required to approximately 12 fbg, Cambria will advance a series of soil borings to further characterize soil conditions beneath the site. Proposed locations of all these borings are illustrated on Figure 2. All additional soil characterization borings will be drilled with a hollow stem auger drill rig to approximately 15 fbg. Soil samples will be collected at approximately 5, 10 and 15 fbg. Cambria's standard field procedure for Soil Borings is presented as Attachment A.

Sampling Protocol: Soil samples will be collected from each boring at appropriate depths to accomplish the stated objectives of this workplan. These samples will be collected by driving a sampler lined with three 6-inch brass tubes ahead of the auger into native material. The middle sample tube will be sealed, logged onto a chain-of-custody form and delivered to a state-certified laboratory. One or more samples will be tested for petrophysical characteristics to provide an understanding of vapor migration in the vadose zone. A sieve analysis will be conducted on least one sample, as well. Soil samples will also be analyzed for TPHg and BTEX and selected samples will be analyzed for EBD and 1,2-DCA.

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

- TPHg by EPA Method 8015,
- Benzene, toluene, ethylbenzene, xylenes (BTEX) and lead scavengers 1,2-DCA and EDB by EPA Method 8260.

ORC Removal: ORC had been placed in wells MW-7, MW-9 and MW-16 in July 1999. The effectiveness of ORC in a well has been estimated at approximately six months. These ORC socks have now been in these wells for a total of 48 months. Cambria will coordinate the removal of ORC from the wells as the effectiveness of the ORC has been completely exhausted. Upon removal of ORC socks from well MW-7, this well will be redeveloped to provide representative formation conditions. Future sampling results will be evaluated to determine overall ORC effectiveness in well MW-7. Redevelopment of wells MW-9 and MW-16 is not currently planned.

Aerial Photo/Sanborn Map Review: Cambria will review available aerial photos and Sanborn maps to investigate possible alternate sources of hydrocarbons in well MW-16 first detected twenty-two years after operation of the Chevron station ceased.

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Soil and Water Disposal: Soil cuttings generated will be placed on and covered with plastic. Wastewater will be stored in drums pending proper disposal. These wastes will be transported to the appropriate Chevron-approved disposal facility following receipt of profiling analytic results.

Reporting: Upon completion of field activities and review of the analytical results, we will prepare an investigation/exposure evaluation report that, at a minimum, will contain:

- Descriptions of the drilling and sampling methods;
- Boring logs;
- Tabulated soil and groundwater analytic results;
- Analytic reports and chain-of-custody forms;
- Soil and water disposal methods;
- A description of findings related to aerial photo and Sanborn map reviews,
- An evaluation of risk to future commercial development based on data acquired from this phase of work,
- A volume estimate of hydrocarbon-impacted soil for pre-excavation characterization and;
- Conclusions and recommendations.

SCHEDULE

Cambria will proceed with the proposed scope of work upon receiving written approval from the ADEH. We will submit a report documenting our results approximately six weeks of sampling.

CLOSING

We appreciate this opportunity to provide you with environmental consulting services. Please call me at (510) 420-3348 if you have any questions or comments.

Sincerely,
Cambria Environmental Technology, Inc.

Robert Foss

Robert Foss, R.G.
Senior Project Geologist

REGISTERED GEOLOGIST
ROBERT C. FOSS
exp 08/04
No. 7445
STATE OF CALIFORNIA

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Figures: 1 – Vicinity Map
2 – Proposed Soil Boring Locations

Attachments: A – ACHCSA letter of September 10, 2002
B – Standard Field Procedures for Soil Borings

cc: Ms. Karen Streich, ChevronTexaco, P.O. Box 6012, San Ramon, CA 94583
Ms. Jeriann Alexander, FugroWest, Inc., 1000 Broadway, Suite 200, Oakland, CA 94607
Mr. Martin Zone, Oakland Housing Authority, 1805 Harrison Street, Oakland, CA 94612

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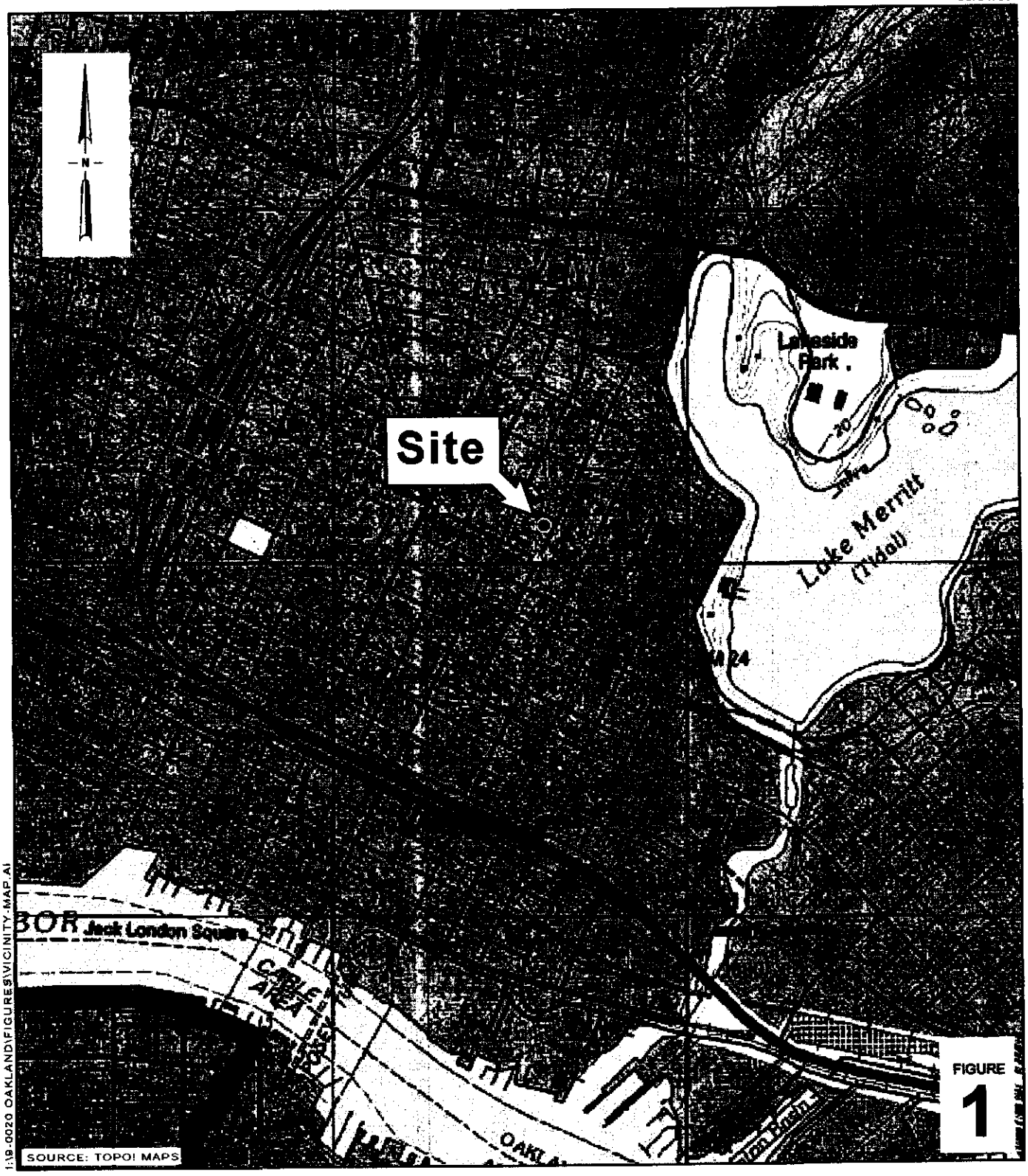
08/04/03



1:\9-0020 OAKLAND\FIGURES\VICINITY-MAP.AI

FIGURE 1

0 1/8 1/4 1/2 1

SCALE : 1" = 1/4 MILE

Former Chevron Station 9-0020

1633 Harrison Street

Oakland, California

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Vicinity Map

Site Plan

EXPLANATION

- Proposed soil boring location
- B-A — Soil boring location
- MW-7 — Monitoring well location
- MW-1 — Abandoned well location

Basemap from Gettler-Ryan Inc.

MW-

MW-14

B-

B-

N

0 15 30 60

Scale (ft)

FIGURE

2

Former Chevron Station 9-0020

1633 Harrison Street

Oakland, California

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139-0020 OAKLAND\FIGURES\SITEPLAN.DWG

ATTACHMENT A

ACHCSA letter of September 10, 2002

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

September 10, 2002

Ms. Karen Streich
Chevron USA, Inc.
PO Box 6004
San Ramon, CA 94583-0904

Mr. Martin Zone
Oakland Housing Authority
1805 Harrison St.
Oakland, CA 94612

Subject: Fuel Leak Case No. RO0000143, Chevron #9-0020, 1633 Harrison St., Oakland, CA

Dear Ms. Streich & Mr. Zone:

Alameda County Environmental Health staff has reviewed "Tier 1 RBCA Evaluation Addendum" dated November 14, 2001, by Delta Environmental Consultants, Inc. (Delta) and the case file for the subject site. We request that you address the following technical comments, perform the requested work, and send us the technical reports requested below.

TECHNICAL COMMENTS

1. **Risk Evaluation** - Two risk evaluations were prepared by Delta for the subject site. The June 27, 2000, "Site Conceptual Model and Risk-Based Corrective Action Evaluation," evaluated the site under a commercial use scenario using the historic highest benzene detection of 810 micrograms/liter (ug/l) in groundwater to evaluate the worst case exposure scenario. When a residential land use scenario was evaluated for the site, another risk evaluation was performed in the "Tier 1 RBCA Evaluation Addendum," dated November 14, 2001, prepared by Delta. Rather than using the historical high benzene concentrations used in the commercial scenario, the residential risk evaluation used an average concentration over four semi-annual events. We do not believe that concentrations can be averaged when evaluating a residential exposure scenario. Please refer to "Application of Risk-Based Screening Levels and Decision Making to Sites With Impacted Soil and Groundwater", Section 2.2 (Step 7) of Volume 1. Additionally, the groundwater data used were from monitoring wells containing Oxygen Release Compound (ORC). We are concerned that the data from monitoring wells containing ORC are not representative of site conditions. Please address these concerns in the work plan requested below.

2. **TPH Risk-Based Screening Levels (RBSLs)** – The Massachusetts Department of Environmental Protection's cleanup standards for total petroleum hydrocarbons (TPH) contamination in groundwater and soil were referenced in the evaluation of total petroleum hydrocarbons as gasoline (TPHG) concentrations at this site. We request that you instead refer to the Regional Water Quality Control Board San Francisco Bay Region's (RWQCB-SF) RBSLs for TPHG screening values for your site. Include your proposal for addressing TPHG risk evaluation levels in the work plan requested below.

3. **Future Residential Development** – We understand that the site is being considered for residential housing. Data for your site indicates that residual contamination remains in place. As part of your risk evaluation, please indicate the location of the proposed building in relation to residual contamination on a map of your site including soil boring and monitoring well locations showing contamination concentrations and depths. Also, provide surface and subsurface building construction specifications, i.e., foundation type, basements, crawl space. Include your map and building construction specifications and your proposal on how they are protective from the residual contamination in the work plan requested below.

4. **ORC Interim Remediation** – ORC was applied in monitoring wells. Please submit your proposal for verification monitoring to evaluate the its effectiveness in the work plan requested below.

5. **Groundwater Analysis** – Please analyze groundwater samples for TPHG, Benzene, Toluene, Ethyl Benzene, Xylene (BTEX) and by EPA Method 8260 for Methyl tert Butyl Ether (MTBE), tert Amyl Methyl Ether (TAME), Ethyl tert Butyl Ether (ETBE), Diisopropyl Ether (DIPE), tert Butyl Alcohol (TBA), Ethylene Dibromide (EDB), and Ethylene Dichloride (EDC). Additionally, Halogenated Volatile Organic Compounds (HVOC's) have historically been present at this site and have not been analyzed since 1992. The presence of HVOC's need to be considered as a more restrictive land use is being proposed. Please include the listed analyses in the work plan requested below. Also, please include procedures for sampling of monitoring wells with ORC which will yield results representative of site conditions.

6. **Soil Sampling** – The gasoline additive EDC has been detected in groundwater in source area(s) at this site. As part of your risk evaluation we request that soil samples be collected and analyzed for EDC and EDB. Also, we recommend that a laboratory grain size analysis be performed on soil samples from your site in accordance with applicable guidance for application of SF-RWQCB and City of Oakland RBSL criteria. Please include your proposal for this work in the work plan requested below.

7. **Offsite Monitoring Well** - Groundwater concentrations of TPHG in MW-16 have been increasing over time. Previously, your consultant has suggested that the source may be from another site. Please provide evidence and identify possible offsite sources.

TECHNICAL REPORT REQUEST

Please submit technical reports to Alameda County Environmental Health (Attention: Don Hwang), according to the following schedule:

- October 30, 2002 – Work Plan
- October 30, 2002 – Quarterly Monitoring Report for the Third Quarter 2002
- 60 days after Work Plan approval – Risk Evaluation & Verification Monitoring
- January 30, 2003 – Quarterly Monitoring Report for the Fourth Quarter 2002

If you have any questions, call me at (510) 567-6746.

Sincerely,

Don Hwang
Hazardous Materials Specialist
Local Oversight Program

C: David Herzog, Delta Environmental Consultants, Inc., 3164 Gold Camp Dr., Suite 200, Rancho Cordova, CA 95670-6021

File

ATTACHMENT B

Standard Field Procedures for Soil Borings

STANDARD FIELD PROCEDURES FOR SOIL BORINGS

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

Objectives

Soil samples are collected to characterize subsurface lithology, assess whether the soils exhibit obvious hydrocarbon or other compound vapor odor or staining, estimate ground water depth and quality and to submit samples for chemical analysis.

Soil Classification/Logging

All soil samples are classified according to the Unified Soil Classification System by a trained geologist or engineer working under the supervision of a California Registered Geologist (RG) or a Certified Engineering Geologist (CEG). The following soil properties are noted for each soil sample:

- Principal and secondary grain size category (i.e. sand, silt, clay or gravel)
- Approximate percentage of each grain size category,
- Color,
- Approximate water or product saturation percentage,
- Observed odor and/or discoloration,
- Other significant observations (i.e. cementation, presence of marker horizons, mineralogy), and
- Estimated permeability.

Soil Boring and Sampling

Soil borings are typically drilled using hollow-stem augers or hydraulic push technologies. 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.

At least one and one half ft of the soil column is collected for every five ft of drilled depth. 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 beyond the bottom of the borehole. The vertical location of each soil sample is determined by measuring the distance from the middle of the soil sample tube to the end of the drive rod used to advance the split barrel sampler. All sample depths use the ground surface immediately adjacent to the boring as a datum. The horizontal location of each boring is measured in the field from an onsite permanent reference using a measuring wheel or tape measure.

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 Storage, Handling and Transport

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 4oC 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 photoionization detector (PID) measures volatile hydrocarbon vapor concentrations in the tube headspace, extracting the vapor through a slit in the cap. PID 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 4oC, and transported under chain-of-custody to the laboratory.

Duplicates and Blanks

Blind duplicate water samples are collected usually collected only for monitoring well sampling programs, at a rate of one blind sample for every 10 wells sampled. Laboratory-supplied trip blanks accompany samples collected for all sampling programs to check for cross-contamination caused by sample handling and transport. These trip blanks are analyzed if the internal laboratory QA/QC blanks contain the suspected field contaminants. An equipment blank may also 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.

Waste Handling and Disposal

Soil cuttings from drilling activities are usually stockpiled onsite on top of and covered by plastic sheeting. At least four individual soil samples are collected from the stockpiles for later compositing at the analytic laboratory. The composite sample is analyzed for the same constituents analyzed in the borehole samples. Soil cuttings are transported by licensed waste haulers and disposed in secure, licensed facilities based on the composite analytic results.

Ground water removed during sampling and/or rinsate generated during decontamination procedures are 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. Disposal of the water is based on the analytic results for the well samples. 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.