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ENVIRONMENTAL PROTECTION
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April 16, 1999

Mr. Amir K. Gholami
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: **Investigation Work Plan**
Shell-branded Service Station
2120 Montana Ave.
Oakland, California
Incident # 98995740
SAP Code - 135675
Cambria Project # 240-0733-001

STID 4022
RESPONDED WITH A LETTER 4/21/99

Dear Mr. Gholami:

On behalf of Equiva Services LLC (Equiva), Cambria Environmental Technology, Inc. (Cambria) has prepared this work plan in response to the Alameda County Health Care Services Agency (ACHCSA) letter to Equilon Enterprises LLC dated March 22, 1999. The objective of this work plan is reveal ground water conditions in regards to concentrations of petroleum hydrocarbons as gasoline and diesel (TPHg, TPHd), benzene, toluene, ethyl-benzene and xylenes (BTEX) and methyl tert-butyl ether (MTBE).

The ACHCSA letter also requested a Risk Management Plan (RMP) to address the risk posed during any earth-moving activities, foundation and utility trenching, water impoundment, and to specifically address the risk to construction workers by providing a site map showing areas where contaminants are left in place. Data collected during this investigation can assist in future development of a RMP. **A RMP will not be presented until site investigation activities are completed.**

SITE BACKGROUND

Site Location: This operating Shell-branded service station is located at the intersection of Montana Street and Fruitvale Avenue in Oakland, California. The properties surrounding the site are commercial to the north and east, and residential to the west. Highway 580 is located adjacent to the south side of the property.

1998 Dispenser Upgrades: In November 1997, this Shell-branded service station was upgraded by Paradiso Mechanical of San Leandro, California (Paradiso). Paradiso added secondary containment

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to the three existing dispensers (D-1, D-2, and D-3) and the turbine sumps (Figure 1). Soil samples were collected from native soil beneath dispensers D-1, D-2, and D-3 at a depth of approximately 5 feet. No soil samples were collected from beneath the associated piping because no piping was exposed during the upgrade activities.

The highest hydrocarbon concentrations in soil were found in sample D-3 at 59 parts per million (ppm) TPPH, 0.76 ppm benzene, 0.14 ppm toluene, 0.095 ppm xylenes, and 1.1 ppm MTBE. No ethylbenzene was detected in any of the samples. Analytic results are summarized in Tables 1 and 2. Selected soil samples were analyzed for TPPH by modified EPA Method 8015, and BTEX and MTBE by EPA Method 8020.

PROPOSED SCOPE OF WORK

To determine the extent of hydrocarbons in ground water beneath the site, we propose advancing two soil borings using a Geoprobe® direct-push rig (Figure 1). Soil and grab ground water samples will be analyzed for TPHg, TPHd, BTEX, and MTBE. Proposed locations for the two soil borings are shown on Figure 1. These locations were selected based on assumed regional groundwater flow direction and previously identified hydrocarbon source areas.

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

Utility Location: Cambria will notify Underground Service Alert (USA) of our drilling activities. USA will have the utilities in the site vicinity identified. Due to proximity of the proposed soil boring to the active USTs and pump islands, we will review available engineering plans for the site, and if necessary, survey the location using a private line locating firm.

Site Health and Safety Plan: We will prepare a comprehensive site safety plan to protect site workers. The plan will be kept on site during field activities and signed by each site worker.

Permits: We will obtain permits for the installation of the boring from the Alameda County Public Works Agency.

Soil Borings: Assuming the absence of overhead and subsurface obstructions, Cambria will drill three soil boring at the location shown on Figure 1. We will collect soil samples at five foot intervals, at lithologic changes, and from just above the water table. Once ground water is encountered, a grab ground water sample will be collected using a hydropunch. Upon completion

of the sampling, the boring will be sealed with cement grout to match the existing ground surface. We will select soil samples for chemical analysis based on observations of staining and odor and on the results of field screening with a photo-ionization detector. Our standard field procedures are presented as Attachment A.

Chemical Analysis: Selected soil and ground water samples will be analyzed for TPHg and TPHd by modified EPA Method 8015, and BTEX and MTBE by EPA Method 8020. The highest MTBE concentrations detected will be confirmed with EPA Method 8260.

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

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

SCHEDULE

Upon receiving written approval of this work plan from the ACHCSA, Cambria will obtain necessary permits and schedule drilling.

CLOSING

We appreciate the opportunity to work with you on this project. Please call Darryk Ataide at (510) 420-3339 if you have any questions or comments.

Sincerely,
Cambria Environmental Technology, Inc.

Darryk Ataide, REA I
Project Manager

Diane Lundquist, P.E.
Principal Engineer

Attachments: A - Standard Field Procedures for Geoprobe Sampling

cc: Karen Petryna, Equiva Services LLC, P.O. Box 6249, Carson, CA 90749-6249

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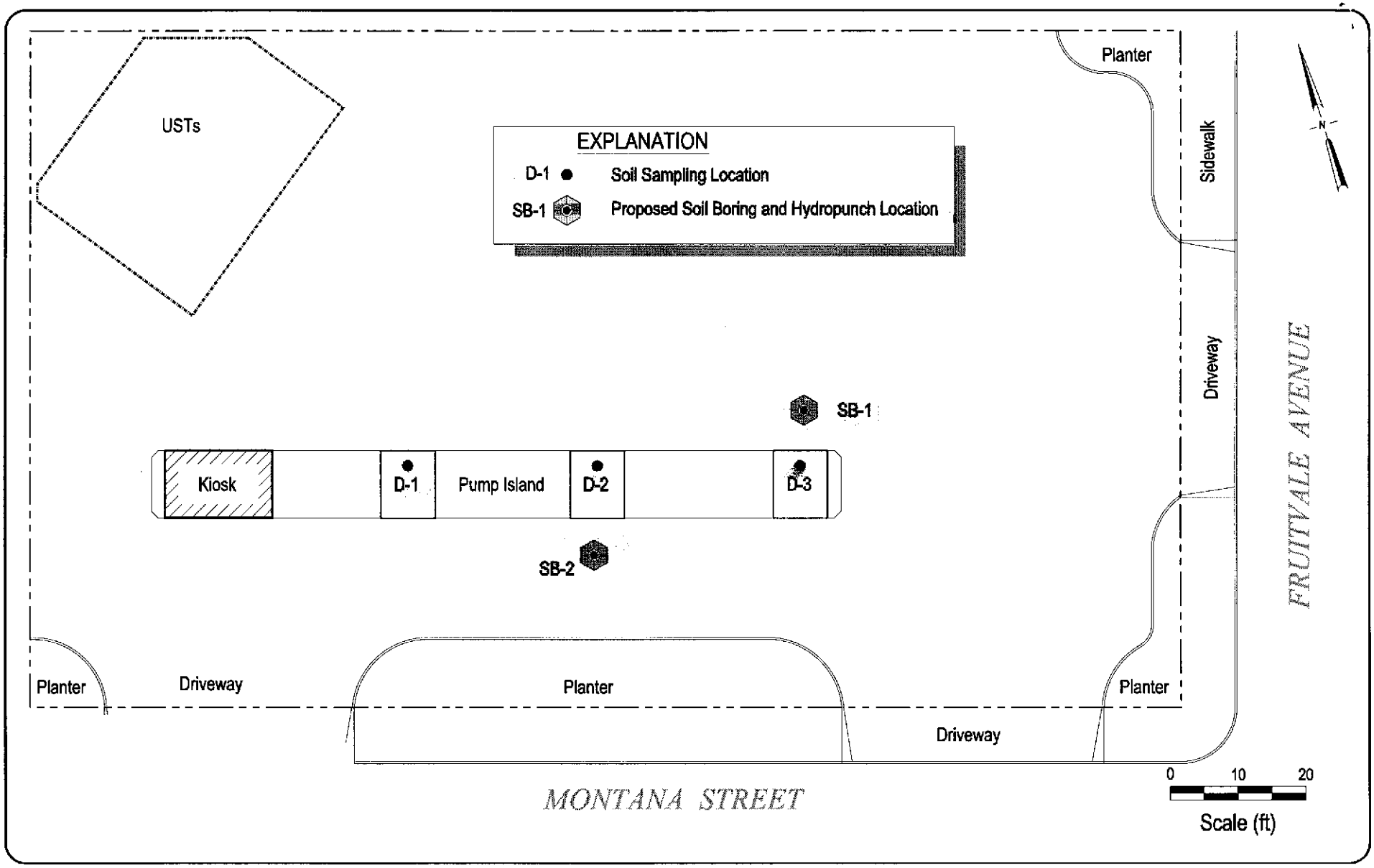

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Shell-branded Service Station
2120 Montana Street
Oakland, California

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Site Map

FIGURE
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Table 1. Dispenser Sample Analytic Data - Petroleum Hydrocarbons - Shell Service Station - WIC# 204-5508-0208, 2120 Montana, Oakland, California

Sample ID	TPPH	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes
	← (Concentrations reported in milligrams per kilogram) →					
November 11, 1997 Samples:						
D-1	1.8	0.16	<0.0050	<0.0050	<0.0050	0.0059
D-2	9.5	0.37	0.024	0.016	<0.0050	0.088
D-3	59	1.1	0.76	0.14	<0.050	0.095
D-(3,2,1) Composite*	---	---	0.32	0.045	<0.012	0.040

Abbreviations and Notes:

TPPH = Total purgeable petroleum hydrocarbons as gasoline by modified EPA Method 8015.

MTBE = Methyl tert-butyl ether by EPA Method 8020.

Benzene, ethylbenzene, toluene, xylenes by EPA Method 8020.

mg/kg = Milligrams per kilogram

<x = Below detection limit of x mg/kg

--- = Not analyzed

* = This composite soil sample was analyzed for TCLP semivolatiles by EPA Method 8270 and TCLP volatiles by EPA Method 8240. No analytes were detected.

Table 2. Dispenser Sample Analytic Data - Metals - Shell Service Station - WIC# 204-5508-0208, 2120 Montana, Oakland, California

Sample ID	Arsenic	Barium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Vanadium	Zinc
	← (Concentrations reported in milligrams per kilogram) →									
November 11, 1997 Samples:										
D-(3,2,1) Composite	8.9	170[a]	53	13	35	9.2	0.55	81	34	67

Abbreviations and Notes:

This composite soil sample was analyzed for inorganic persistent and bioaccumulative toxic substances according to Title 22. Only those metals detected are reported.

a = Barium also detected in toxicity characteristic leaching procedure (TCLP) extract at 1.1 mg/L by EPA Method 6010/7470. Other metals below detection limits.

Attachment A

Standard Field Procedures for Geoprobe Sampling

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STANDARD FIELD PROCEDURES FOR GEOPROBE® SAMPLING

This document describes Cambria Environmental Technology's standard field methods for GeoProbe® soil and ground water sampling. 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 separate-phase hydrocarbon saturation percentage,
- Observed odor and/or discoloration,
- Other significant observations (i.e., cementation, presence of marker horizons, mineralogy), and
- Estimated permeability.

Soil Sampling

GeoProbe® soil samples are collected from borings driven using hydraulic push technologies. A minimum of one and one half ft of the soil column is collected for every five ft of drilled depth. Additional soil samples can be collected near the water table and at lithologic changes. Samples are collected using samplers lined with polyethylene or brass tubes driven into undisturbed sediments at the bottom of the borehole. 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 steam-cleaned or washed 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 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

After a soil sample has been collected, soil from the remaining *tubing* is placed inside a sealed plastic bag and set aside to allow hydrocarbons to volatilize from the soil. After ten to fifteen minutes, a portable GasTech® or photoionization detector measures volatile hydrocarbon vapor concentrations in the bag's headspace, extracting the vapor through a slit in the plastic bag. The measurements are used along with the field observations, odors, stratigraphy and ground water depth to select soil samples for analysis.

Grab Ground Water Sampling

Ground water samples are collected from the open borehole using bailers, advancing disposable Tygon® tubing into the borehole and extracting ground water using a diaphragm pump, or using a hydro-punch style sampler with a bailer or tubing. 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.

Duplicates and Blanks

Blind duplicate water samples are 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 quality assurance/quality control (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.