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ENVIRONMENTAL PROTECTION

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SMC 320

September 18, 1996

Ms. Susan Hugo
Alameda County Department
of Environmental Health
1131 Harbor Bay Parkway
Alameda, California 94502

Re: **Investigation Workplan**
Richard and Julia Becker
1300 Powell Street
Emeryville, CA

Dear Ms. Hugo:

On behalf of Mr. Richard Becker, Cambria Environmental Technology, Inc. (Cambria) has reviewed the project information and prepared this site investigation workplan. Cambria designed the investigation work scope to address the concerns presented in your July 11, 1996 letter to Mr. Becker. Presented below are a brief site history, the investigation objectives, and our proposed scope of work.

SITE HISTORY

Site Background: Based on the results of a site investigation presented in an April 13, 1995 Investigation Report prepared by Lush Geosciences (Lush) of Sacramento, California, a Pennzoil bulk oil storage facility operated at the site in the 1950s. Sanborn Fire Insurance maps presented in the report showed the Pennzoil facility layout, a Cook Oil Company petroleum storage facility to the west, and Henry Kaiser Motors to the north. Both the Pennzoil and Cook Oil facilities operated numerous above-ground storage tanks.

The site is currently owned by Richard and Julia Becker. Construction Services, the tenant, operates an equipment rental yard at the site. The operations include using above-ground diesel, used oil and hydraulic oil tanks and a self-contained parts cleaning unit.

1995 Subsurface Investigation: In April, 1995 Lush drilled eight soil borings to 5 ft depth and collected and analyzed soil samples. Motor oil and oil and grease were detected in all of the samples analyzed. Maximum concentrations of 3,200 and 880 parts per million (ppm) total oil and grease and total petroleum hydrocarbons as motor oil, respectively, were detected.

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Site Hydrogeology: Lush reported that ground water depth was about 1 to 2 ft in several of the borings. However, ground water in the vicinity of the site is about 5 to 6 ft deep. Lush also reported that the stratigraphy beneath the site consists of clayey silt, silty sand, gravelly sand, and sand to 5 ft depth, the total depth explored.

INVESTIGATION OBJECTIVES

The objectives of the proposed scope of work are to: 1) comply with a July 11, 1996 ACDEH letter requesting additional work at the site, and 2)define the on-site extent of impacted soil and ground water.

SCOPE OF WORK

To achieve the above objectives, Cambria recommends collecting soil and ground water samples, analyzing select samples at an analytic laboratory; and preparing an investigation report presenting the analytic results.

We anticipate being able to assess the full vertical and horizontal extent of hydrocarbons in onsite soil and ground water during one field mobilization. To achieve this, Cambria will conduct the site assessment in a dynamic manner, basing boring and sample locations on data collected in the field. In this manner we will reduce the number of borings drilled. Cambria will drill borings radially outward from the source area until hydrocarbons are not detected in soil or grab water samples or until we reach the property boundary.

Cambria recommends using a Geoprobe cuttingless drill rig during the initial investigation phase because the Geoprobe sampling system allows for rapid sample retrieval and can move quickly between boring locations. The drill-rig uses a hydraulic-push advancement method and is equipped with a variety of ground water sampling systems to assure ground water sample collection in most hydrogeologic environments.

Laboratory Analyses: As requested in the July 11, 1996 ACDEH letter, Cambria recommends analyzing select soil samples for:

- Total petroleum hydrocarbons as gasoline (TPHg) by modified EPA method 8015;
- Benzene, ethylbenzene, toluene, and xylenes (BETX) by EPA method 8020;
- Total extractible petroleum hydrocarbons (TEPH) quantified as diesel, kerosene, creosote, and motor oil by EPA method 8015;
- Petroleum oil and grease (POG) by EPA methods 5520 B&F;
- Polynuclear aromatic hydrocarbons (PNAs) by EPA method 8310;
- Volatile organic compounds (VOCs) by EPA method 8240; and
- Metals (lead, nickel, cadmium, zinc, and chromium) by EPA method 6010.

Initial samples will be analyzed for the complete suite of analyses in order to characterize the substance. Cambria will work closely with the analytic laboratory to assure that they have fully characterized any substances detected, and will recommend any additional analyses that may be necessary. The remaining selected soil and ground water samples will be analyzed for those constituents identified in the initial screening. For example: Cambria will not analyze additional samples for TPHg unless TPHg is detected in the initial screening samples.

In summary, Cambria recommends the following scope of work to achieve the objectives outlined above:

- Once this workplan is approved, mark the site, contact USA, generate a site safety plan, and finalize drilling permits with the Alameda County Flood Control and Water Conservation District;
- Operate a Geoprobe sampler for one full day; this should allow us to drill eight to twelve soil borings. This should be sufficient to define the vertical and horizontal extent of onsite hydrocarbon-impacted soil and ground water;
- Collect soil samples from above and below the motor oil, and collect "grab" ground water samples from select borings;
- Analyze soil and ground water samples from each boring for the analytes of concern; and
- Prepare an investigation report presenting the analytic results for soil and ground water.

Proposed boring locations are shown on Figure 1. Our standard field procedures for soil borings are included as Attachment A.

CLOSING

Cambria appreciates this opportunity to provide environmental consulting services to Richard and Julia Becker. Please call David Elias at (510) 420-9176 if you have any questions or comments.

Sincerely,
Cambria Environmental Technology, Inc.

David Elias
Project Geologist

Joseph P. Theisen, CEG
Principal Hydrogeologist

Attachments: A - Standard Field Procedures

cc: Mr. Dick Becker, Construction Services, 1300 Powell Street, Emeryville, CA 94608

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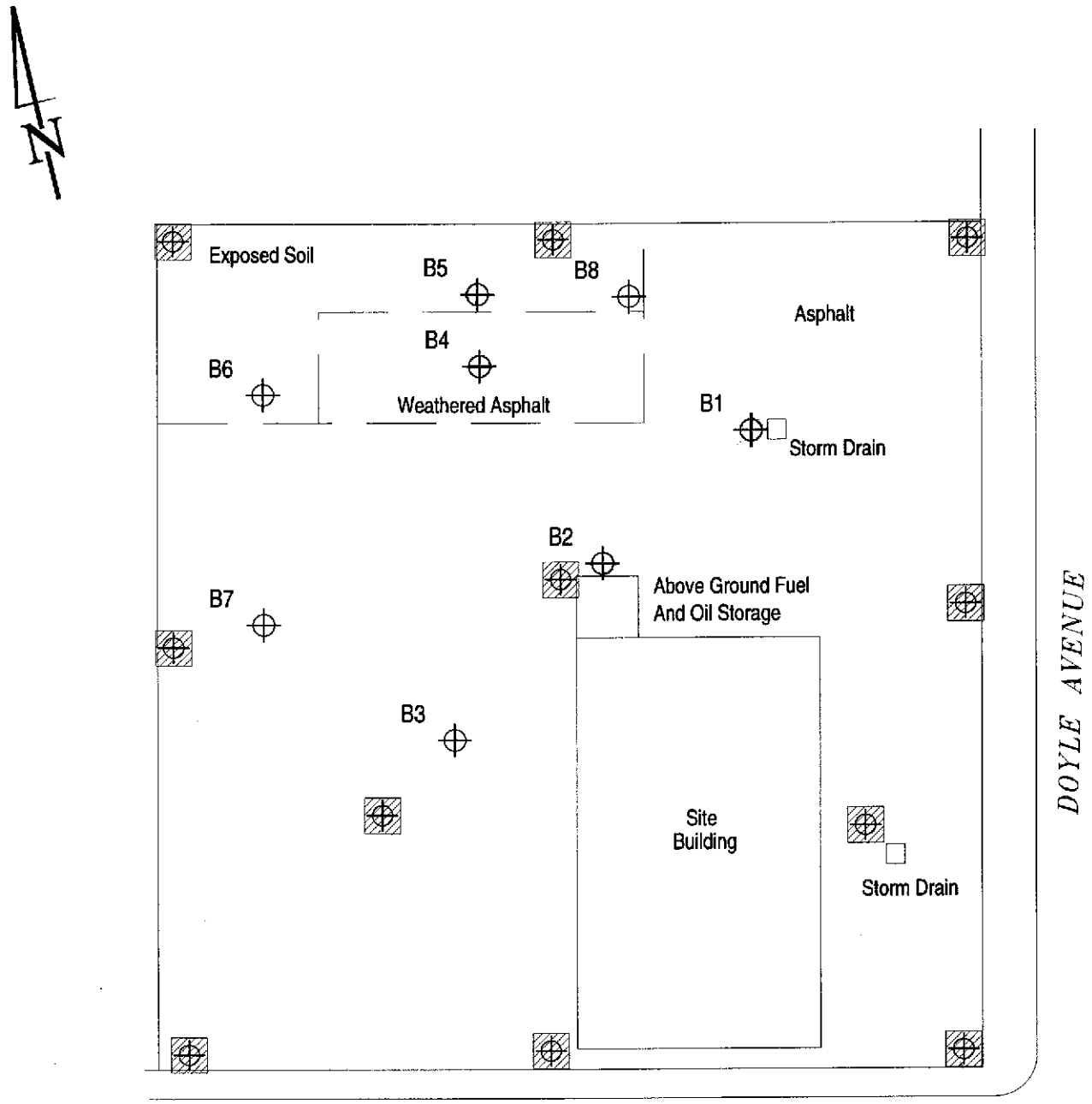

LEGEND

- Previously Drilled Soil Boring
- Proposed Soil Boring

0 20 40

Scale (ft)

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Emeryville, CA

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Soil Boring Locations

FIGURE
1

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ATTACHMENT - A

STANDARD FIELD PROCEDURES

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 permeablily.

Soil Boring and Sampling

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

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 4°C, 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 three 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 licenced waste haulers and disposed in secure, licenced facilities based on the composite analytic results.

Ground water removed during sampling and/or rinseage 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 licenced 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.