Environmental Management Company
6001 Bollinger Canyon Rd, K2256
P.O. Box 6012
San Ramon, CA 94583-2324
Tel 925-842-1589
Fax 925-842-8370

Karen Streich
Project Manager

R0251 ✓

ChevronTexaco

September 17, 2004
(date)

Alameda County Health Care Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: Chevron Service Station # 9-3864

Address: 5101 Telegraph Avenue, Oakland, CA

I have reviewed the attached report titled *Investigation Workplan* and dated September 17, 2004.

I agree with the conclusions and recommendations presented in the referenced report. The information in this report is accurate to the best of my knowledge and all local Agency/Regional Board guidelines have been followed. This report was prepared by Cambria Environmental Technology, Inc., upon whose assistance and advice I have relied.

This letter is submitted pursuant to the requirements of California Water Code Section 13267(b)(1) and the regulating implementation entitled Appendix A pertaining thereto.

I declare under penalty of perjury that the foregoing is true and correct.

Sincerely,

Karen Streich

Karen Streich
Project Manager

Enclosure: Report

CAMBRIA

September 17, 2004

Mr. Barney Chan
Alameda County Health Care Services Agency (ACHCS)
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: **Investigation Workplan**
Former Chevron Service Station 9-3864
5101 Telegraph Avenue
Oakland, California

Dear Mr. Chan:

On behalf of Chevron Environmental Management Company (Chevron), Cambria Environmental Technology, Inc. (Cambria), is submitting this Investigation Workplan for the site referenced above. Cambria proposes installing three groundwater monitoring wells to define the lateral extent of hydrocarbons up-gradient and down-gradient. Cambria will also complete a conduit study to determine if hydrocarbons are migrating along any preferential pathways, and a sensitive receptor survey to determine if there is any risk to receptors from site hydrocarbons. A brief site description is followed by Cambria's proposed scope of work.

SITE DESCRIPTION

The site is a former Chevron service station with one active monitoring well, C-3, on-site. Monitoring wells C-1 and C-4 were abandoned in December 1996, and C-2 was abandoned in February 1997 due to proposed site construction. Monitoring wells MW-1 through MW-5 were installed off-site in 1993 to assess the lateral plume stability. MW-4 was removed from the monitoring and sampling program in 1998 when the well was sold to Tri-Star because the groundwater constituents were determined to be originating from an off-site, up-gradient source.

The property is located on the northwest corner of the intersection of Telegraph Avenue and 51st Street in Oakland, California (Figure 1). A Chevron service station occupied the site from approximately 1970 to 1991, based on ChevronTexaco records. Surrounding site use is commercial and residential. Formerly the site facilities consisted of four underground storage tanks (USTs), two dispenser islands, and a station building (Figure 2). The site is currently occupied by two commercial retail buildings.

Cambria Environmental Technology, Inc.

4111 Citrus Avenue
Suite 9
Rocklin, CA 95677
Tel (916) 630-1855
Fax (916) 630-1856

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Site Geology: This site is located on a gently sloping plane west of the Piedmont Hills, approximately 2 miles east of San Francisco Bay, 1.5 miles north of Lake Merritt, and one mile northwest of Glen Echo Creek. The soil in the site vicinity consists of Late Pleistocene alluvium consisting of weakly consolidated, slightly weathered, poorly sorted, irregularly interbedded clay, silt, sand and gravel. Lithology encountered on-site consists of interbedded clayey silt, silt, sand, clayey and silty sand, and gravel with clay and sand.

Groundwater Conditions: Historically, depth to groundwater has fluctuated between approximately 6 fbg and 18 fbg. Groundwater has consistently flown in the south southwest direction. A rose diagram depicting historical groundwater flow direction is presented on Figure 2.

PROPOSED SCOPE OF WORK

Cambria proposes to install three monitoring wells in order to assess up-gradient and down-gradient conditions. One well is proposed up-gradient of the site, near former well C-1 (Figure 2), and two wells are proposed down-gradient of the site. Cambria will also complete a sensitive receptor survey to locate receptors within a 2,000 foot radius of the site. Our proposed scope of work is presented below.

Underground Utility Location: Cambria will contact Underground Service Alert to clear the well locations with utility companies. All three locations will be cleared to 8 fbg using an airknife vacuum truck prior to drilling.

Site Health and Safety Plan: Cambria will prepare a site safety plan to be reviewed and signed by all site workers and to be kept on-site at all times.

Permits: Cambria will obtain well permits from the ACHCSA prior to beginning field operations. A minimum of 48 hours of notice will be given to Alameda County prior to beginning drilling activities. Necessary encroachment permits will be obtained from the City of Oakland, including an approved traffic control plan.

Soil Borings: Cambria proposes advancing three soil borings. After clearing to 8 fbg, each of the borings will be advanced to approximately 30 fbg. Soil will be logged and sampled at 5 ft intervals beginning at 10 fbg. Attachment A contains Cambria's Standard Field Procedures for borings and well installations.

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Monitoring Well Installation: Each boring will be completed as a 2-inch diameter monitoring well constructed of schedule 40 PVC with 0.020 slotted screen. Monterey #2/12 sand will be used as filter pack. The screened interval will be from approximately [redacted]bg. Screened intervals may be adjusted as a result of field conditions. Cambria's standard field procedure for installing groundwater monitoring wells is provided in Attachment A. Well development, and groundwater sampling and documentation will be conducted by Gettler-Ryan Inc.

Soil Sample Selection: Soil samples will be selected for chemical analyses based on field screening for hydrocarbon vapors using a photo-ionization detector (PID),and visual observation of soil characteristics such as discoloration, sample depth relative to the capillary fringe and lithology.

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

- Total petroleum hydrocarbons as gasoline (TPHg) by EPA Method 8015M,
- Benzene, toluene, ethylbenzene, xylenes (BTEX), methyl tert-butyl ether (MTBE), di-isopropyl ether (DIPE), ethyl tert-butyl ether (ETBE), tert-amyl methyl ether (TAME), tert-butyl alcohol (TBA), and lead scavangers 1,2-dichloroethane (1,2-DCA), and ethylene dibromide (EDB) by EPA Method 8260B.
- The up-gradient well will also be analyzed for total petroleum hydrocarbons as diesel (TPHd) by EPA Method 8015M to determine the extent of migration of the off-site, up-gradient plume.

Well Development and Sampling: The well will be developed using surge block agitation and excavation. Gettler-Ryan Inc., of Dublin, California, will sample the wells no sooner than 72 hours after development.

Well Elevation Survey: The well location and top of casing will be surveyed to mean sea level by a California registered land surveyor.

Soil and Water Disposal/Recycling: Soil and water produced during field activities will be temporarily stored on-site. Soil cuttings will be stockpiled on plastic and covered with plastic on-site. Rinsate and development water will be stored in drums. Following review of laboratory analytical results, the soil and water will be transported to a ChevronTexaco approved facility for disposal/recycling.

Geotracker Upload: Once all of the necessary data is received, the data and a current sitemap will be uploaded to the State Water Resources Control Board GeoTracker database as required in sections 2729 and 2729.1 of the California Code of Regulations for UST sites.

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Reporting: After the analytical results are received, a subsurface investigation report will be prepared containing, at a minimum:

- A summary of the site background and history,
- Descriptions of the drilling and soil sampling methods,
- Boring logs,
- Tabulated soil and groundwater analytical results,
- A figure illustrating well locations,
- Analytical reports and chain-of-custody forms,
- A discussion of lateral and vertical extent of hydrocarbons in soil and groundwater,
- A discussion of risks to human health,
- A discussion of sensitive receptors and conduits in the area, and
- Conclusions and recommendations.

SCHEDULE AND CLOSING

Cambria will carry out this scope of work upon receiving written approval from the ACHCSA. We will submit our investigation report approximately six to eight weeks after receiving analytical results.

Please contact Ms. Sara Giorgi (ext. 103) or Mr. Bruce Eppler (ext. 102) at (916) 630-1855 with any questions or comments regarding the site or this workplan.

Sincerely,

Cambria Environmental Technology, Inc.

Sara Giorgi
Senior Staff Geologist

Roger Nommensen, R.G.
Project Geologist

Figures: 1 – Vicinity Map
2 – Proposed Monitoring Well Locations

Attachments: A – Standard Field Procedures for Borings and Wells

cc: Ms. Karen Streich, Chevron Environmental Management Company, P.O. Box 6012, K2256, San Ramon, CA 94583-0804

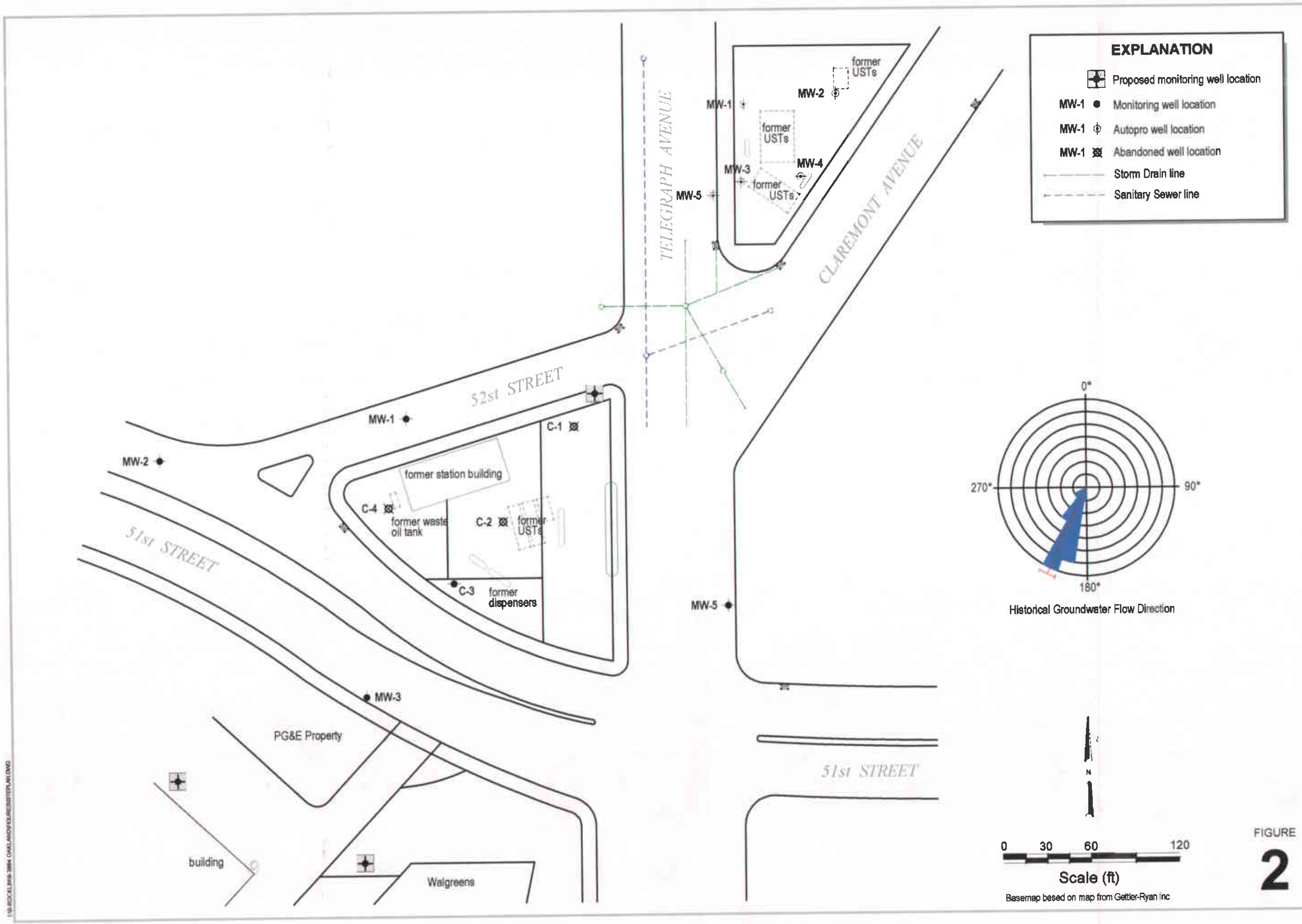

FIGURE
2

Site Plan

Former Chevron Station 9-3864
5101 Telegraph Avenue
Oakland, California

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ATTACHMENT A

Standard Field Procedures for Borings and Wells

STANDARD FIELD PROCEDURES FOR MONITORING WELL INSTALLATION

This document presents standard field methods for drilling and sampling soil borings and installing, developing and sampling groundwater monitoring wells. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

DRILLING AND SAMPLING

Objectives

Soil samples are collected to characterize subsurface lithology, assess whether the soils exhibit obvious hydrocarbon or other compound vapor or staining, and to collect samples for analysis at a State-certified laboratory. All borings are logged using the Unified Soil Classification System by a trained geologist working under the supervision of a California Registered Geologist (RG).

Soil Boring and Sampling

Soil borings are typically drilled using hollow-stem augers or direct-push technologies such as the Geoprobe®. 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.

Soil samples are collected at least every five ft to characterize the subsurface sediments and for possible chemical analysis. 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 at the bottom of the borehole.

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 Analysis

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 4o 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 volatile vapor analyzer measures volatile hydrocarbon vapor concentrations in the tube headspace, extracting the vapor through a slit in the cap. Volatile vapor analyzer measurements are used along with the field observations, odors, stratigraphy and groundwater 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 groundwater 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. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. An equipment blank may be analyzed if non-dedicated sampling equipment is used.

MONITORING WELL INSTALLATION, DEVELOPMENT AND SAMPLING

Well Construction and Surveying

Groundwater monitoring wells are installed to monitor groundwater quality and determine the groundwater elevation, flow direction and gradient. Well depths and screen lengths are based on groundwater depth, occurrence of hydrocarbons or other compounds in the borehole, stratigraphy and State and local regulatory guidelines. Well screens typically extend 10 to 15 fee below and 5 feet above the static water level at the time of drilling. However, the well screen will generally not extend into or through a clay layer that is at least three feet thick.

Well casing and screen are flush-threaded, Schedule 40 PVC. Screen slot size varies according to the sediments screened, but slots are generally 0.010 or 0.020 inches wide. A rinsed and graded sand occupies the annular space between the boring and the well screen to about one to two feet above the well screen. A two feet thick hydrated bentonite seal separates the sand from the overlying sanitary surface seal composed of Portland type I,II cement.

Well-heads are secured by locking well-caps inside traffic-rated vaults finished flush with the ground surface. A stovepipe may be installed between the well-head and the vault cap for additional security.

The well top-of-casing elevation is surveyed with respect to mean sea level and the well is surveyed for horizontal location with respect to an onsite or nearby offsite landmark.

Well Development

Wells are generally developed using a combination of groundwater surging and extraction. Surging agitates the groundwater and dislodges fine sediments from the sand pack. After about ten minutes of surging, groundwater is extracted from the well using bailing, pumping and/or reverse air-lifting through an eductor pipe to remove the sediments from the well. Surging and extraction continue until at least ten well-casing volumes of groundwater are extracted and the sediment volume in the groundwater is negligible. This process usually occurs prior to installing the sanitary surface seal to ensure sand pack stabilization. If development occurs after surface seal installation, then development occurs 24 to 72 hours after seal installation to ensure that the Portland cement has set up correctly.

All equipment is steam-cleaned prior to use and air used for air-lifting is filtered to prevent oil entrained in the compressed air from entering the well. Wells that are developed using air-lift evacuation are not sampled until at least 24 hours after they are developed.

Groundwater Sampling

Depending on local regulatory guidelines, three to four well-casing volumes of groundwater are purged prior to sampling. Purging continues until groundwater pH, conductivity, and temperature have stabilized. Groundwater samples are collected using bailers or pumps and 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. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. An equipment blank may be analyzed if non-dedicated sampling equipment is used.

Waste Handling and Disposal

Soil cuttings from drilling activities are usually stockpiled onsite and covered by plastic sheeting. At least three individual soil samples are collected from the stockpiles and composited at the analytic laboratory. The composite sample is analyzed for the same constituents analyzed in the borehole samples in addition to any analytes required by the receiving disposal facility. Soil cuttings are transported by licensed waste haulers and disposed in secure, licensed facilities based on the composite analytic results.

Groundwater removed during development and sampling is typically 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. Upon receipt of analytic results, 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.