RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION

July 10, 2017

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 # W706048, 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 #) W706048.

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 is one (1) SIR associated with this SDG.

The CHPRC sample, in SDG # W706048, has been assigned a PBS Geotechnical Lab Sample number per the below table.

CHPRC Sample #	SDG #	Geotechnical Lab Sample #	Date Processed
B39L39	W706048	H-0163	06/30/2017

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.

Donald J. Smith

07/10/2017

Donald Smith
Laboratory Director, Columbia Basin Analytical Laboratories

Date

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

Attachment 1

PBS Geotechnical Laboratory Testing Results, SDG # W706048,
Dated July 10, 2017

June 30, 2017

Mr. Larry Lockrem
RJ Lee Group, Inc.
2710 North 20th Avenue
Pasco, Washington 99301

Via email: llockrem@rjleegroup.com

Regarding: Geotechnical Laboratory Testing Results
CH2M HILL Plateau Remediation
Sample Delivery Group No. W706048
PBS Project No. 63797.000

Dear Mr. Lockrem:

PBS Engineering and Environmental Inc. (PBS) is pleased to present the results of our recent geotechnical laboratory testing in accordance with the request provided with Sample Delivery Group (SDG) number W706048.

PBS performed the following tests in general accordance with the relevant ASTM Standards:

- Grain Size Analysis (ASTM D422)

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,

06/30/2017

Adam M. Swenson, PE
Project Geotechnical Engineer

Attachment(s): Report of Laboratory Testing – Grain-size Analysis
Chain of Custody

RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION

REPORT OF LABORATORY TESTING

Report to:	CH2M-Hill - Plateau Remediation 2420 Stevens Center Place PO Box 1600 Richland, WA 99354	**Date:** **Sample Delivery Group No.:** **Sample Authorization No.:**	6/30/2017 W706048 F16-026
Project:	CHPRC Laboratory	**Project No.:**	63797.000
Report of:	Grain Size Analysis (ASTM D422)	**Lab Technician:**	P. Brice

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

Particle/Grain Size Analysis (ASTM D422):
Mechanical Grain Size Analyses (wet sieve) were conducted on each of the soil samples to determine their grain size distribution. The results of the mechnical grain size analyses are plotted on the attached Figure (Particle Size Analysis Test Results , pages 1 and 2).

LABORATORY TEST RESULTS

Particle Grain Size Analysis (ASTM D422) - Sieve Portion

Customer Sample Number	Laboratory Sample Number	Percent Passing by Sieve Size											
		No. 12	No. 14	No. 16	No. 18	No. 20	No. 25	No. 30	No. 35	No. 40	No. 60	No. 100	No. 140
B39L39	H-0163	100	92.1	67.8	35.4	13.8	4.5	2.3	1.4	1.0	0.4	0.2	0.1

SHEET 1 OF 2 REVIEWED BY: A. Swenson, P.E.

RJ LEE GROUP
DELIVERING SCIENTIFIC RESOLUTION

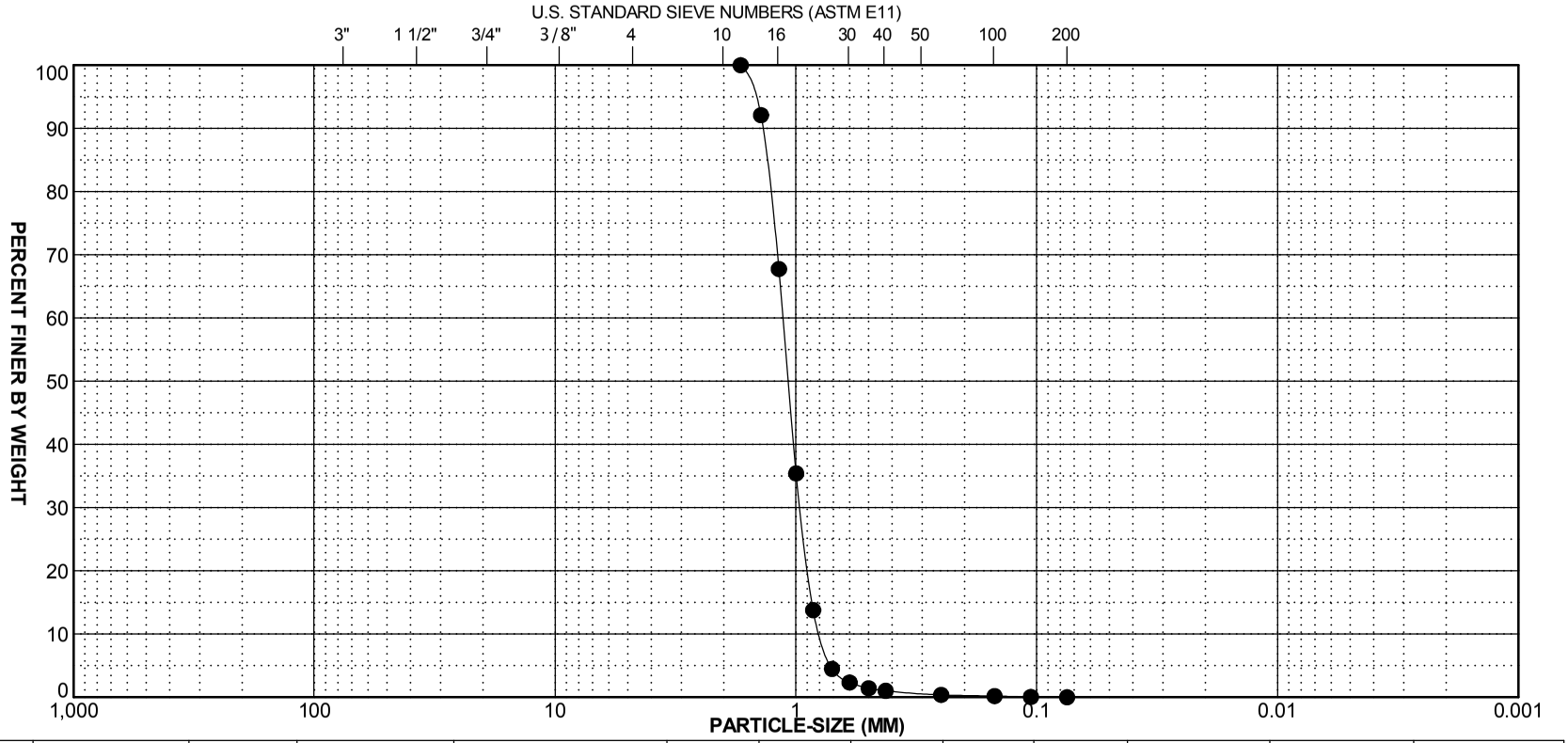
PARTICLE-SIZE ANALYSIS TEST RESULTS

CHPRC - GEOTECHNICAL LABORATORY

PBS PROJECT NUMBER: 63797

TEST METHOD: ASTM D422

BOULDERS	COBBLES	GRAVEL		SAND			FINES	
		COARSE	FINE	COARSE	MEDIUM	FINE	SILT	CLAY



KEY	EXPLORATION NUMBER	SAMPLE NUMBER	SAMPLE DEPTH (FEET)	MOISTURE CONTENT (PERCENT)	D60 (MM)	D50 (MM)	D30 (MM)	D10 (MM)	D5 (MM)	GRAVEL (PERCENT)	SAND (PERCENT)	FINES (PERCENT)
●	H-163	B39L39	0.0	3	1.1	1.1	1.0	0.8	0.7		100	0

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F17-026-002 PAGE 1 OF 1

COLLECTOR: K. Patterson	COMPANY CONTACT: SUMNER, LC	TELEPHONE NO.: 376-3922	PROJECT COORDINATOR: SUMNER, LC
SAMPLING LOCATION: 289T TANK 1 #2	PROJECT DESIGNATION: 200 West Pump & Treat Sieve Analysis - GAC		SAF NO.: F17-026
ICE CHEST NO.: N/A	FIELD LOGBOOK NO.: HNF-N- 50738	ACTUAL SAMPLE DEPTH: N/A	COA: 304233
SHIPPED TO: RJ LEE - GEOTECHNICAL	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A

PRICE CODE: 9C
AIR QUALITY: ☐
DATA TURNAROUND: 15 Days / 15 Days
METHOD OF SHIPMENT: GOVERNMENT VEHICLE
ORIGINAL

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 be regulated for transportation per 49 CFR/IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1.

SPECIAL HANDLING AND/OR STORAGE
N/A

PRESERVATION	None
HOLDING TIME	None
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	2
VOLUME	1L
SAMPLE ANALYSIS	D422_PARTICLE SIZE (Dry Sieve): COMMON;

~~W704127~~ AW 06/12/17

15.3°C

W706048

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B39L39	OTHER SOLID	4.18.17	1237	✓

BB 4.18.17

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
K. Patterson	4.18.17 1400	SSU-1	4.18.17 1400
SSU-1	APR 19 2017 0730	Frank Hall /CHPRC	APR 19 2017 0730
Frank Hall /CHPRC	APR 19 2017 1250	SSU-1	APR 19 2017 1250
SSU-1	APR 20 2017 0700	Lesly Wall /CHPRC	APR 20 2017 0700
Lesly Wall	APR 20 2017 1135	Kevin Patterson CHPRC	APR 20 2017 1135
Kevin Patterson CHPRC	4/20/17 12:25	KJ Lee	4/20/17 12:25
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
TRVL-17-110

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 4/5/2017 FSR ID = FSR43666 TRVL NUM = TRVL-17-110 A-6003-618 (REV 2)

SAMPLE ISSUE RESOLUTION

SIR NUM	SIR17-715
REV NUM	0
DATE INITIATED	5/24/2017

SAMPLE EVENT INFORMATION

SAF NUM(S)	F17-026
OPERABLE UNIT(S)	NONE
PROJECT(S)	200W P&T
SAMPLE EVENT TITLE(S)	200 West Pump & Treat GAC
LABORATORY	RJ LEE - GEOTECHNICAL

SAMPLING INFORMATION

NUMBER OF SAMPLES	3
SAMPLE NUMBERS	B39L38, B39L39, B39L40
SAMPLE MATRIX	OTHER SOLID
COLLECTION DATE	4/18/2017 - 4/18/2017
SDG NUM	

ISSUE BACKGROUND

CLASS	Sample Management Issues
TYPE	Incorrect Analyte Requested
DESCRIPTION	CHPRC inadvertently shipped GAS samples for sieve analysis to RJ Lee under the routine sieve service list and before RJ Lee had the required sieves to perform the specialty sieve analysis needed.

DISPOSITION

DESCRIPTION

CHPRC request that RJ Lee perform a second sieve analysis on the GAC samples (listed above) using the Service list name "D422_PARTICLE SIZE (Dry Sieve): COMMON (GAC)" and the following CON_IDs and CON_LONG_NAMEs

CON_ID	CON_LONG_NAME
PAS#12	Percent passing No. 12 sieve
PAS#14	Percent passing No. 14 sieve
PAS#16	Percent passing No. 16 sieve
PAS#18	Percent passing No. 18 sieve
PAS#20	Percent passing No. 20 sieve
PAS#25	Percent passing No. 25 sieve
PAS#30	Percent passing No. 30 sieve
PAS#35	Percent passing No. 35 sieve

JUSTIFICATION

Final Disposition: Accept proposed resolution. Note: the new results can be run under a new work order.

SUBMITTED BY: Scot Fitzgerald DATE: 05/24/2017
ACCEPTED BY: JJ Furlong DATE: 05/24/2017