

## APPENDIX B

### GENERAL FIELD PROCEDURES

The following sections outline the general field procedures and protocols followed by Pinnacle Environmental Technologies (Pinnacle) in the completion of field tasks. Some but not necessarily all of these procedures were used during this investigation. Any deviation from the procedures outlined here due to unique or unforeseen circumstances will be noted in the body of the applicable report. The following tasks are detailed:

- Soil Sample Collection - Direct Push Rigs, Hollow Stem Auger Sampling
- Soil Classification and Logging
- Chain-of-Custody Protocol

#### Soil Sample Collection

Soil samples are collected to allow soil description/classification and for laboratory analysis. Samples may be collected using a variety of different techniques including: hollow stem auger rigs (drop hammer samplers), direct push rigs, composite grab samplers, or excavation samples. The sampling technique utilized will be selected based on the particular phase of work and sample requirements. All soil samples collected during drilling operations are also monitored for volatile organic vapors. This is accomplished using a photo-ionization detector (PID) and LEL meter to monitor the soil either at the ends of sample tubes or after it has been placed in sealed Ziploc bags. The maximum PID and LEL readings are recorded on the boring log. Field headspace readings are also used to determine if a soil sample will be analyzed in the laboratory.

#### Direct-Push Drill Rigs

Samples collected using direct-push techniques are collected in either brass/stainless steel tubes or acetate sleeves. The sampling device is advanced using hydraulic pressure and a hammer into undisturbed soil ahead of the sampler. The sleeves or tubes are removed from the sampling device after retrieving the sampler from the boring. If acetate sleeves are used, the sleeve is examined and the sample portion selected for laboratory analysis is cut off from the main sleeve. A 4 to 6-inch portion is typically removed for laboratory analysis. After the sample tubes are retrieved from the sampler, each tube is sealed using Teflon tape and plastic end caps. Each sample tube is labeled with the sample identification, date and time of sampling, and sample site identification. The sample is then placed in a cooler chilled with either blue ice or “wet” ice for transport to the laboratory.

### Hollow Stem Auger Sampling

Hollow stem auger samples are typically collected in split tube samples, “California” samplers, or Shelby tubes. When a sample for laboratory analysis or standard penetration test (SPT) data is required, the sampler is driven into undisturbed soil with a down hole or standard 140 pound geotechnical hammer. The sampler is lined with brass/stainless steel (if required for metal analysis) tubes for handling the undisturbed samples at the surface. Tubes are not used for SPTs. After bringing the sampler to the surface and removing the tubes with sample, they are handled as described earlier in this section. Samples for description are released from the sampler shoe and placed into a Ziploc bag for headspace analysis and visual inspection. Disturbed samples for geotechnical analysis are placed in Ziploc bags.

All augers, rods and/or samplers used to collect soil at the Site were steam-cleaned between locations.

### Soil Classification and Logging

Soils are classified in the field in conformance with the Unified Soil Classification System (USCS-ASTM D2487).

A boring log is maintained for soil borings and well installations. Each log records the sample identification, collection location, depth and interval; number of blows required for sample collection (drop hammer samplers only); USCS soil type, color, field density estimation, field moisture content estimation, physical characteristics (grain size, sorting, roundness, odors, and other distinguishing characteristics); and, time of sample collection.

If a boring is not converting to a well, it is backfilled with either hydrated bentonite chips, Volclay grout, bentonite cement, Portland cement, or a combination of the above. Borings are backfilled in accordance with any prevailing local standards and regulations.

### Chain-of-Custody Protocol

All soil samples that are collected are documented using chain-of-custody (COC) procedures. Each sample is identified and entered onto the COC record along with the date and time of collection and the type and number of sample containers. COC documents also typically used to document which analyses are completed on each sample. The COC follows the samples from the field to the laboratory and is a legal document recording who had possession of the samples at all times.

The soil samples were delivered to the laboratory on the day of sample collection. They were immediately put into a refrigerator after acceptance by the laboratory.