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Shaw Environmental & Infrastructure, Inc.

Geotechnical Laboratory
304 Directors Drive
Knoxville, TN 37923
(865) 690-3211**CERTIFICATE OF ANALYSIS**

Mr. Michael Neely
CH2M Hill Plateau Remediation Company
P.O. Box 1600
Mail Stop – B6-06
Richland, WA 99352

October 8, 2010

This is the Certificate of Analysis for the following samples:

Shaw Project ID: Eberline Analytical
Shaw Project Number: 139736
Date Received by Lab: 09/20/2010
Number of Samples: One
Sample Type: Soil

I. Introduction/Case Narrative

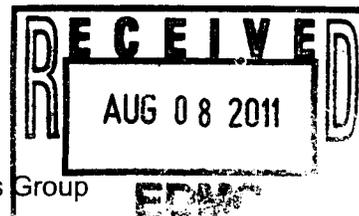
One soil sample was received by the Shaw Geotechnical Laboratory on September 20, 2010. The sample was submitted for determination of bulk density (ASTM D 2937) as listed on the Chain of Custody/Sample Analysis Request. The sample number received was B27K75.

Please see Appendix A, Sample Number Cross Reference List; Appendix B, Analysis Results; Appendix C, Chain-of-Custody/Sample Receipt Records.

"I certify that this data package is in compliance the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the laboratory manager or a designee, as verified by the following signature."

Reviewed and Approved:

R. Gregory Bennett
Geotechnical Laboratory Manager, Technology Applications Group



II. Analytical Results/Methodology

REFERENCES: United Nations, *Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria*, third ed. New York, 1999. United States Army Corps of Engineers (USACE), Engineer Manual 1110-2-1906, *Laboratory Soils Testing*, appendix II, 1970; United States Environmental Protection Agency, SW846, *Test Methods for Examining Solid Waste, Physical/Chemical Methods*, 3rd ed., Nov 1986 (EPA SW-846). Annual Book of ASTM Standards, Section 4, Construction, Volume 04.08, *Soil and Rock (I)*, and Volume 04.09, *Soil and Rock (II)*, 2008. Shaw Environmental and Infrastructure, Standard Operating Procedures.

Bulk Density **ASTM D 2937**

III. Quality Control

Quality control checks such as duplicates and spikes (QC samples), are not normally applicable to geotechnical testing. This is due largely to the inability of obtaining samples with known characteristics, the heterogenous nature of the samples, and quality control procedures built-in to the analytical method.

QC measures to ensure accuracy and precision of test results include the following:

- 100% verification of all numerical results - raw data entries, transcriptions and calculations entered by lab technicians are checked, recalculated and verified. Most data calculations are performed by computer programs.
- Data validation through test reasonableness - summaries of all test results for individual reports are reviewed to determine the overall reasonableness of data and to determine the presence of any data that may be considered outliers.
- Quality control procedures are built into most standardized geotechnical procedures. For example, liquid limit and plastic limit analyses call for re-analyses and specify acceptance criteria.
- Routine instrument calibration - instruments, gauges and equipment used in testing are calibrated on a routine basis. All instrument calibration follows ASTM or manufacturer guidelines.
- Maintenance of all past calibration records - calibration records and certification documents of all instruments, gauges and equipment are updated routinely and maintained in the Quality Control Coordinators Quality/Operations files.

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Report No.: EBER1110028
Mr. Michael Neely
Client: CH2M Hill Plateau Remediation Company
Shaw Project Name: Eberline Analytical
Shaw Project No.: 139736

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- Certified and trained personnel - all technicians are trained in the application of standard laboratory procedures for geotechnical analyses as well as the quality assurance measures implemented by Shaw.
- Quantitative analyses frequently used in geotechnical/physical testing programs do not use QC tools common to wet chemistry or radiochemistry laboratories. Measures not employed in the analysis of samples reported in this report include: laboratory control samples (LCS), blanks, matrix spikes (MS), duplicate analyses, dilutions, digestions, correction factors, surrogate sample analyses, detection limit determinations, control charts, and/or tentatively identified compounds (TICs).

IV. Data Qualification

None

Appendix A
Sample Cross-Reference List

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Report No.: EBER1110028
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Shaw Project Name: Eberline Analytical
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SAMPLE NUMBER CROSS-REFERENCE LIST

Lab Sample ID	Client Sample ID	MATRIX
SEK 4954	B27K75	SOIL

Appendix B
Data Results

Appendix C
Chain of Custody Records

