



Shaw Environmental & Infrastructure, Inc.

RECEIVED MARCH 10, 2011

1212442

Geotechnical Laboratory
304 Directors Drive
Knoxville, TN 37923
(865) 690-3211

*EBER 02 11065
KB
3-23-11*

CERTIFICATE OF ANALYSIS

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

March 10, 2011

This is the Certificate of Analysis for the following samples:

Shaw Project ID: Eberline Analytical
Shaw Project Number: 139736
Date Received by Lab: 02/24/11
Number of Samples: One (1)
Sample Type: Soil

I. Introduction/Case Narrative

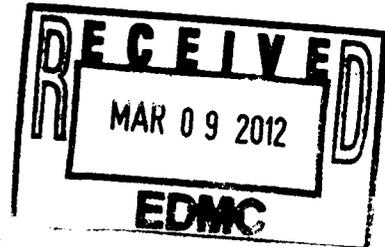
One (1) soil sample was received by the Shaw Geotechnical Laboratory on February 24, 2011. The sample was submitted for determination of moisture content, particle size, and cation exchange capacity (CEC) as listed on the Chain of Custody/Sample Analysis Request. The sample number for the received sample was B2BP70.

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

"I certify that this data package is in compliance with 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.

Moisture Content.....	ASTM D 2216
Particle Size (sieve only).....	ASTM D 422
Cation Exchange Capacity.....	SW-846 9081

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.

- 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

Page 4 of 8
Report No.: EBER0211065
Mr. Michael Neely
Client: CH2M Hill Plateau Remediation Company
Shaw Project Name: Eberline Analytical
Shaw Project No.: 139736

Shaw
Geotechnical Laboratory
Knoxville, TN
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SAMPLE NUMBER CROSS-REFERENCE LIST

Lab Sample ID	Client Sample ID	MATRIX
SEK 5494	B2BP70	SOIL

Appendix B
Data Results

PARTICLE-SIZE DISTRIBUTION
ASTM D 422

Project Name Eberine

Field Sample No. B2BP70

Project No. 139736.13000000

Lab Sample No. SEK 5494

Moisture Content = 6.8%

SIEVE ANALYSIS

C O A R S E	Sieve No.	Diameter mm	Percent Finer
	3"	75.000	100.0%
	1.5"	37.500	100.0%
	0.75"	19.000	100.0%
	0.375"	9.500	100.0%
	#4	4.750	99.0%
	#10	2.000	97.8%

F I N E	Sieve No.	Diameter mm	Percent Finer
	#20	0.850	93.1%
	#40	0.425	83.2%
	#60	0.250	76.5%
	#100	0.149	62.6%
	#140	0.106	45.3%
	#200	0.075	20.2%

1.0% Gravel

78.8% Sand

20.2% Silt/Clay

Appendix C
Chain of Custody Records

9165

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

PROJECT COORDINATOR: BAUER, RG
 PRICE CODE: 8C
 DATA TURNAROUND: 15 Days / 15 Days

SAF NO. F11-068
 AIR QUALITY

COA: 3024ZTES10
 METHOD OF SHIPMENT: FEDERAL EXPRESS
 ORIGINAL

SEE PTR: 7744 5730 2508

COMPANY CONTACT: WIDRIG, DL
 TELEPHONE NO.: 376-2858

PROJECT DESIGNATION: Ecological Baseline Risk Assessment - Soils

FIELD LOGBOOK NO.: HNF-N-507-16-31
 ACTUAL SAMPLE DEPTH: 0-1311

OFFSITE PROPERTY NO.: 2293

COLLECTOR: KC Patterson
 CHPRC

SAMPLING LOCATION: Target 5-4 Dup
 ICE CHEST NO.: 605-139

SHIPPED TO: Shaw Group

MATRIX*	POSSIBLE SAMPLE HAZARDS / REMARKS	PRESERVATION	HOLDING TIME	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS	SAMPLE DATE	SAMPLE TIME
A=Air DL=Drum L=Liquid DS=Drum S=Soil O=Oil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order S400.5 (1-95/01993)	None	None	G/P	1	1000mL	Particle Size (Dry Sieve) - D47.5	FEB 16 2011	0905
		None	None	G/P	1	200g	CATION EXCHANGE CAPACITY	FEB 16 2011	1200
		Moisture Resistant	Moisture Resistant		1		Moisture Content - D216	FEB 23 2011	1130

BILL OF LADING/AIR BILL NO. 7744 5730 2508

SEE PTR 7744 5730 2508

5.0 lbs

SEK 5494

COMPANY CONTACT: WIDRIG, DL
 TELEPHONE NO.: 376-2858

PROJECT DESIGNATION: Ecological Baseline Risk Assessment - Soils

FIELD LOGBOOK NO.: HNF-N-507-16-31
 ACTUAL SAMPLE DEPTH: 0-1311

OFFSITE PROPERTY NO.: 2293

COLLECTOR: KC Patterson
 CHPRC

SAMPLING LOCATION: Target 5-4 Dup
 ICE CHEST NO.: 605-139

SHIPPED TO: Shaw Group

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	SIGN/PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME
11	SOIL	FEB 16 2011	0905	<i>[Signature]</i>	SSU-1	FEB 16 2011 1200
11	SOIL	FEB 23 2011	1130	<i>[Signature]</i>	L.D. Wall	FEB 23 2011 1130
11	SOIL	FEB 23 2011	1400	<i>[Signature]</i>	FEDBY	FEB 23 2011 1400

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM: KC Patterson
 DATE/TIME: FEB 16 2011 1200

RELINQUISHED BY/REMOVED FROM: CHPRC
 DATE/TIME: FEB 23 2011 1130

RELINQUISHED BY/REMOVED FROM: L.D. Wall
 DATE/TIME: FEB 23 2011 1400

RELINQUISHED BY/REMOVED FROM: [Blank]
 DATE/TIME: [Blank]

LABORATORY SECTION: RECEIVED BY: *[Signature]*
 DISPOSAL METHOD: SCIENTIST

FINAL SAMPLE DISPOSITION: DATE/TIME: 2-24-11 / 13:00

PRINTED ON 2/8/2011