GeoEngineers

APPENDIX D
FIELD PROCEDURES

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SOIL SAMPLING

Soil samples were collected using a track-mounted excavator bucket or by hand directly from the excavation limits. Discrete soil samples were obtained by hand using a decontaminated stainless steel trowel. In general, the samples were obtained from undisturbed soil located approximately 3 inches to 6 inches into undisturbed soil in the sidewalls or base of the excavation. Each sample location was mapped. The sampling frequency was generally as follows:

Description	Sample Frequency
Excavation Base	One discrete sample spaced approximately 40-foot on center (staggered). In some instances, the sample density was increased for further characterization. Soil samples were obtained from locations representative of unexcavated soil.
Excavation Sidewalls	One discrete soil sample at approximately 40-feet on center. In some instances, the sample density was increased for further characterization. Soil samples were obtained from locations representative of unexcavated soil.

A portion of each sample was retained for logging and field screening. Selected samples were submitted for chemical analysis. EPA- and Ecology-recommended sample handling procedures were followed including, but not limited to: immediately placing soil samples in 4-ounce laboratory-prepared glass sample containers; filling each 4-ounce container completely to minimize headspace; and/or placing the sample containers in labeled and iced coolers during transport to the laboratory. Chain of custody procedures were followed during sample storage and in transport to the testing laboratory. Field records indicating the sample identification and the origin of the sample were maintained.

Logging of Soil Samples

Soil samples obtained from the excavation were visually observed and the soil type classified in general accordance with American Society for Testing and Materials (ASTM) D-2488-90. Soil classifications were included in the field sample log information.

Field Screening

The field screening methods for this project were as follows:

- Visual screening consists of inspecting the soil for stains indicative of petroleum-related contamination.
- Water sheen screening involves placing soil in water and observing the water surface for signs of sheen. Sheen screening may detect both volatile and nonvolatile petroleum hydrocarbons. Sheen classifications are as follows:

No Sheen (NS)	No visible sheen on water surface.
Slight Sheen (SS)	Light, colorless, dull sheen; spread is irregular, not rapid; sheen dissipates rapidly. Natural organic matter in the soil may produce a slight sheen.
Moderate Sheen (MS)	Light to heavy sheen; may have some color/iridescence; spread is irregular to flowing, may be rapid; few remaining areas of no sheen on water surface.
Heavy Sheen (HS)	Heavy sheen with color/iridescence; spread is rapid; entire water surface may be covered with sheen.

Field screening results are site-specific. The results may vary with temperature, moisture content, soil lithology, organic content and type of contaminant. The presence or absence of a sheen does not necessarily indicate the presence or absence of petroleum hydrocarbons.

EQUIPMENT RINSATE SAMPLING PROCEDURE

The rinsate sample was collected after cleaning and decontamination of the sampling trowel under normal operating conditions. Collection of a rinsate sample was conducted by pouring purified water over the apparatus and into the sample containers.

DEWATERING FLUID SAMPLING

Dewatering fluid stored in the East and West Storage tanks at the site were sampled to characterize the fluid for disposal. New polyethylene tubing was used to obtain a sample from each tank. A siphon was established with the new tubing in each tank and the fluid transferred to laboratory-supplied containers. The tubing was slowly moved up and down in the water column of each tank to obtain a representative sample from the tank. Fluid was transferred to the sample containers by decanting the fluid down the side of the container. Each sample container was filled to reduce headspace.