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20454

April 6, 2004

Mr. Barney Chan
Hazardous Materials Specialist
Alameda County Health Care Services Agency (ACHCSA)
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

Re: **Workplan for Additional Subsurface Investigation**
Former Chevron Service Station # 20-6145
800 Center Street
Oakland, California
Cambria Project No. 31E-2002

Dear Mr. Chan:

Cambria Environmental Technology, Inc. (Cambria) has prepared this workplan for the site referenced above on behalf of Chevron Environmental Management Company (Chevron) to further define residual hydrocarbon concentrations in soils beneath the site. We will not install wells at this time because further excavation of the property is expected to occur in the future to facilitate development plans. Our objective is to delineate vertical and horizontal soil impact at the site, especially at the northern and eastern boundaries of the property. The site background and our proposed investigation scope of work are described below.

SITE DESCRIPTION

Site Description: The site is a former Chevron gasoline service station located on the northeastern corner of the intersection of 8th Street and Center Street in Oakland, California. Local topography is relatively flat and the site is about 15 feet above mean sea level (Figure 1). The site is currently undeveloped. Both commercial and residential properties are located in the vicinity of the site. The site was first developed as a service station in 1932. Four 1,000-gallon fuel underground storage tanks (USTs) and one used oil UST were installed when the site was built. These USTs were removed in 1973 when the station was closed. The nearest surface water body is Oakland Inner Harbor, located approximately 1 mile south of the site.

Cambria Environmental Technology, Inc.

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SITE BACKGROUND

1989 Subsurface Investigation: In August 1989, Subsurface Consultants Inc. advanced soil borings B1 through B5 to depths ranging from 4.5 and 26 feet below grade (fbg) in the vicinity of the former USTs, dispenser island, and sumps along the eastern property boundary. Temporary wells were installed in borings B1 and B3. The highest concentrations of total petroleum hydrocarbons as diesel (TPHd), total petroleum hydrocarbons as gasoline (TPHg), and benzene in soil were 14,000 parts per million (ppm), 31,000 ppm, and 500 ppm, respectively. A soil sample collected from 3.5 fbg in boring B-5, near the former hydraulic hoist, contained 16,000 ppm oil and grease. No TPHd was detected in grab groundwater samples collected from borings B1 and B3. The groundwater sample from boring B3 contained benzene at a concentration of 340 parts per billion (ppb).

1995 Subsurface Investigation: In October 1995, Groundwater Technology Inc. advanced borings SB-1 through SB-3 to 12 fbg and installed groundwater monitoring wells MW-1 through MW-4 to 15 fbg. The highest detected concentrations of TPHg and benzene in soil were 14,000 ppm and 120 ppm, respectively.

1996 Subsurface Investigation: In March 1996, Pacific Environmental Group (PEG) advanced soil borings P-1 through P-9. The highest detected TPHg and benzene impacts in grab groundwater samples were found in boring P-2, located in Center Street at concentrations of 800,000 ppb and 13,000 ppb, respectively. The highest detected TPHg and benzene impacts in soil were found in boring P-3 at concentrations of 13,000 mg/kg and 41 mg/kg, respectively. In December 1996, PEG advanced offsite borings MW-5 through MW-8. All borings were converted into groundwater monitoring wells, except boring MW-8, because no evidence of petroleum hydrocarbons was observe in that boring. TPHG and benzene were not detected in any soil sample analyzed as part of this investigation.

1997 Soil Vapor Sampling: PEG advanced soil vapor points SV-1 through SV-5 to depths up to 12 fbg. The highest concentrations of TPHg and benzene in soil were 8,000 ppm and 52 ppm, respectively. The highest concentrations of TPHg and benzene in soil vapors were 50,000 ppb and 65 ppb, respectively. Hydrocarbon vapor concentrations in soil were highest in the interval between 6 and 10 fbg.

1999/2001 Site Demolition: Gettler-Ryan conducted the removal of the dispenser island, sumps, the hydraulic hoist, building foundations, garbage enclosure, yard lights and asphalt. A 1,000-

gallon UST, a 550-gallon used oil UST, and a buried 55-gallon drum (apparently a makeshift used oil UST) were encountered. This work was initiated in September 1999 and was postponed until April 2001, while Chevron and the property owner negotiated UST ownership. The 1,000-gallon UST, 550-gallon used oil UST, 55-gallon drum, and the hydraulic hoist were removed and compliance samples were collected and analyzed. The highest TPHg and benzene impacts in soil were found in soil from the former gasoline UST cavity at concentrations of 630 ppm and 10 ppm, respectively.

2002 Monitoring Well Installation: Gettler-Ryan installed groundwater monitoring well MW-8 offsite. No soil samples contained TPHd, TPHg, benzene, or methyl tertiary butyl ether (MTBE).

2002 Subsurface Investigation: Gettler-Ryan advanced soil borings GP-1 through GP-23 to approximately 12 fbg. Soil samples were collected at 5 and 10 fbg in each boring. The results were used to profile soil from the anticipated over-excavation event for landfill acceptance. Boring GP-9, at 10 fbg, contained the highest detected concentrations of TPHg and benzene in soil at 19,000 ppm and 83 ppm, respectively. The highest detected concentration of MTBE in soil was 170 ppm collected from boring GP-14 at 10 fbg.

2002 Over-excavation: Gettler-Ryan over-excavated soil in the areas of the former USTs, dispenser island, hydraulic lift, and sumps to a total depth of approximately 12 fbg in November 2002. Approximately 1,584 tons of hydrocarbon-impacted soil were removed from the site and transported to Allied Waste Landfill in Manteca, California. Thirty-four confirmation soil samples were collected during the over-excavation. Well MW-1 was destroyed by over-excavation during this event. Prior to backfilling, approximately 900 pounds of oxygen releasing compound was placed in the bottom of the over-excavations, and class II aggregate base was used for backfill.

2003 Soil Borings and Well installation: Gettler-Ryan advanced soil borings GP-24 through GP-30 to approximately 16 fbg, with soil samples collected at 5, 10, and 15 fbg. Monitoring well MW-1A was installed near former monitoring well MW-1. The highest detected concentration of TPHd was 1,600 ppm collected from both boring GP-27 at 15 fbg and GP-30 at 10 fbg. Boring GP-30, at 10 fbg, contained the highest detected concentrations of TPHg, benzene, and MTBE in soil at 16,000 ppm, 92 ppm and 150 ppm, respectively.

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PROPOSED SCOPE OF WORK

Our objective is to delineate vertical and horizontal soil impact at the site. To meet this objective, Cambria proposes to advance soil borings GP-31 through GP-44 with a direct push drill rig to approximately 20 fbg or until hydrocarbon-impacted soil is no longer observed (Figure 2). Borings in the previously excavated western half of the property will start at the depth of the excavation (approximately 12 fbg) and continue until no evidence of hydrocarbon impact is observed.

Sampling Protocol: Soil will be continuously cored to log sediments encountered. Soil samples will be collected in the capillary fringe and where hydrocarbon impact is observed or indicated with a photo ionization meter using a polyethylene macrocore barrel sampler driven into undisturbed sediments. If soils show no obvious hydrocarbon impact, soil samples will be collected at approximately five-foot intervals from the surface. Grab groundwater samples will be collected from each boring with disposable bailers. Soil and groundwater samples will be properly sealed, placed on ice, and transported under a chain of custody to a Chevron-approved, State-certified laboratory for analysis. A tremie pipe will be used to backfill the boring with Portland I/II cement once the boring is completed. The boring locations will be measured from a fixed point onsite and plotted on the site plan. Cambria's standard field procedures for soil borings are presented as Attachment A.

Chemical Analysis: [redacted] will be analyzed for TPHd and TPHg by modified EPA Method 8015, benzene, toluene, ethylbenzene, xylenes, and MTBE by EPA Method 8260B.

Site Health and Safety Plan: Prior to conducting field work Cambria will prepare a comprehensive site safety plan to protect site workers, including driving directions to the nearest emergency room. The plan will be kept on site during field activities. It will be reviewed and signed by each site worker before proceeding with the work.

Utility Location: In order to identify major utilities in the site vicinity, Cambria will notify Underground Service Alert (USA) of our drilling activities so that the USA subscribers can mark any of their utilities which may lie within the proposed work area. Chevron safety protocol requires that each boring be cleared to 8 fbg with an air or water knife as an additional safety measure to avoid drilling into underground utilities.

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Soil Disposal: Soil cuttings produced during field activities will be temporarily stored on site. Soil cuttings will be sampled for characterization. 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 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;
- An evaluation of the extent and origin of hydrocarbons in the subsurface and;
- Conclusions and recommendations.

SCHEDULE

Cambria will proceed with the proposed scope of work upon receiving written approval from the ACHCSA. After approval, Cambria will take approximately four to six weeks to obtain the necessary drilling permits and to schedule the subcontractors at their earliest availability. We will submit our investigation report approximately four to six weeks after completion of field activities.

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CLOSING

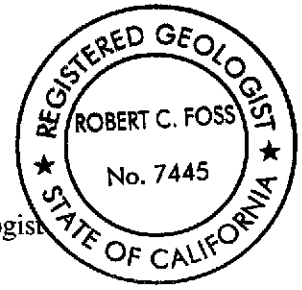
We appreciate the opportunity to work with you on this project. Please contact Sarah Owen at (510) 420-3350 or Robert Foss at (510) 420-3348 if you have any questions or comments regarding this work.

Sincerely,

Cambria Environmental Technology, Inc.

Melissa Terry
for
Sarah Owen
Staff Geologist

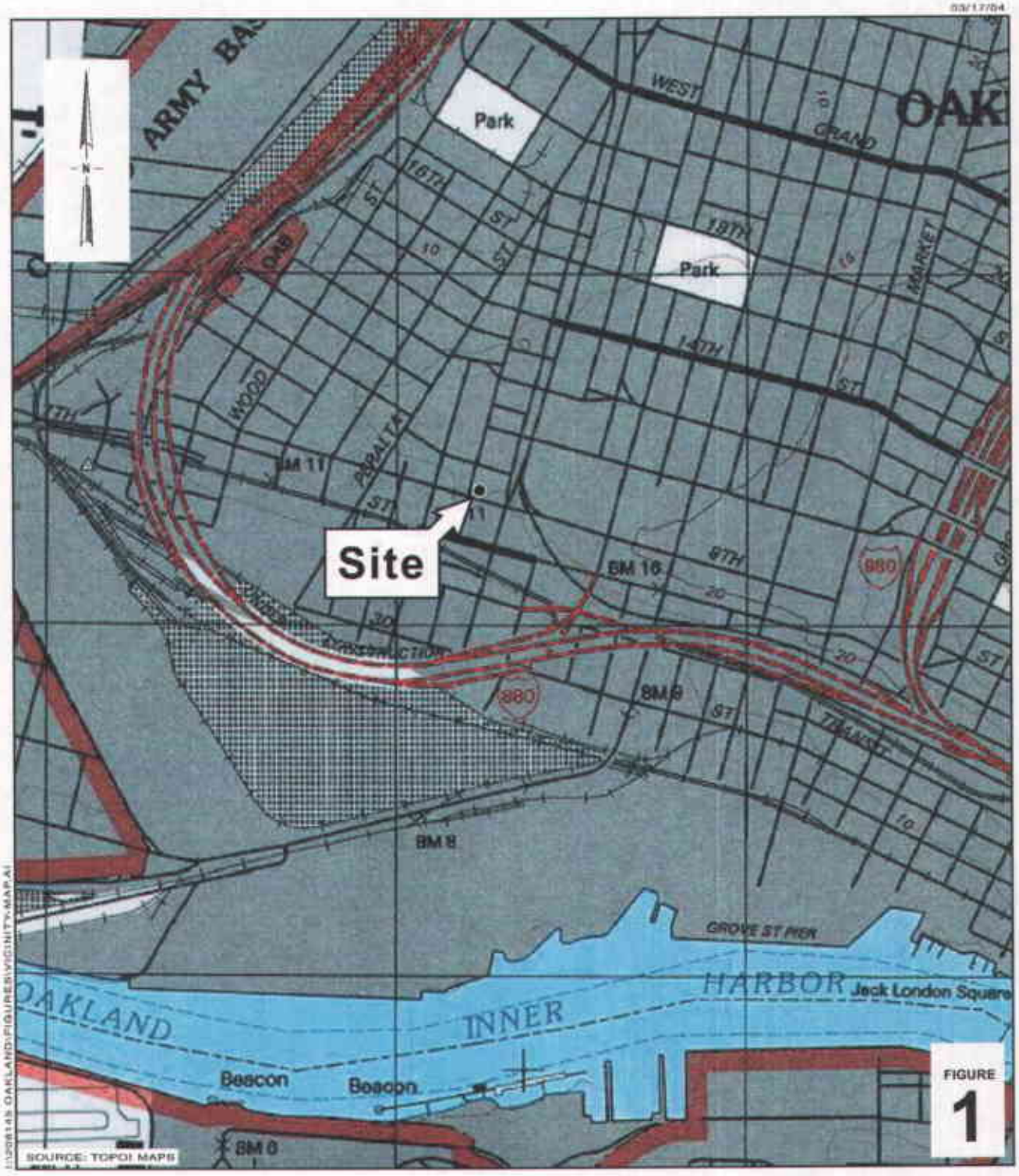
Robert Foss
Robert Foss, R.G.
Senior Project Geologist



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

Attachments: A – Standard Field Procedures for Soil Borings

cc: Ms. Karen Streich, Chevron Environmental Management Company, P.O. Box 6012, San Ramon, CA 94583
Mr. Terrell Sadler, 618 Brooklyn Avenue, Oakland, CA 94606
Mr. Hollis Rogers, c/o Mr. Victor Brown, 580 Grand Avenue, Oakland, CA 94610
Mr. Sunil Ramdass, SWRCB Cleanup Fund, 1001 1st Street, Sacramento, CA 95814



Chevron Service Station # 206145

800 Center Street

Oakland, California

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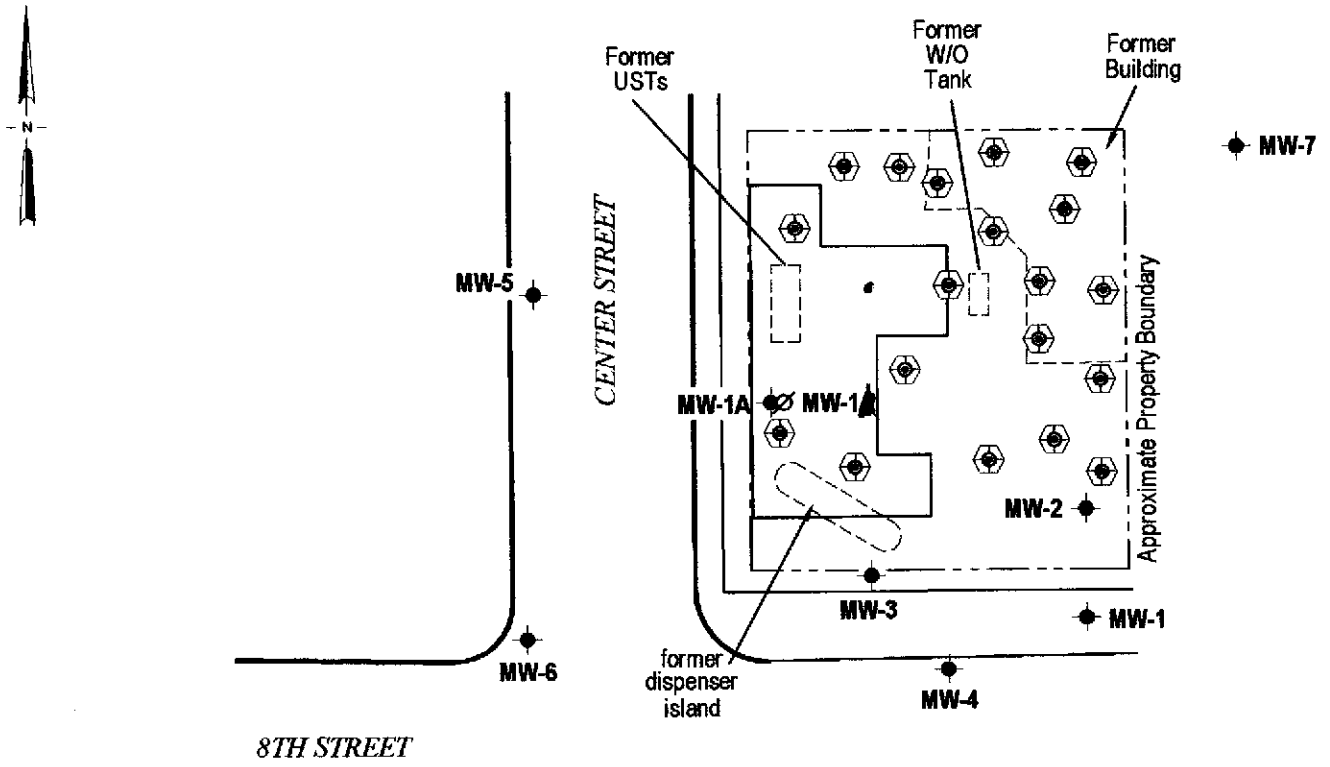
Vicinity Map



EXPLANATION

- MW-1A ⊕ Monitoring well location
- ⊕ Proposed soil boring location
- MW-1 ∅ Destroyed monitoring well location

0 20 40

Scale (ft)

FIGURE

2

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Chevron Service Station # 206145

800 Center Street

Oakland, California

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Site Plan and Proposed Boring Locations

ATTACHMENT A

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.

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