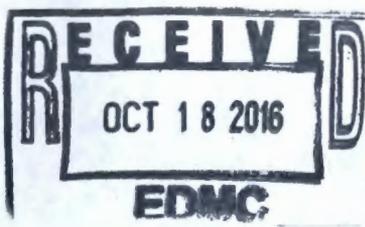




1242147
(0073145H)

September 20, 2016

CH2M HILL Plateau Remediation Company
2420 Stevens Center Place
P.O. Box 1600
Richland, WA 99354
Attn.: Tracey A. Burch



Subject: Geotechnical Laboratory Testing Services, Data Deliverable for SDG # W608006, Rev. 0

Enclosed is the final report on geotechnical analyses performed by RJ Lee Group in conjunction with PBS Engineering and Environmental, Inc. (PBS) for Sample Delivery Group number (SDG #) W608006.

General Set Comments

RJ Lee Group received from CH2M-Hill Plateau Remediation Company (CHPRC) 1 sample to be tested for geotechnical analysis at the Columbia Basin Analytical Laboratories. There are no SIRs associated with this SDG.

The CHPRC sample, in SDG # W608006, has been assigned a PBS Geotechnical Lab Sample number per the below table.

CHPRC Sample #	SDG #	Geotechnical Lab Sample #	Date Processed
B35XH2	W608006	H-0110	08/19/16

This project deliverable, provided in Attachment 1, contains the reports of the requested analytical results and a copy of the associated chain of custody for the sample listed above.

The analytical results provided in this deliverable relate only to the items tested. The sample was received in acceptable condition unless otherwise noted in the attached report(s).

I certify that this analytical report is in compliance with the Hanford SOW, both technically and for completeness. Release of the data contained in this hard copy report has been authorized by the Laboratory Director or a designee as verified by the following signature.

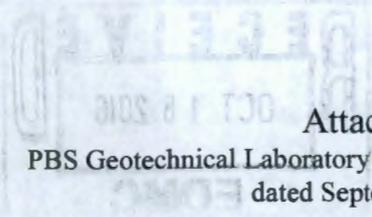
Rich Westberg
Laboratory Director, Columbia Basin Analytical Laboratories

09/20/2016

Date

If you have any questions, please feel free to contact us at 509-545-4989 or email at rwestberg@rjleegroup.com.

SAISASI
(NANETOO)



Attachment 1

PBS Geotechnical Laboratory Testing Results, SDG # W608006,
dated September 20, 2016

**Engineering +
Environmental**

August 19, 2016

RJ Lee Group, Inc.
Attn: Mr. Larry Lockrem
Columbia Basin Analytical Laboratories
2710 North 20th Avenue
Pasco, Washington 99301

Re: Geotechnical Laboratory Testing Results
Sample Delivery Group No. W608006
PBS Project No. 63797.000

Dear Mr. Lockrem:

In accordance with your request, PBS Engineering and Environmental Inc. (PBS) is providing you with the results of our recent geotechnical laboratory testing. Our services were provided in accordance with the request provided with Sample Delivery Group (SDG) number W608006.

We performed the following tests:

- Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass (ASTM D2216)
- Density of Soil in Place by the Drive-Cylinder Method (ASTM D2937)

The tests were performed in general accordance with the above-mentioned ASTM Standards.

We trust this letter meets your current needs. If you have any questions, or wish to further discuss our observations, conclusions, and recommendations, please contact us at 509.942.1600.

Sincerely,
PBS Engineering and Environmental, Inc.



8/19/2016

Adam M. Swenson, P.E.
Project Geotechnical Engineer

AS/rg

Attachments: Report of Laboratory Testing – Density by Drive Cylinder and Moisture Contents
Chain of Custody

400 Bradley Boulevard, Suite 300, Richland, WA 99352
509.942.1600 Main
866.727.0140 Fax
www.pbsenv.com



REPORT OF LABORATORY TESTING

Report to: CH2M-Hill - Plateau Remediation 2420 Stevens Center Place PO Box 1600 Richland, WA 99354	Date: 8/19/2016
	Sample Delivery Group No.: W608006
	Sample Authorization No.: F16-028
Project: CHPRC Laboratory	Project No.: 63797.000
Report of: Density by Drive Cylinder (ASTM D2937) Moisture Content (ASTM D2216)	Lab Technician: A. Jaimes

Items Received:

One sample was provided to us containing soil material obtained by you, the client. PBS performed the following tests:

Density by Drive Cylinder (ASTM D2937).

The dry densities (dry unit weight) of representative soils were determined in the laboratory using the relatively undisturbed soil samples. The dimensions of the specimen were carefully measured, the volume calculated, and the specimen weighed. A representative sample was obtained from the specimen, weighed, and placed in the oven to dry. After oven drying, the representative sample was reweighed and the water content calculated. The dry density was then computed. The results of tests, including moisture, wet density, and dry density are included in the table below.

Moisture Content (ASTM D2216).

Natural moisture content determinations were made on the samples of the fine-grained soils (that is, silts, clays, and silty sands). The natural moisture content is defined as the ratio of the weight of water to dry weight of soil, expressed as a percentage.

LABORATORY TEST RESULTS

Density by Drive Cylinder (ASTM D2937)

Moisture Content (ASTM D2216)

Customer Sample Number	Laboratory Sample Number	Wet Density (lbs/ft ³)	Water Content (%)	Dry Density (lbs/ft ³)
B35XH2	H-0110	128.5	6.3	120.9

REV. 0

9/20/2016

5 of 5

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			Rev. 0, SDG # W608006, Page 5 of 5 F16-028-015 PAGE 1 OF 1	
COLLECTOR Ed Kaufer CHPRC	COMPANY CONTACT TODAK, D	TELEPHONE NO. 376-6427	PROJECT COORDINATOR TODAK, D		PRICE CODE 8H	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION C9411, I-001	PROJECT DESIGNATION 200-WA-1 Opportunistic sampling - soil		SAF NO. F16-028		AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-645 <u>5-1212</u>	ACTUAL SAMPLE DEPTH <u>167.53</u> <u>168.03</u> <u>7-25-14</u>	COA 300192	METHOD OF SHIPMENT GOVERNMENT VEHICLE		ORIGINAL
SHIPPED TO RJ LEE - GEOTECHNICAL	OFFSITE PROPERTY NO. N/A	BILL OF LADING/AIR BILL NO. N/A				

MATRIX* A=Air DL=Drum L=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 be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1. NA	PRESERVATION	None
		HOLDING TIME	None
		TYPE OF CONTAINER	Split Spoon Liner
		NO. OF CONTAINER(S)	1
		VOLUME	1000g
SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

N608006

-167.53-168.03

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B35XH2	SOIL	JUL 25 2016	0950	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM Ed Kaufer CHPRC	DATE/TIME JUL 25 2016 1611	RECEIVED BY/STORED IN SSU #1	DATE/TIME JUL 25 2016 1611	PLEASE REPORT POROSITY AS WELL AS DENSITY (1) D2937_ DENSITY: COMMON {Bulk density - dry, Bulk density - wet};	
RELINQUISHED BY/REMOVED FROM SSU-1	DATE/TIME AUG 01 2016 0800	RECEIVED BY/STORED IN Frank Hill CHPRC	DATE/TIME AUG 01 2016 0800		
RELINQUISHED BY/REMOVED FROM Frank Hill CHPRC	DATE/TIME AUG 01 2016 12:22	RECEIVED BY/STORED IN RJ LEE GROUP	DATE/TIME AUG 01 2016 12:22		
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
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME