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Transmittal

To:	Mr. Scott Seery
Company:	ACHCSA-EHD
Address:	1131 Harbor Bay Parkway
	Alameda, CA 94502
Fax:	
From:	Robert Foss
Phone:	(510) 420-3348
Pages:	13 (including cover page)
Date:	April 16, 2003
Re:	Exposure Assessment Workplan
	Fmr. Chevron SS #9-0260
	21995 Foothill Blvd., Hayward

Alameda County
APR 18 2003
Environmental Health

Mr. Seery:

Attached is a copy of the workplan to conduct an Exposure Assessment at the site referenced above. The objective of this assessment is to collect site specific data to evaluate potential risks to nearby sensitive receptors.

Please review this document and direct any questions or comments you may have to me at (510) 420-3348. Upon receipt of written approval of the workplan we will begin implementing the scope of work outlined in it.

Sincerely,
Cambria Environmental Technology, Inc

Robert Foss

Robert Foss, R.G.
Senior Project Geologist

cc: Ms. Karen Streich, Chevron Products Company, P.O. Box 6004, San Ramon, CA 94583

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April 16, 2003

Mr. Scott Seery
Alameda County Health Care Services Agency
Environmental Health Services
1131 Harbor Bay Parkway
Alameda, CA 94502

Re: **Exposure Assessment Workplan**
Former Chevron Station 9-0260
21995 Foothill Blvd.
Hayward, California
Cambria Project No. 31D-1915

Dear Mr. Seery:

Cambria Environmental Technology, Inc. (Cambria) has prepared this exposure assessment workplan for the site referenced above on behalf of Chevron Products Company. Our objective is to collect site-specific data to assess the potential risk to sensitive receptors. This workplan is written implementing guidance contained in the Active Soil Gas Investigations advisory document from the Los Angeles Regional Water Quality Control Board (LARWQCB), dated 12/20/2002. 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 northwest corner of the intersection of Foothill Blvd and Rex Road in Hayward, California. Local topography is flat and the site is about 100 ft above mean sea level (Figure 1). The site is currently fenced and undeveloped. Commercial properties are located north, east and south of the site. Residential properties are located west (down-gradient) of the site.

Pre-1985 investigation: The previous owner of the site had apparently contracted the installation of three wells (or piezometers) in the tank field to the depth of the USTs. No records are available regarding these wells.

1985 UST and Piping Replacement: In 1985, Chevron discovered a leak in one of the underground storage tanks (UST) in use at the site. The USTs were removed and replaced with

Cambria Environmental Technology, Inc.

5900 Hollis Street
Suite A
Emeryville, CA 94608
Tel (510) 420-0700
Fax (510) 420-9170

double-walled fiberglass USTs. No records of subsurface conditions encountered at the time were available. Apparently, the three wells mentioned above were removed at this time.

1987 Soil Vapor Contaminant Assessment: EA Engineering conducted a vapor investigation in 1987 that detected the highest hydrocarbon vapor concentrations in the vicinity of the station's tank field.

January 1988 Subsurface Investigation: Weiss Associates conducted an investigation to further identify subsurface soil conditions and determine whether hydrocarbons had impacted groundwater. A total of six soil borings were drilled across the site. Two were drilled adjacent to the USTs to check for releases near the tank field. The remaining four were drilled across the site and completed as monitoring wells MW-4 through MW-7.

October 1988 Phase II Investigation: Weiss Associates drilled four soil borings and completed three of them as wells MW-8 through MW-10.

June 1989 Phase III Investigation: Weiss Associates installed wells MW-11 and MW-12 onsite and MW-13 offsite.

August 1990 Subsurface Investigation: Weiss Associates installed wells MW-14 through MW-16.

Remediation Design/Installation/Operation: Weiss Associates coordinated the design, permitting and installation of a groundwater extraction system to remediate groundwater beneath the site. The system was started on August 23, 1991.

Bioreactor Groundwater Remediation: Beginning in June 1992, Geraghty & Miller assumed operation of the groundwater extraction system and operated it using a bioreactor and aqueous carbon.

August 1992 Subsurface Investigation: Geraghty & Miller installed well MW-17 and a piezometer to assess the effects of San Lorenzo Creek on groundwater flow in the area.

October 1996 Station Demolition: In October 1996 all station facilities were removed, including all USTs and product lines. Nearly 1,000 gallons of water and separate-phase hydrocarbons were

pumped from the tank excavation and disposed of offsite. Records indicate that pea gravel and soil overburden was placed back into the tank excavation.

Two-Phase Extraction Remediation: In July 1997, Terra Vac installed sixteen extraction wells and groundwater monitoring well MW-18. In October 1997, a two-phase remediation (TPE) system began operation. Through November 1998, the TPE system had removed an estimated 29,000 pounds of hydrocarbons. Terra Vac operated the system through approximately June 2002.

Dual-Phase Extraction Pilot Testing: In December 2002, Delta Environmental Consultants (DEC) conducted an MPE pilot test utilizing wells MW-4, MW-11 and MW-12 and two temporary wells, TMP-1 and TMP-2. Results indicated a radius of influence of 27 feet from the extraction point and sufficient drawdown to adequately expose the capillary fringe, or smear zone, to vapor extraction influence. Pilot testing results are reported in the document titled, *Dual-Phase Extraction Pilot Testing Results Report*, by DEC and dated February 20, 2003. Pilot testing was conducted to determine the feasibility of this technology to achieve the risk-based remediation goals established for this site in an ACHCSA letter, dated August 19, 1997, written to Chevron by Hazardous Materials Specialist, Madhulla Logan.

PROPOSED SCOPE OF WORK

The objective of the proposed scope of work is to collect site specific data to assess the potential exposure to properties down-gradient of the subject site from residual hydrocarbon contamination. To meet this objective, we propose to drill and install vapor sampling probes at depths of 3, 6, 9 and 12 fbg in three separate borings. The three borings, VP-1 through VP-3, will be located near existing wells MW-12, MW-11 and DVE-13 (Figure 2). Vapor samples collected near MW-12 will provide data representative of worst case conditions beneath the source area on site. Samples collected from near MW-11 and DVE-13 will assess conditions near the property line further from the source area.

Each boring will be drilled using 8-inch diameter hollow-stem augers. Cambria's Standard Field Procedures for Soil Borings are included as Attachment A. Vapor probe wells VP-1 through VP-3 will be constructed using sections of ¾-inch diameter, schedule 40 PVC well casing with a screen size of 0.010" and #2/16 Monterey sand as filter pack. Pipe caps will be screwed on both ends of a 6-inch section of casing. The top cap will be drilled and tapped to allow for the installation of a compression fitting. Polyethylene tubing will be inserted in the compression fitting, and the assembly will be lowered into the boring to the specified depth. A sand pack will be placed in the

borehole around the probes. Each discrete zone will be isolated with hydrated bentonite. The attached tubing will be capped and terminate at the top of the boring within a sealed well vault. A schematic representation of the vapor probe construction and placement is presented as Figure 3.

Sampling Protocol: Four soil samples will be collected from each boring, one from each of the depths to be screened for the vapor sampling. 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 the appropriate laboratory. Each sample will be tested for petrophysical characteristics to provide an understanding of vapor migration in the vadose zone.

Vapor samples will be collected by purging one vapor probe and polyethylene tubing volume, then collecting vapor samples in Tedlar bags using a vacuum desiccator jar and a vacuum pump.

Cambria's Standard Procedures for drilling and sampling are presented in Attachment A.

Petrophysical Analysis: Selected samples will also be analyzed for porosity, bulk density, total organic carbon and moisture content in the event the data is needed for risk modeling.

Chemical Analysis: Selected soil samples from each boring will be analyzed for TPHg by modified EPA Method 8015, benzene, toluene, ethylbenzene and xylenes by EPA Method 8260B. We anticipate analyzing all 4 samples per boring depending on hydrocarbon distribution. Vapor samples collected during subsequent testing will be analyzed for TPHg, benzene, toluene, ethylbenzene and xylenes by EPA Method 18 & 25 Modified. MTBE, etc.

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

Utility Location: Cambria will notify Underground Service Alert of our drilling activities to identify utilities in the site vicinity. As Chevron owns this property, and no redevelopment of the site has occurred, it is unlikely any utility conflicts will be encountered.

Soil Disposal: Soil cuttings produced during field activities will be temporarily stored on site. Following review of analytical results, the soil will be transported to an appropriate facility for disposal.

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 vapor and soil analytic results;
- Analytic reports and chain-of-custody forms;
- Soil and water disposal methods;
- An evaluation of potential risks to adjacent properties and;
- Conclusions and recommendations.

SCHEDULE

Cambria will proceed with the proposed scope of work upon receiving written approval from the ACHCSA. We anticipate submitting a completed exposure evaluation report within about 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 C. Foss

Robert C. Foss, R.G.
Senior Project Geologist

REGISTERED GEOLOGIST ★ STATE OF CALIFORNIA ★ ROBERT C. FOSS exp 03/04 No. 7445

Figures: 1 – Vicinity Map
2 – Proposed Vapor Probe Locations

Attachments: A – Standard Field Procedures for Soil Borings

cc: Karen Streich, ChevronTexaco, P.O. Box 6004, San Ramon, CA 94583

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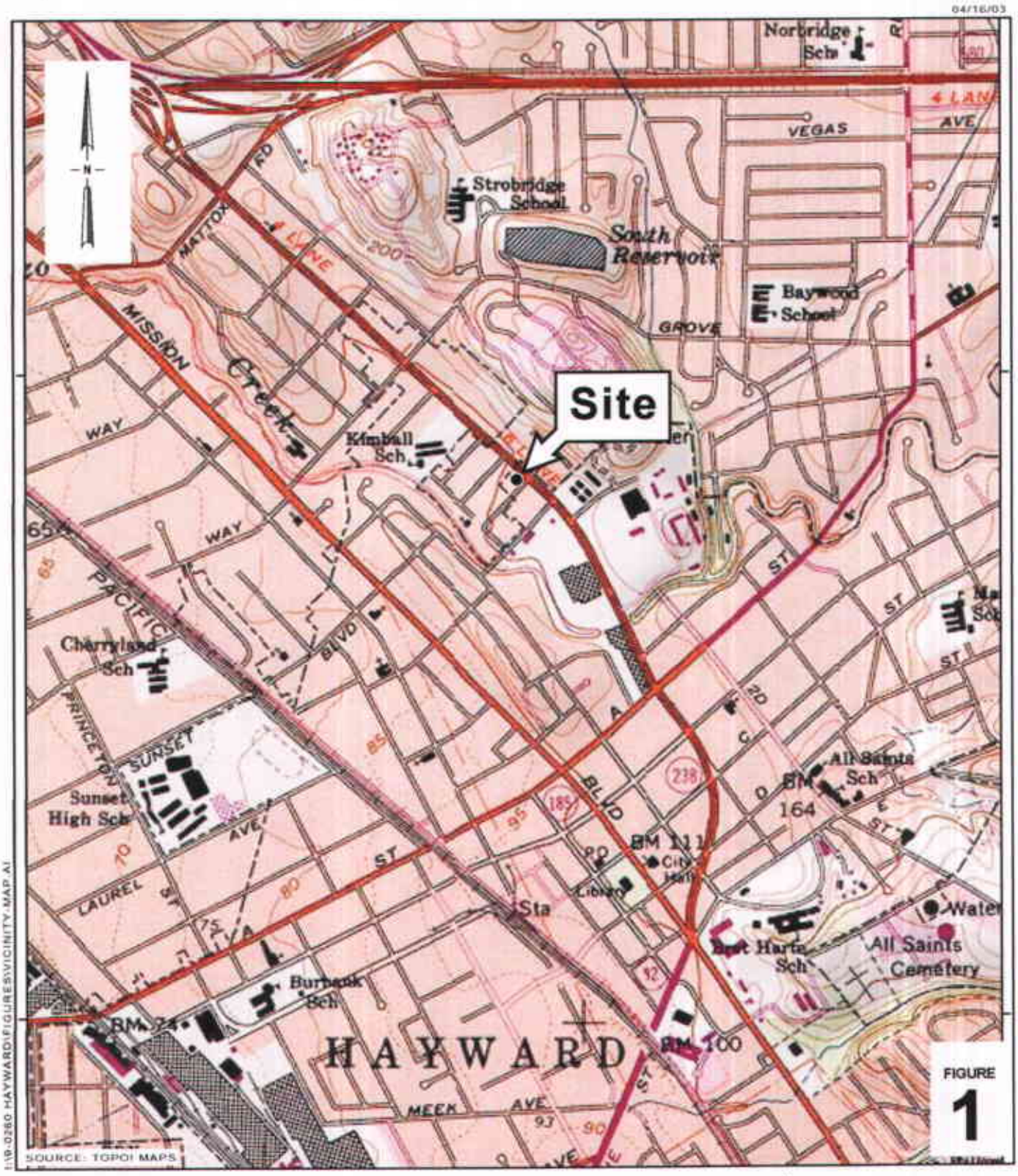

Former Chevron Station 9-0260

21995 Foothill Boulevard

Hayward, California

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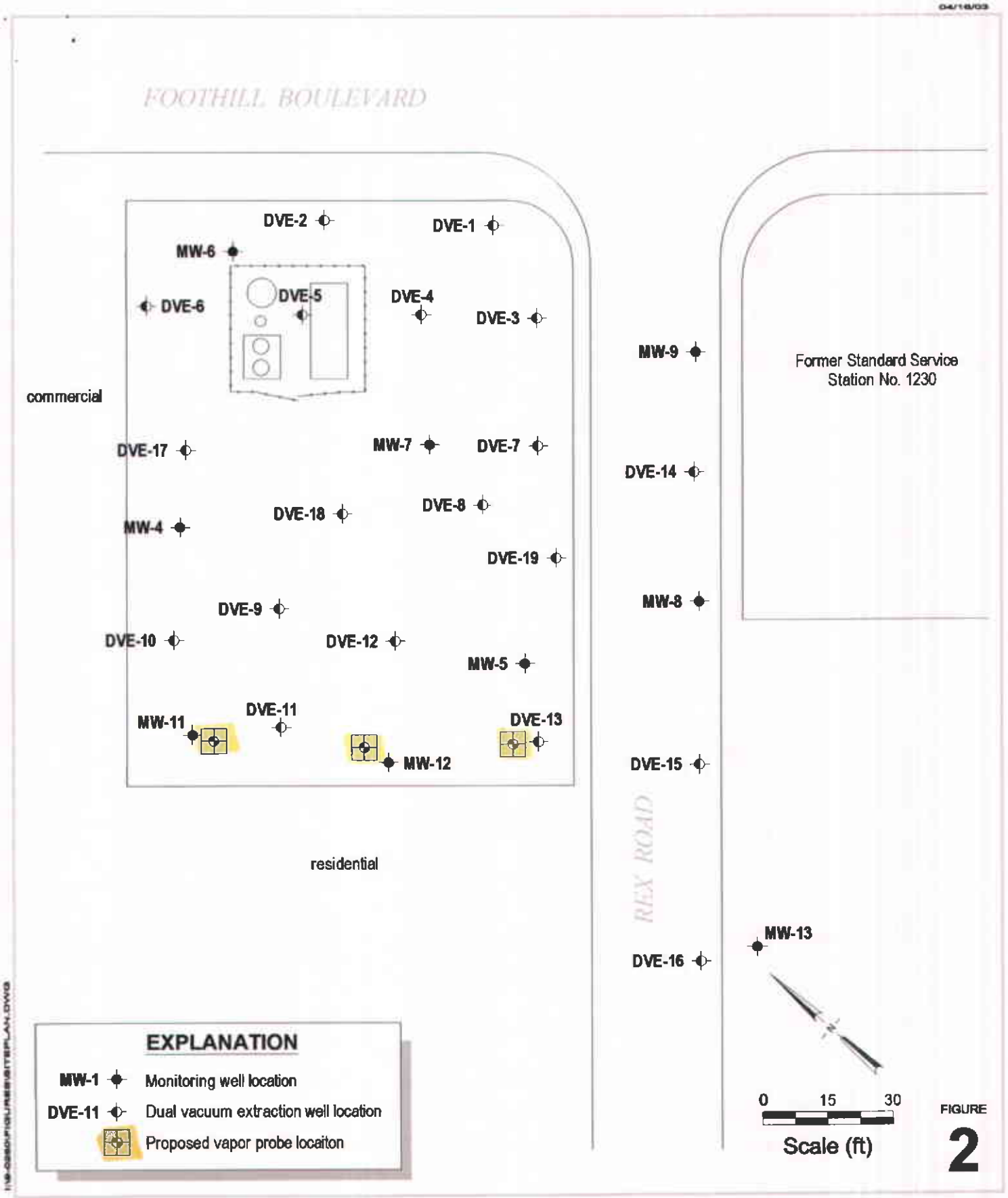
Vicinity Map



Former Chevron Station 9-0260

21995 Foothill Boulevard

Hayward. California

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Proposed Vapor Probe Locations

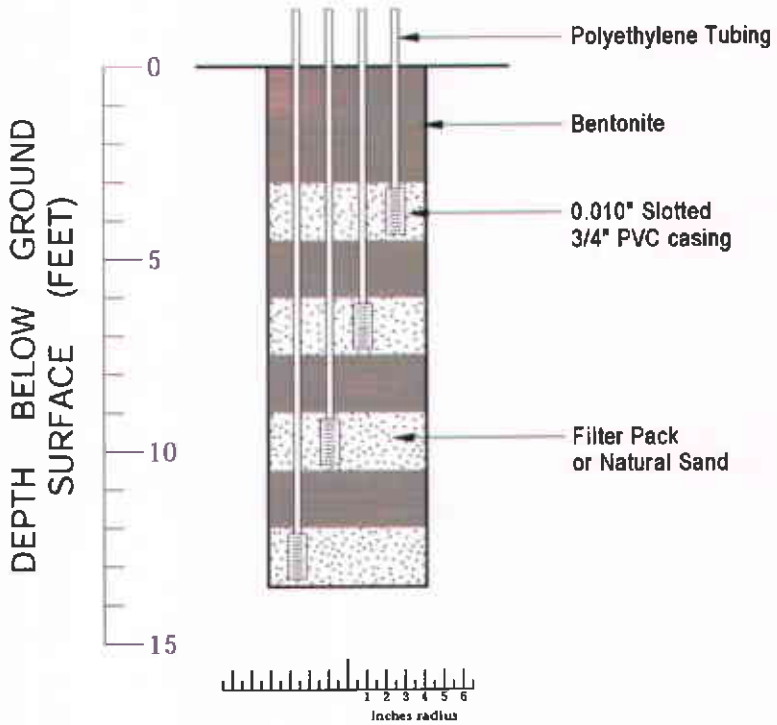

FIGURE
3

Former Chevron Station 9-0260

21995 Foothill Boulevard

Hayward, California

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Proposed Vapor Probe Construction Details

ATTACHMENT A

Standard Field Procedures for Soil Borings

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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. 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 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.