

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

The following items are applicable to this modification:NOTES: AMENDMENT 1

**Wyckoff/Eagle Harbor Superfund Site
Bainbridge Island, Washington
Soils and Groundwater Operable Units Thermal Remediation Pilot Study
Scope of Work for Physical Testing Services,**

This Scope of Work (SOW) is for analytical laboratory services to support the Wyckoff Groundwater Operable Unit Thermal Remediation Pilot Study Project. In-house staff from Technical Services Branch will be collecting subsurface soil samples from the Former Process Area at the Wyckoff Facility on Bainbridge Island, Washington as part of a pre-remediation data collection program. These samples will be shipped to Core Laboratories, Inc. in Bakersfield, CA via Federal Express.

Three field samples will be shipped to Core Laboratories. The samples sent to Core will be analyzed for thermal properties using the Standard Operating Procedure (SOP) developed by the University of California at Berkeley (Attachment 1), as well as analyzed for pressure saturation by ASTM Method D425M. The samples will be collected and shipped in sample tubes (minimum diameter 1.5 inches). If field conditions preclude collecting and shipping the samples in tubes, blow counts will be provided to the laboratory to allow the sample to be re-packed at the approximate in-situ density. ***Procedure for the tests will be as follows:***

- 1) Determine bulk density per method API RP40.
- 2) Dry the sample.
- 3) Perform Thermal Capacity Test and Thermal Conductivity Test as per UC, Berkeley SOP. Each test will be conducted on three individual samples. ~~For each test, one~~ Each sample will be tested at four temperatures (30°, 60°, 90°, 120° C). ~~The other two samples will be tested at a single temperature (60°).~~
- 4) Determine dry bulk density of the tested sample by method API RP40.
- 5) Determine pressure saturation on all three samples by ASTM Method D425M.

Core Laboratories will provide the standard Corps of Engineers deliverable including case narrative, and cooler receipt forms Not Later Than ~~August 30, 2002~~ September 18, 2002 from sample receipt.

Table 1. Supplemental Investigation Sampling Objectives

ANALYTICAL METHOD	MATRIX	NUMBER OF FIELD SAMPLES (F= Field; RI= Rinsate; TB= Trip Blank)						CONTAINER, PRESERVATION
		F	QC	QA	RI	TB	TOTAL	
Bulk Density by Method API RP40*	Soil	3	-	-	-	-	3	Minimum sample size, 1.0" x 1.0" core tube; if sample cannot be collected or shipped in tubes, provide lab with blow counts; ship on ice
Number of Containers		3	-	-	-	-	3	
Thermal Conductivity	Soil	3 ₁₂	-	-	-	-	3 ₁₂	Minimum sample size, 1.0" x 1.0" core tube; if sample cannot be collected or shipped in tubes, provide lab with blow counts; ship on ice
Number of Containers		3	-	-	-	-	3	
Heat Capacity	Soil	3 ₁₂	-	-	-	-	3 ₁₂	Minimum sample size, 1.0" x 1.0" core tube; if sample cannot be collected or shipped in tubes, provide lab with blow counts; ship on ice
Number of Containers		3	-	-	-	-	3	
Pressure Saturation by ASTM Method D425M	Soil	3	+0	-	-	-	4 3	Minimum sample size, 1.5" x 1.25" core tube; if sample cannot be collected or shipped in tubes, provide lab with blow counts
Number of Containers		3	+0	-	-	-	4 3	

*Note: Bulk Density to be measured before and after Thermal Conductivity and Heat Capacity measurements using the same three samples.

See test procedures on the previous page.

Changes effective August 9, 2002