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Shaw Environmental & Infrastructure, Inc.

Geotechnical Laboratory
 1570 Bear Creek Road
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 (865) 482-6497

CERTIFICATE OF ANALYSIS

Stephen Trent
 Fluor Hanford, Inc.
 825 Jadwin Avenue
 Richland, Washington 99352

October 30, 2008

This is the Certificate of Analysis for the following samples:

Shaw Project ID:	Eberline - Hanford
Shaw Project Number:	100846.750000
Client SDG Number:	H3753
Date Received by Lab:	May 19 and May 27, 2008
Number of Samples:	Two (2)
Sample Type:	Soil <i>100-056</i>

I. Introduction/Case Narrative

Two soil samples were received by the Shaw Geotechnical Laboratory on May 19, 2008. The samples were submitted for determination of moisture content. The sample numbers received were B1V2J3 and B1VJ4. Results for the latter sample have been reported under another SDG.

One soil sample was received by the Shaw Geotechnical Laboratory on May 27, 2008. The sample was submitted for determination of moisture content. The sample number received was B1V2J2.

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:

Ralph Cole
 Laboratory Manager, Geotechnical Services

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II. Analytical Results/Methodology

REFERENCES: 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 of Soil and RockASTM D 2216

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

The entire contents of the sample container was used to determine the moisture content of the sample.

Appendix A
Sample Cross-Reference List

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Stephen Trent
Fluor Hanford, Inc.
Shaw Project Name: Eberline Hanford
Shaw Project No. 100846.75000000
SDG No. H3753

**Shaw Geotechnical
Laboratory
Kingston TN
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SAMPLE NUMBER CROSS-REFERENCE LIST

LAB SAMPLE NO.	CLIENT SAMPLE NO.	MATRIX
BC1378	B1V2J4	Soil
BC1385	B1V2J2	Soil

Appendix B
Data Results

Appendix C
Chain of Custody Records

Fluor Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F08-056-111	PAGE 1 OF 1
COLLECTOR NCO Sampler <i>Fulton</i>		COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR WDRIG, DL	PRICE CODE 8N	DATA TURNAROUND 45 Days / 45 Days	
SAMPLING LOCATION CS937, I-SSP1		PROJECT DESIGNATION GW Monitoring Wells at 100-HR-3 (100-D OU)		SAF NO. F08-056	AIR QUALITY <input type="checkbox"/>		
ICE CHEST NO. <i>GRP-08-01</i>		FIELD LOGBOOK NO. <i>HNR-V-585-4</i>	ACTUAL SAMPLE DEPTH <i>81.9-93.6'</i>	COA 122577ES10	METHOD OF SHIPMENT FEDERAL EXPRESS		
SHIPPED TO Shaw Group		OFFSITE PROPERTY NO. See PTR		BILL OF LADING/AIR BILL NO. See PTR			
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)	PRESERVATION None					BC 1378
TYPE OF CONTAINER Moisture Resistant Cont							
NO. OF CONTAINER(S) 1							
VOLUME 200g							
SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS Moisture Content - D2216;					
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B1V2J4	SOIL	5-14-08	0940	✓			
CHAIN OF POSSESSION				SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>Chris Fulton</i>	DATE/TIME <i>5-14-08 1030</i>	RECEIVED BY/STORED IN <i>Mo 745 Friga #1</i>	DATE/TIME <i>5-14-08 1030</i>	** Samples are being collected by Fluor Hanford for Washington Closure Hanford. They will be placed in the bottles labeled "Generic Testing". Sample @ 83 to 85 Feet			
RELINQUISHED BY/REMOVED FROM <i>Mo-745-REF</i>	DATE/TIME <i>5/15/08 11:00</i>	RECEIVED BY/STORED IN <i>Bea.../B...</i>	DATE/TIME <i>5/15/08 11:00</i>				
RELINQUISHED BY/REMOVED FROM <i>DUB...</i>	DATE/TIME <i>5/15/08 13:00</i>	RECEIVED BY/STORED IN <i>RED EX</i>	DATE/TIME				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
LABORATORY SECTION	RECEIVED BY <i>Don Huskey</i>	TITLE <i>SR. LAB TECH.</i>	DATE/TIME <i>5/19/08 0930</i>				
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD <i>SHAW E+I/ETOC</i>	DISPOSED BY	DATE/TIME				

13165

Fluor Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F08-056-109	PAGE 1 OF 1	
COLLECTOR NCO Sampler <i>with, CHAEON, CANO</i>		COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR WIDRIG, DL		PRICE CODE 8N	DATA TURNAROUND 45 Days / 45 Days	
SAMPLING LOCATION C5933, I-SSP1		PROJECT DESIGNATION GW Monitoring Wells at 100-HR-3 (100-D OU)		SAF NO. F08-056	AIR QUALITY <input type="checkbox"/>			
ICE CHEST NO. <i>GW0-07-010</i>		FIELD LOGBOOK NO. <i>HNF-N-5854</i>	ACTUAL SAMPLE DEPTH <i>83.7 - 85.2</i>	COA 122577ES10	METHOD OF SHIPMENT FEDERAL EXPRESS			
SHIPPED TO Shaw Group		OFFSITE PROPERTY NO. See PTR		BILL OF LADING/AIR BILL NO. See PTR <i>7984 4731 6325</i>				
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)	PRESERVATION	None					
		TYPE OF CONTAINER	Moisture Resistant Cont					
		NO. OF CONTAINER(S)	1					
		VOLUME	200g					
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	Moisture Content - D2216;					
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B1V2J2	SOIL	3-28-08	1305	X				
CHAIN OF POSSESSION				SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	** Samples are being collected by Fluor Hanford for Washington Closure Hanford. They will be placed in the bottles labeled "Generic Testing". Sample @ 83 to 85 Feet				
<i>Donnelly/DL</i>	<i>3-28-08 / 1400</i>	<i>NO 745 FRIDGE #1</i>	<i>3-28-08 / 1400</i>					
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME					
<i>NO 745 Fridge #1</i>	<i>5-22-08 0900</i>	<i>Donnelly DL</i>	<i>5-22-08 0900</i>					
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME					
<i>Donnelly DL</i>	<i>5-22-08 1400</i>	<i>Fel Ex</i>						
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME					
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME					
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME					
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME				
	<i>Don Huskey</i>	<i>SR. LAB. TECH</i>		<i>5/27/08 0930</i>				
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME				

BC 1385