NOVEMBER 11, 2013

Shaw Environmental, Inc.
(A CB&I Company)
Geotechnical Testing Laboratory
304 Directors Drive
Knoxville, TN 37923
(865) 690-3211

CERTIFICATE OF ANALYSIS

Scot Fitzgerald, R3-50
CH2M Hill Plateau Remediation Company
PO Box 1600
Richland, WA 99352

November 13, 2013

This is the Certificate of Analysis for the following samples:

Project ID: CHPRC
Project Number: 500062
Sample Delivery Group: CFS0001
Date Received by Lab: 10/09/2013
Number of Samples: Eighteen (18)
Sample Type: Soil

I. Introduction/Case Narrative

Eighteen (18) soil samples were received by the Shaw Environmental, Inc. (A CB&I Company) Geotechnical Testing Laboratory on October 09, 2013. Sixteen (16) samples were submitted for determination of particle-size distribution by ASTM D 422. Eighteen (18) samples were submitted for hydraulic conductivity/permeability testing by ASTM D 2434 or ASTM D 5084. Six (6) samples were submitted for Calcium Carbonate Content by ASTM D 4373.

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

Reviewed and Approved:

Chanley Morgan

Chanley E. Morgan
Geotechnical Testing Laboratory Manager
Shaw Environmental, Inc.

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II. Analytical Results/Methodology

REFERENCES: United Nations, *Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria*, Third Edition, 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)*, 2012. Standard Specifications for Transportation Materials and Methods of Sampling and Testing (31th Edition) and AASHTO Provisional Standards, 2011 Edition. CB&I Standard Operating Procedures.

Particle-Size Distribution of Soils ..... ***ASTM D 422***
Moisture Content of Soil and Rock ..... ***ASTM D 2216***
Permeability of Granular Soils ..... ***ASTM D 2434***
Hydraulic Conductivity ..... ***ASTM D 5084***
Rapid Determination of Carbonate of Soils ..... ***ASTM D 4373***

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 heterogeneous nature of the samples, and quality control procedures built-into 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 validations 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.

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- 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 ASTM D 422 method (Particle Size Analysis of Soils) section 5.1.1 adjusts the sample size based on the largest sized particles in the sample. The amount of sample needed, according to the nominal diameter of the largest particles, was at least 3000 grams for the following samples: B2R272, B2R274, B2R2C9, B2RJ57, B2R2F4, B2R2F6, and B2R2F8. The total amount received for each sample was less than 3000 grams. The total mass of each sample was used in the test.

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Appendix A
Sample Cross-Reference List

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SAMPLE NUMBER CROSS-REFERENCE LIST

Lab Sample ID	Client Sample ID	MATRIX
SEK 9573	B2R272	Soil
SEK 9574	B2R274	Soil
SEK 9575	B2R276	Soil
SEK 9576	B2R278	Soil
SEK 9577	B2R2C7	Soil
SEK 9578	B2R2C9	Soil
SEK 9579	B2R2D1	Soil
SEK 9580	B2R2D3	Soil
SEK 9581	B2RJ57	Soil
SEK 9582	B2RJ61	Soil
SEK 9583	B2RJ71	Soil
SEK 9584	B2RJ86	Soil
SEK 9585	B2R2F4	Soil
SEK 9586	B2R2F6	Soil
SEK 9587	B2R2F8	Soil
SEK 9588	B2R2W9	Soil
SEK 9589	B2R2W5	Soil
SEK 9590	B2R2W7	Soil

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Appendix B
Geotechnical Testing Analysis Results

Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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PARTICLE-SIZE ANALYSIS
ASTM D 422

Project Name	Client Sample No.	Sample Prep Date/Analyst:
CHPRC	B2R272	10/10/2013 MB
Project No.	Lab Sample No.	Analysis Date/Analyst:
500062.2013OCT1	SEK 9573	10/14/2013 MB

Specific Gravity = 2.70 assumed

Moisture Content = 5.5%
based on dry sample weight

SIEVE ANALYSIS

COARSE	Sieve No.	Diameter mm	Percent Finer
	3"	75.000	100.0%
	1.5"	37.500	84.4%
	0.75"	19.000	55.8%
	0.375"	9.500	42.3%
	#4	4.750	35.1%
	#10	2.000	31.4%

FINE	Sieve No.	Diameter mm	Percent Finer
	#20	0.850	29.2%
	#40	0.425	22.6%
	#60	0.250	10.5%
	#100	0.149	6.2%
	#140	0.106	5.0%
	#200	0.075	4.2%

HYDROMETER ANALYSIS

HYDROMETER	Diameter mm	Percent Finer
	0.03434	3.1%
	0.02195	2.5%
	0.01290	1.5%
	0.00918	1.2%
	0.00649	1.2%
	0.00321	0.6%
	0.00136	0.3%

64.9% Gravel

30.9% Sand

4.2% Silt/Clay

D_{85} = 38.887 mm

D_{60} = 21.715 mm

D_{30} = 1.262 mm

D_{15} = 0.315 mm

D_{10} = 0.238 mm

Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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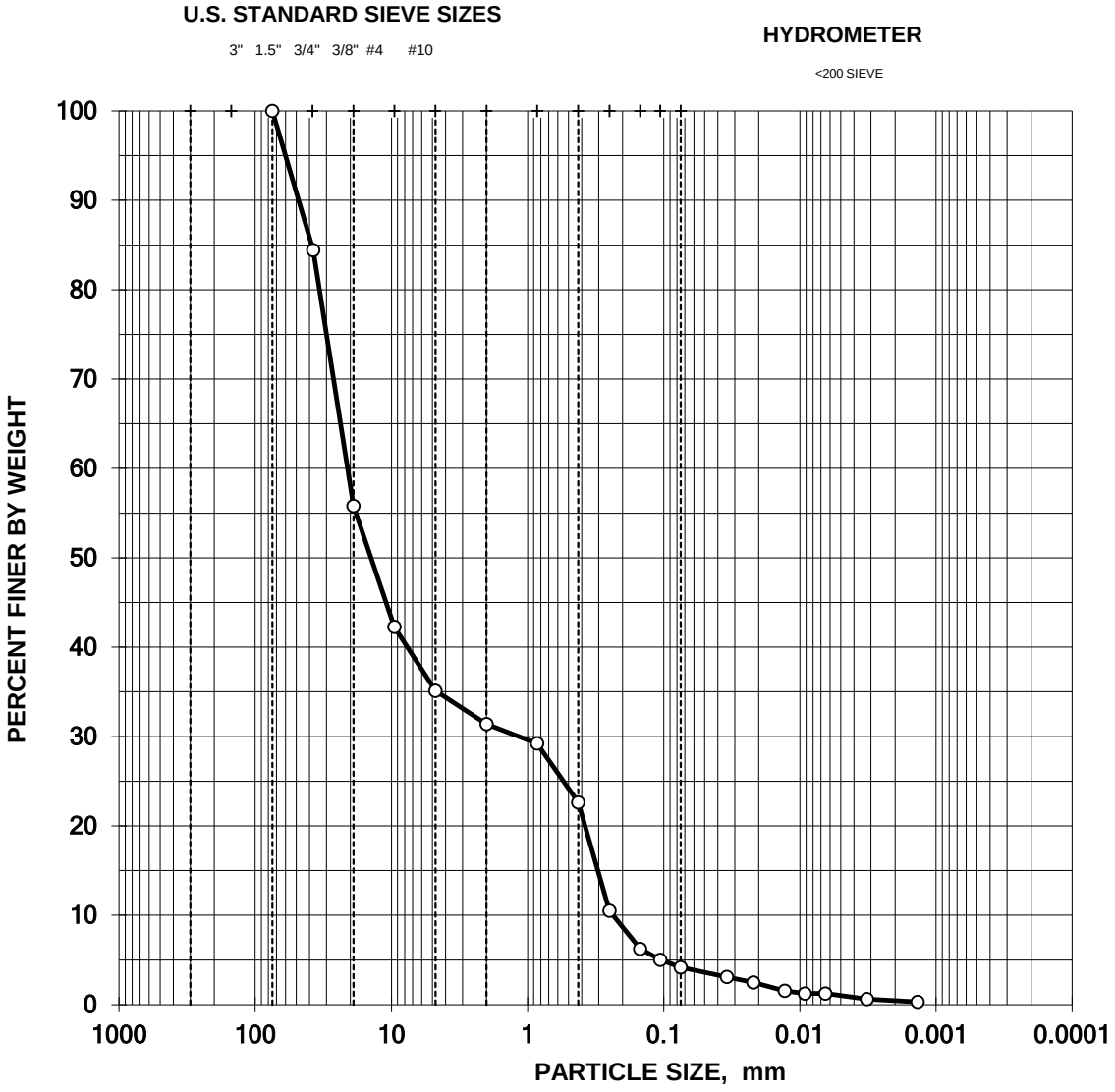
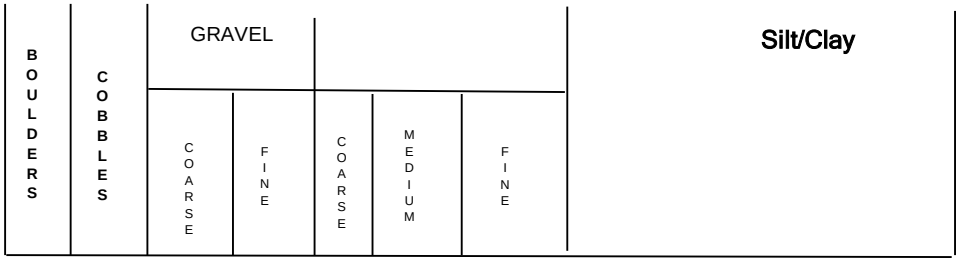
CHPRC



CLIENT SAMPLE NO.: **B2R272**

LAB SAMPLE NO.: **SEK 9573**



Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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PARTICLE-SIZE ANALYSIS
ASTM D 422

Project Name	Client Sample No.	Sample Prep Date/Analyst:
CHPRC	B2R274	10/10/2013 MB
Project No.	Lab Sample No.	Analysis Date/Analyst:
500062.2013OCT1	SEK 9574	10/14/2013 MB

Specific Gravity = 2.70 assumed

Moisture Content = 11.0%
based on dry sample weight

SIEVE ANALYSIS

COARSE	Sieve No.	Diameter mm	Percent Finer
	3"	75.000	100.0%
	1.5"	37.500	92.1%
	0.75"	19.000	90.8%
	0.375"	9.500	84.6%
	#4	4.750	77.0%
	#10	2.000	68.7%

FINE	Sieve No.	Diameter mm	Percent Finer
	#20	0.850	61.0%
	#40	0.425	42.6%
	#60	0.250	21.5%
	#100	0.149	11.1%
	#140	0.106	7.8%
	#200	0.075	5.8%

HYDROMETER ANALYSIS

HYDROMETER	Diameter mm	Percent Finer
	0.03533	3.4%
	0.02250	2.7%
	0.01303	2.0%
	0.00928	1.4%
	0.00660	0.7%
	0.00324	0.7%
	0.00137	0.0%

23.0% Gravel

71.2% Sand

5.8% Silt/Clay

D_{85} = 10.099 mm
D_{60} = 0.828 mm

D_{30} = 0.320 mm
D_{15} = 0.187 mm

D_{10} = 0.135 mm

Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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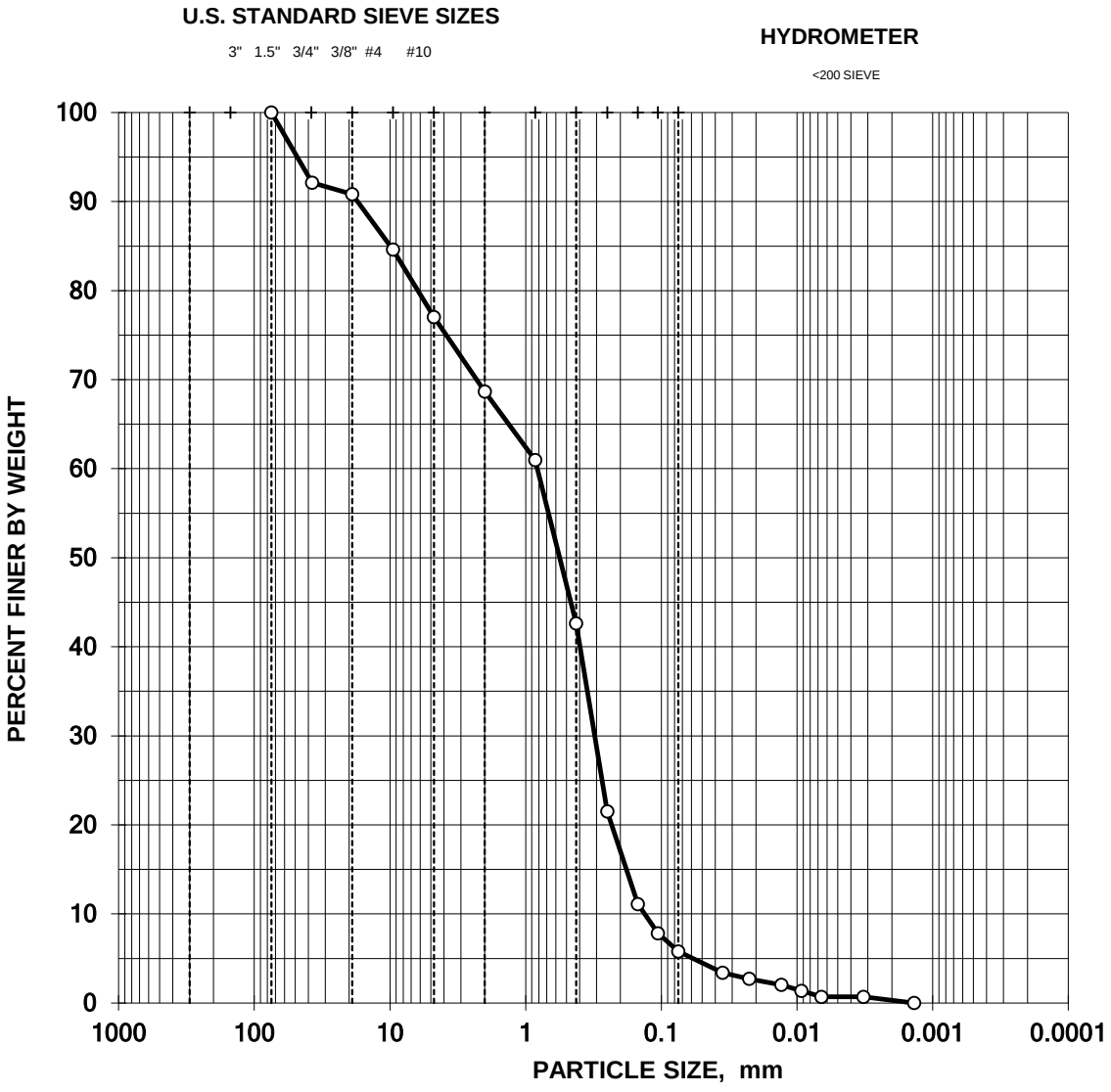
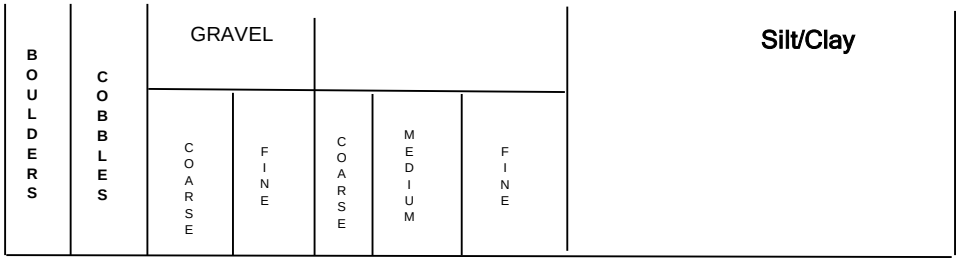


CLIENT SAMPLE NO.: **B2R274**

LAB SAMPLE NO.: **SEK 9574**



Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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PARTICLE-SIZE ANALYSIS
ASTM D 422

Project Name	Client Sample No.	Sample Prep Date/Analyst:
CHPRC	B2R278	10/10/2013 MB
Project No.	Lab Sample No.	Analysis Date/Analyst:
500062.2013OCT1	SEK 9576	10/14/2013 MB

Specific Gravity = 2.70 assumed

Moisture Content = 23.4%
based on dry sample weight

SIEVE ANALYSIS

COARSE	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	100.0%
	#10	2.000	100.0%

FINE	Sieve No.	Diameter mm	Percent Finer
	#20	0.850	98.6%
	#40	0.425	93.9%
	#60	0.250	85.1%
	#100	0.149	65.7%
	#140	0.106	49.0%
	#200	0.075	34.8%

HYDROMETER ANALYSIS

HYDROMETER	Diameter mm	Percent Finer
	0.03280	16.8%
	0.02172	9.9%
	0.01281	5.9%
	0.00918	4.0%
	0.00652	3.0%
	0.00321	2.0%
	0.00136	1.0%

0.0% Gravel

65.2% Sand

34.8% Silt/Clay

D_{85} = 0.250 mm

D_{60} = 0.134 mm

D_{30} = 0.064 mm

D_{15} = 0.030 mm

D_{10} = 0.022 mm

Report No: CHPRC1013-147
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CB&I Project No: 500062

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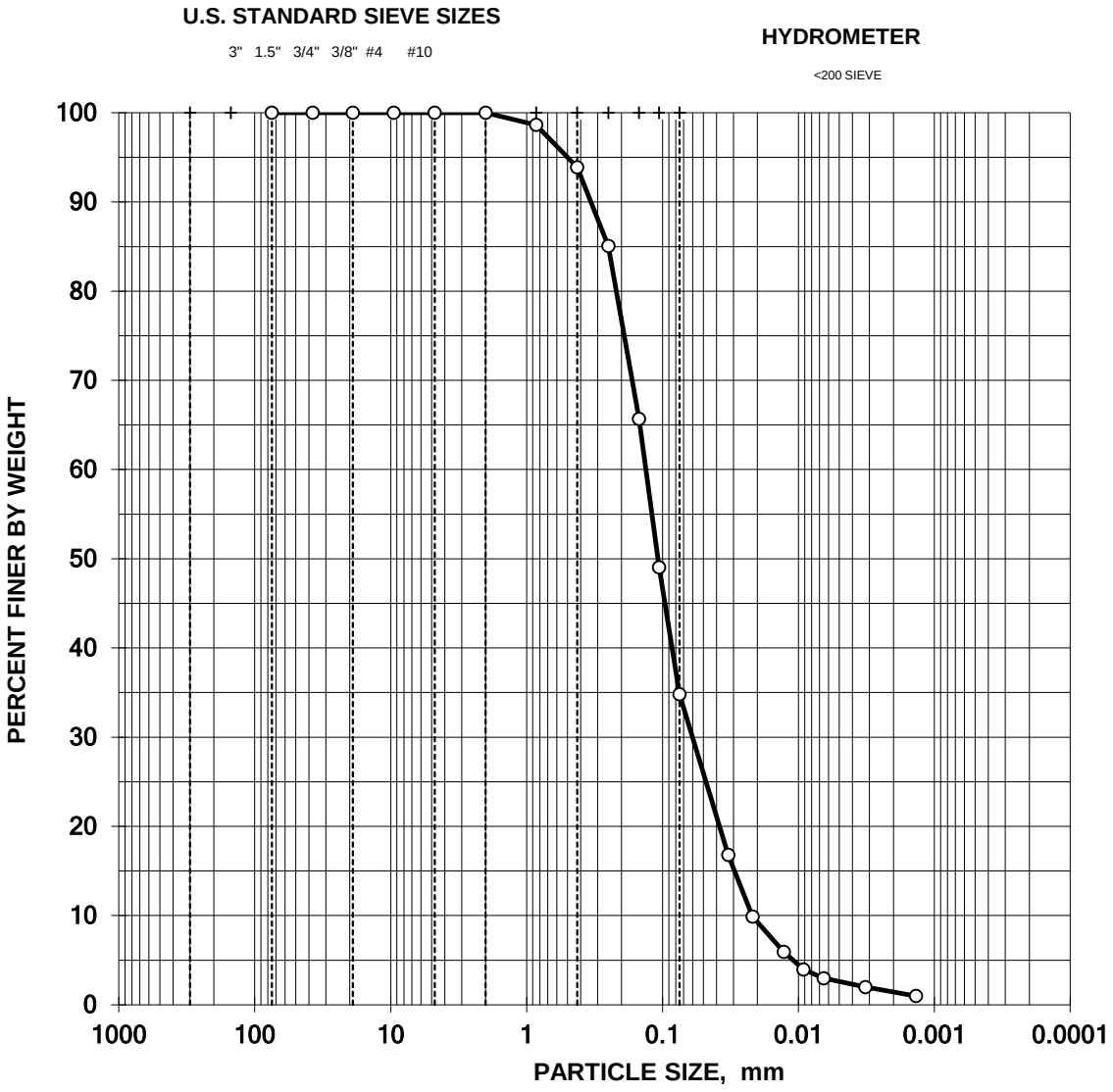

CLIENT SAMPLE NO.: **B2R278** **LAB SAMPLE NO.:** **SEK 9576**

BOULDERS	COBBLES	GRAVEL		SAND			Silt/Clay
		COARSE	FINE	COARSE	MEDIUM	FINE	

Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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PARTICLE-SIZE ANALYSIS
ASTM D 422

Project Name CHPRC	Client Sample No. B2R2C7	Sample Prep Date/Analyst: 10/10/2013 MB
Project No. 500062.2013OCT1	Lab Sample No. SEK 9577	Analysis Date/Analyst: 10/14/2013 MB

Specific Gravity = 2.70 assumed

Moisture Content = 6.3%
based on dry sample weight

SIEVE ANALYSIS

COARSE	Sieve No.	Diameter mm	Percent Finer
	3"	75.000	100.0%
	1.5"	37.500	100.0%
	0.75"	19.000	65.7%
	0.375"	9.500	49.1%
	#4	4.750	35.0%
	#10	2.000	27.8%

FINE	Sieve No.	Diameter mm	Percent Finer
	#20	0.850	24.8%
	#40	0.425	17.3%
	#60	0.250	8.7%
	#100	0.149	5.1%
	#140	0.106	4.1%
	#200	0.075	3.4%

HYDROMETER ANALYSIS

HYDROMETER	Diameter mm	Percent Finer
	0.03434	2.7%
	0.02211	1.9%
	0.01290	1.4%
	0.00918	1.1%
	0.00652	0.8%
	0.00324	0.3%
	0.00136	0.3%

65.0% Gravel

D_{85} = 29.400 mm
D_{60} = 15.728 mm

31.6% Sand

D_{30} = 2.831 mm
D_{15} = 0.378 mm

3.4% Silt/Clay

D_{10} = 0.277 mm

Report No: CHPRC1013-147
Scot Fitzgerald
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CB&I Project No: 500062

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Geotechnical Laboratory
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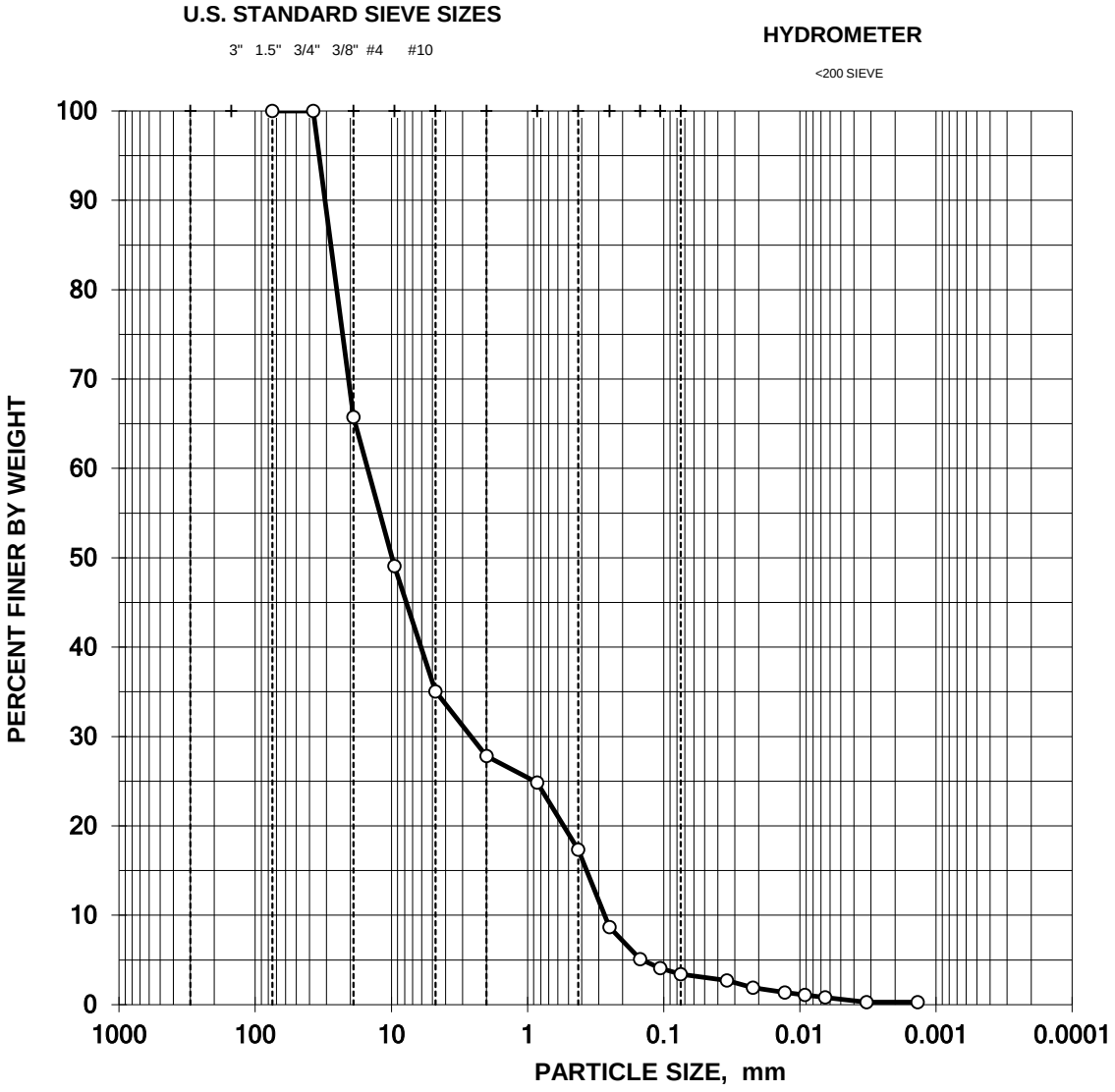
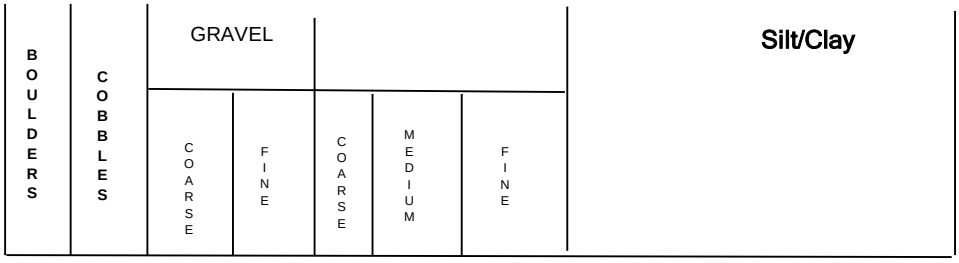


CLIENT SAMPLE NO.: **B2R2C7**

LAB SAMPLE NO.: **SEK 9577**



Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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PARTICLE-SIZE ANALYSIS
ASTM D 422

Project Name	Client Sample No.	Sample Prep Date/Analyst:
CHPRC	B2R2C9	10/10/2013 MB
Project No.	Lab Sample No.	Analysis Date/Analyst:
500062.2013OCT1	SEK 9578	10/14/2013 MB

Specific Gravity = 2.70 assumed

Moisture Content = 5.0%
based on dry sample weight

SIEVE ANALYSIS

COARSE	Sieve No.	Diameter mm	Percent Finer
	3"	75.000	100.0%
	1.5"	37.500	71.0%
	0.75"	19.000	56.7%
	0.375"	9.500	39.4%
	#4	4.750	27.2%
	#10	2.000	18.5%

FINE	Sieve No.	Diameter mm	Percent Finer
	#20	0.850	15.7%
	#40	0.425	11.4%
	#60	0.250	5.9%
	#100	0.149	3.3%
	#140	0.106	2.6%
	#200	0.075	2.2%

HYDROMETER ANALYSIS

HYDROMETER	Diameter mm	Percent Finer
	0.03446	1.6%
	0.02219	1.1%
	0.01290	0.9%
	0.00918	0.7%
	0.00652	0.5%
	0.00321	0.4%
	0.00136	0.2%

72.8% Gravel

25.1% Sand

2.2% Silt/Clay

D_{85} = 55.578 mm

D_{60} = 23.215 mm

D_{30} = 5.839 mm

D_{15} = 0.780 mm

D_{10} = 0.380 mm

Report No: CHPRC1013-147
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CB&I Project No: 500062

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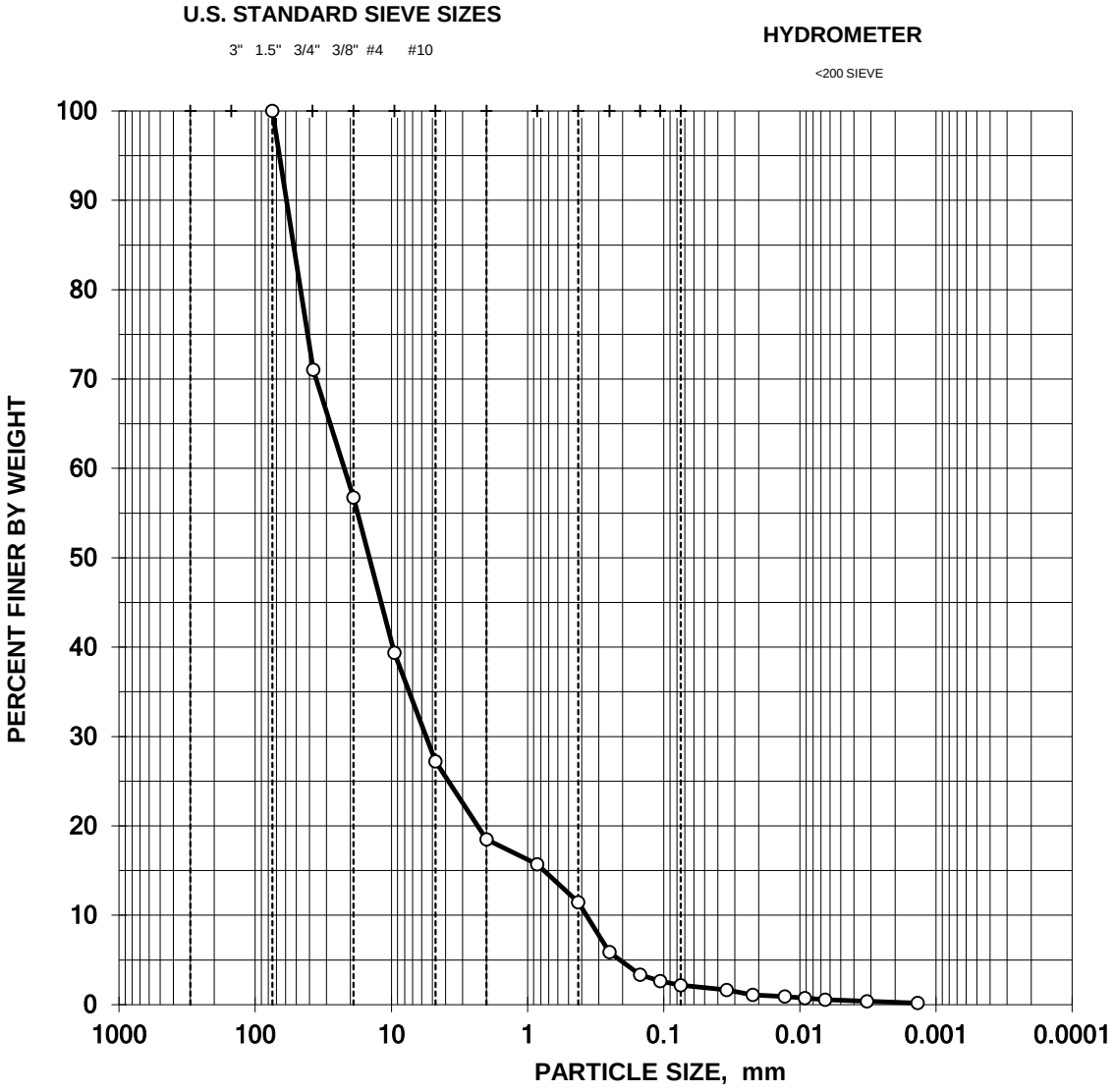
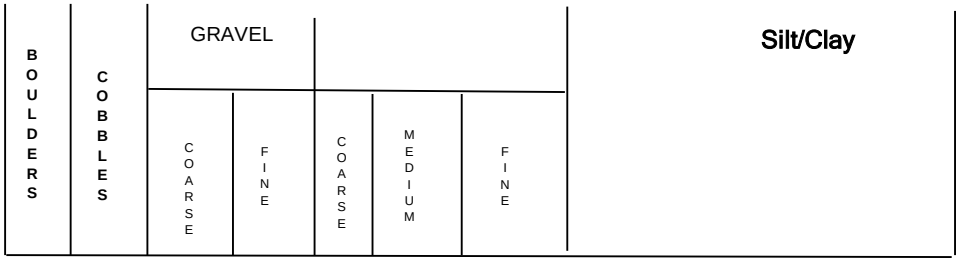
CHPRC



CLIENT SAMPLE NO.: **B2R2C9** **LAB SAMPLE NO.:** **SEK 9578**



Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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PARTICLE-SIZE ANALYSIS
ASTM D 422

Project Name	Client Sample No.	Sample Prep Date/Analyst:
CHPRC	B2R2D3	10/21/2013 MB
Project No.	Lab Sample No.	Analysis Date/Analyst:
500062.2013OCT1	SEK 9580	10/22/2013 MB

Specific Gravity = 2.70 assumed

Moisture Content = 25.8%
based on dry sample weight

SIEVE ANALYSIS

COARSE	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	100.0%
	#10	2.000	99.8%

FINE	Sieve No.	Diameter mm	Percent Finer
	#20	0.850	95.3%
	#40	0.425	89.4%
	#60	0.250	82.5%
	#100	0.149	60.4%
	#140	0.106	44.0%
	#200	0.075	33.1%

HYDROMETER ANALYSIS

HYDROMETER	Diameter mm	Percent Finer
	0.03434	18.6%
	0.02195	14.7%
	0.01281	10.8%
	0.00918	6.9%
	0.00652	4.9%
	0.00324	2.0%
	0.00135	2.0%

0.0% Gravel

66.9% Sand

33.1% Silt/Clay

D_{85} = 0.314 mm
D_{60} = 0.148 mm

D_{30} = 0.066 mm
D_{15} = 0.023 mm

D_{10} = 0.012 mm

Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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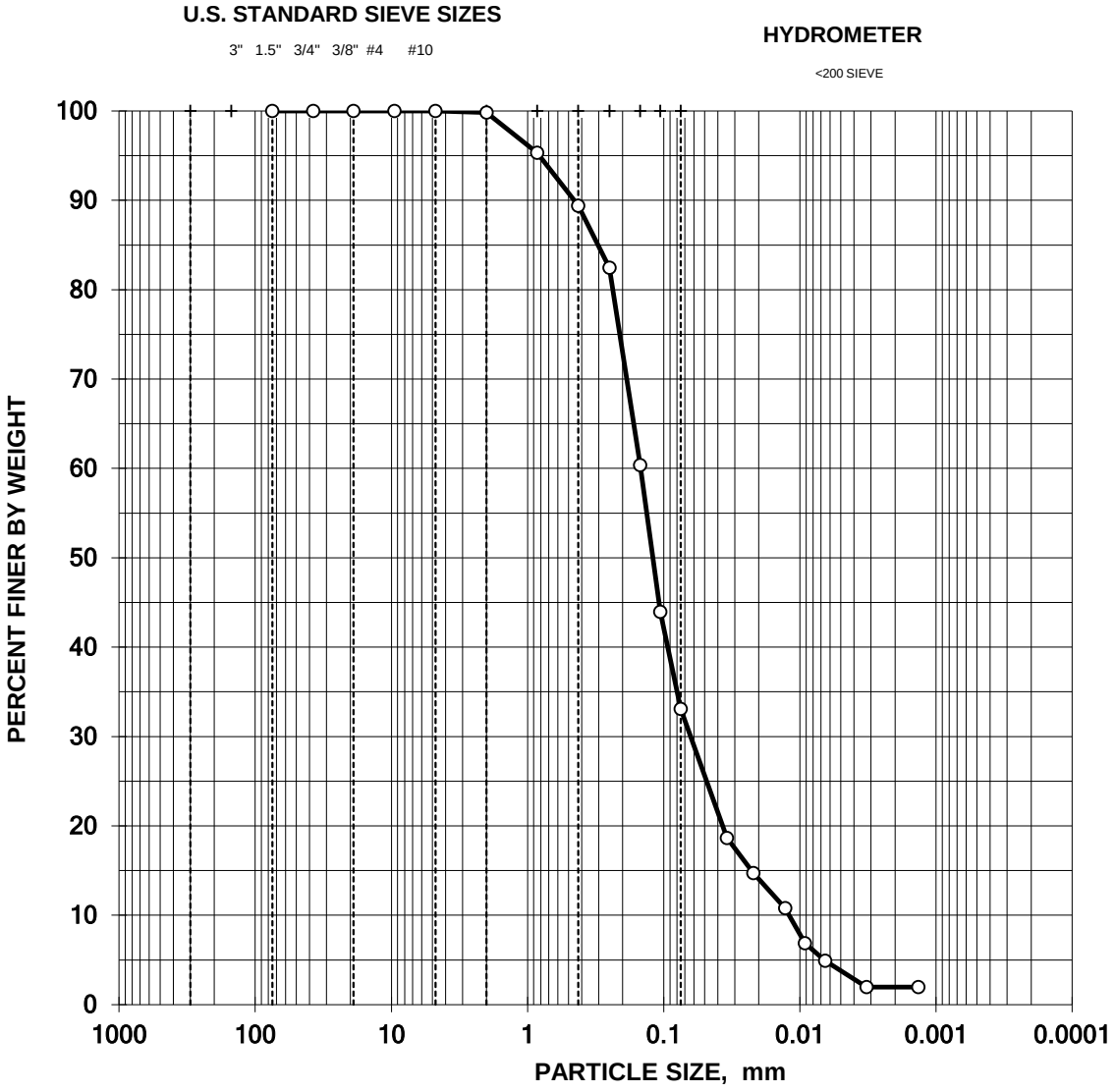
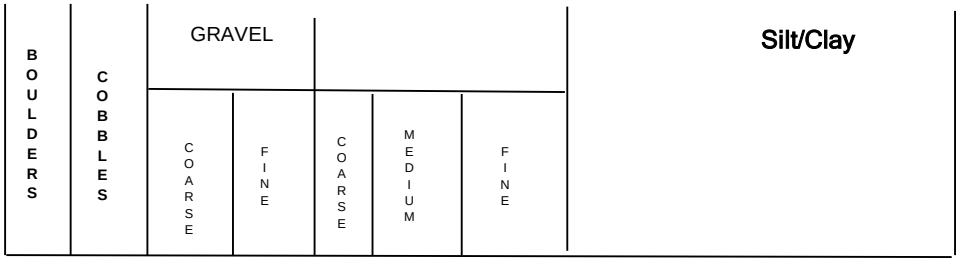
CHPRC



CLIENT SAMPLE NO.: **B2R2D3**

LAB SAMPLE NO.: **SEK 9580**



Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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PARTICLE-SIZE ANALYSIS
ASTM D 422

Project Name	Client Sample No.	Sample Prep Date/Analyst:
CHPRC	B2RJ57	10/14/2013 MB
Project No.	Lab Sample No.	Analysis Date/Analyst:
500062.2013OCT1	SEK 9581	10/15/2013 MB

Specific Gravity = 2.70 assumed

Moisture Content = 7.0%
based on dry sample weight

SIEVE ANALYSIS

COARSE	Sieve No.	Diameter mm	Percent Finer
	3"	75.000	100.0%
	1.5"	37.500	79.1%
	0.75"	19.000	61.4%
	0.375"	9.500	46.2%
	#4	4.750	36.6%
	#10	2.000	30.6%

FINE	Sieve No.	Diameter mm	Percent Finer
	#20	0.850	26.0%
	#40	0.425	21.7%
	#60	0.250	15.0%
	#100	0.149	10.5%
	#140	0.106	8.9%
	#200	0.075	7.7%

HYDROMETER ANALYSIS

HYDROMETER	Diameter mm	Percent Finer
	0.03280	6.1%
	0.02133	4.8%
	0.01260	3.5%
	0.00901	2.9%
	0.00646	2.2%
	0.00318	1.3%
	0.00136	0.5%

63.4% Gravel

28.9% Sand

7.7% Silt/Clay

D_{85} = 48.103 mm

D_{60} = 18.122 mm

D_{30} = 1.849 mm

D_{15} = 0.251 mm

D_{10} = 0.136 mm

Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

Shaw Environmental, Inc.
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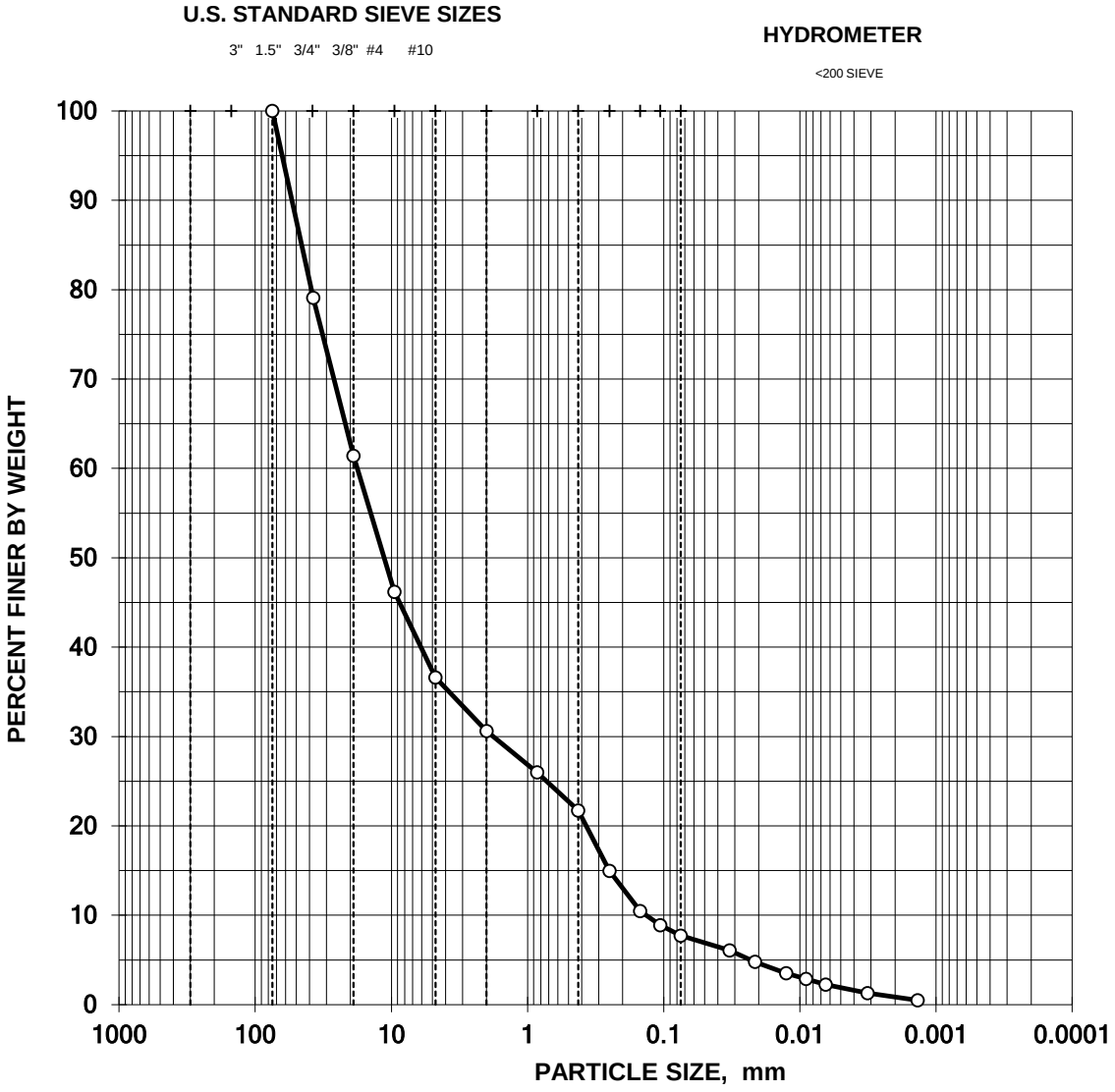
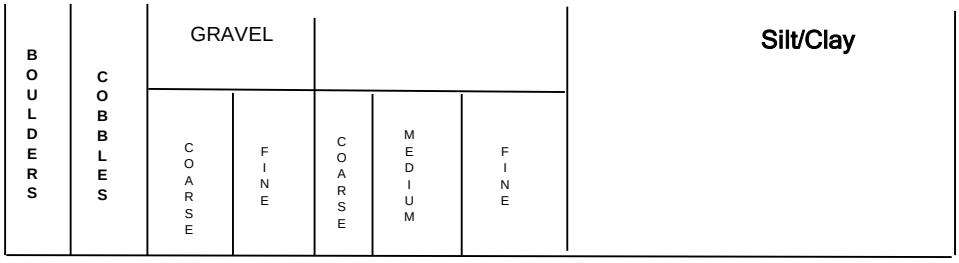
Geotechnical Laboratory
304 Directors Drive
Knoxville, TN 37923
(865) 690-3211

CHPRC



CLIENT SAMPLE NO.: **B2RJ57** **LAB SAMPLE NO.:** **SEK 9581**



Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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(865) 690-3211

PARTICLE-SIZE ANALYSIS
ASTM D 422

Project Name	Client Sample No.	Sample Prep Date/Analyst:
CHPRC	B2RJ61	10/10/2013 MB
Project No.	Lab Sample No.	Analysis Date/Analyst:
500062.2013OCT1	SEK 9582	10/14/2013 MB

Specific Gravity = 2.70 assumed

Moisture Content = 5.3%
based on dry sample weight

SIEVE ANALYSIS

COARSE	Sieve No.	Diameter mm	Percent Finer
	3"	75.000	100.0%
	1.5"	37.500	100.0%
	0.75"	19.000	77.3%
	0.375"	9.500	58.9%
	#4	4.750	50.1%
	#10	2.000	43.0%

FINE	Sieve No.	Diameter mm	Percent Finer
	#20	0.850	37.6%
	#40	0.425	27.0%
	#60	0.250	21.3%
	#100	0.149	17.8%
	#140	0.106	16.2%
	#200	0.075	14.9%

HYDROMETER ANALYSIS

HYDROMETER	Diameter mm	Percent Finer
	0.03306	6.6%
	0.02116	5.8%
	0.01258	3.7%
	0.00896	3.3%
	0.00641	2.5%
	0.00319	1.2%
	0.00136	0.8%

49.9% Gravel

35.2% Sand

14.9% Silt/Clay

D_{85} = 25.286 mm

D_{60} = 10.079 mm

D_{30} = 0.545 mm

D_{15} = 0.077 mm

D_{10} = 0.050 mm

Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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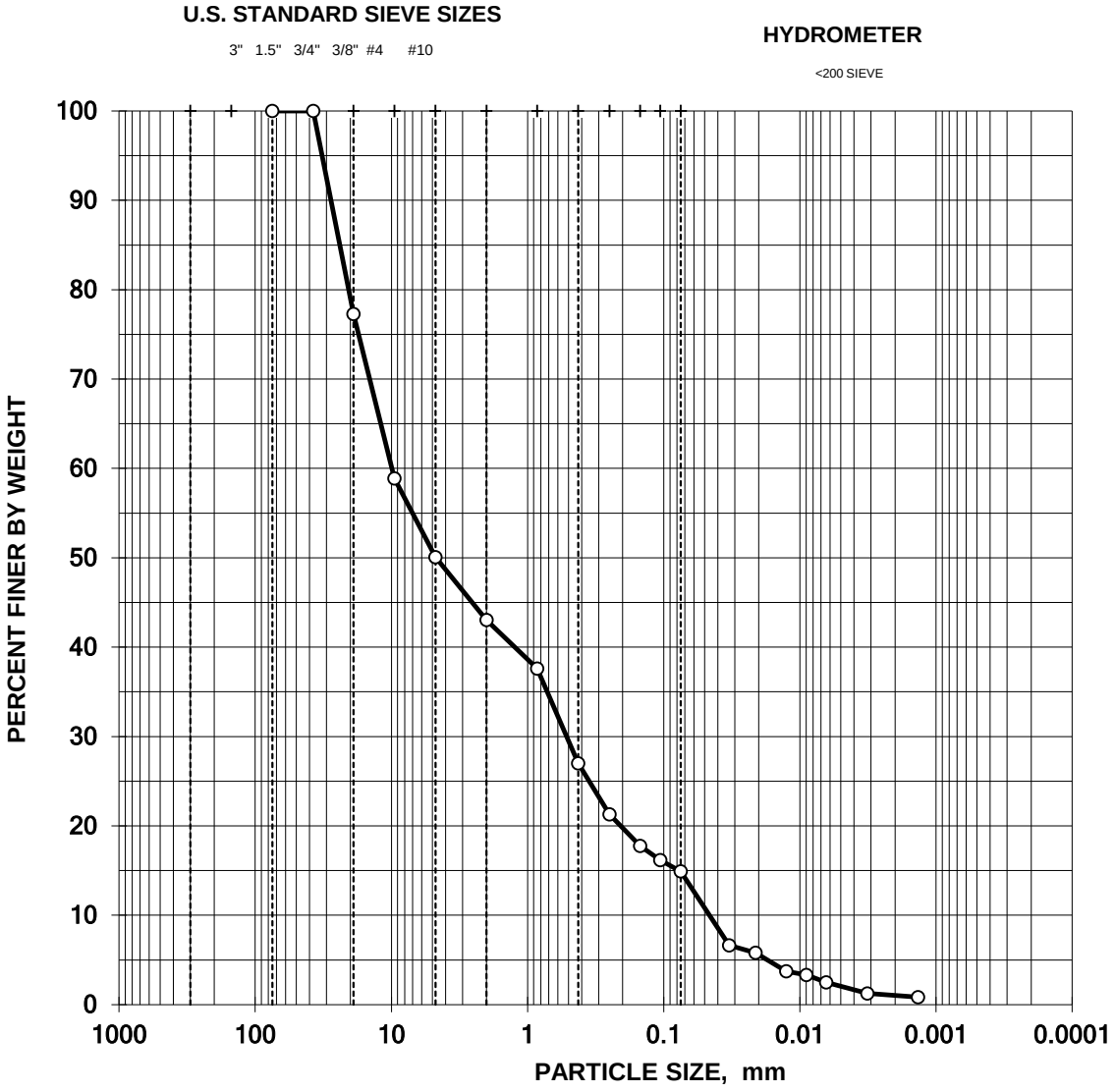
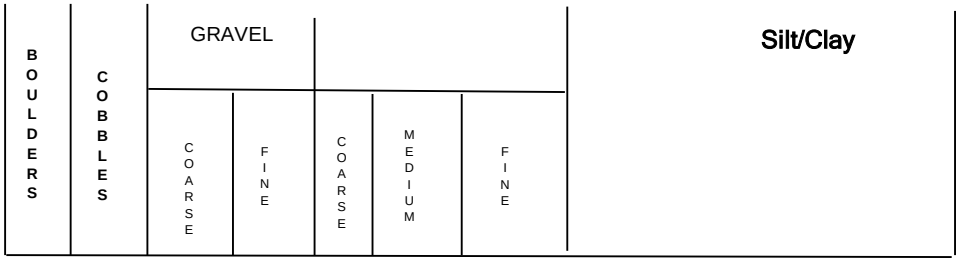
CHPRC



CLIENT SAMPLE NO.: **B2RJ61** **LAB SAMPLE NO.:** **SEK 9582**



Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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PARTICLE-SIZE ANALYSIS
ASTM D 422

Project Name	Client Sample No.	Sample Prep Date/Analyst:
CHPRC	B2RJ71	10/10/2013 MB
Project No.	Lab Sample No.	Analysis Date/Analyst:
500062.2013OCT1	SEK 9583	10/14/2013 MB

Specific Gravity = 2.70 assumed

Moisture Content = 6.8%
based on dry sample weight

SIEVE ANALYSIS

COARSE	Sieve No.	Diameter mm	Percent Finer
	3"	75.000	100.0%
	1.5"	37.500	100.0%
	0.75"	19.000	80.2%
	0.375"	9.500	65.3%
	#4	4.750	50.8%
	#10	2.000	40.5%

FINE	Sieve No.	Diameter mm	Percent Finer
	#20	0.850	35.6%
	#40	0.425	29.6%
	#60	0.250	22.4%
	#100	0.149	16.4%
	#140	0.106	14.2%
	#200	0.075	12.6%

HYDROMETER ANALYSIS

HYDROMETER	Diameter mm	Percent Finer
	0.03240	10.1%
	0.02107	8.0%
	0.01245	5.8%
	0.00887	5.3%
	0.00634	4.3%
	0.00318	2.1%
	0.00136	1.1%

49.2% Gravel

38.2% Sand

12.6% Silt/Clay

D_{85} = 23.514 mm

D_{60} = 7.754 mm

D_{30} = 0.450 mm

D_{15} = 0.121 mm

D_{10} = 0.032 mm

Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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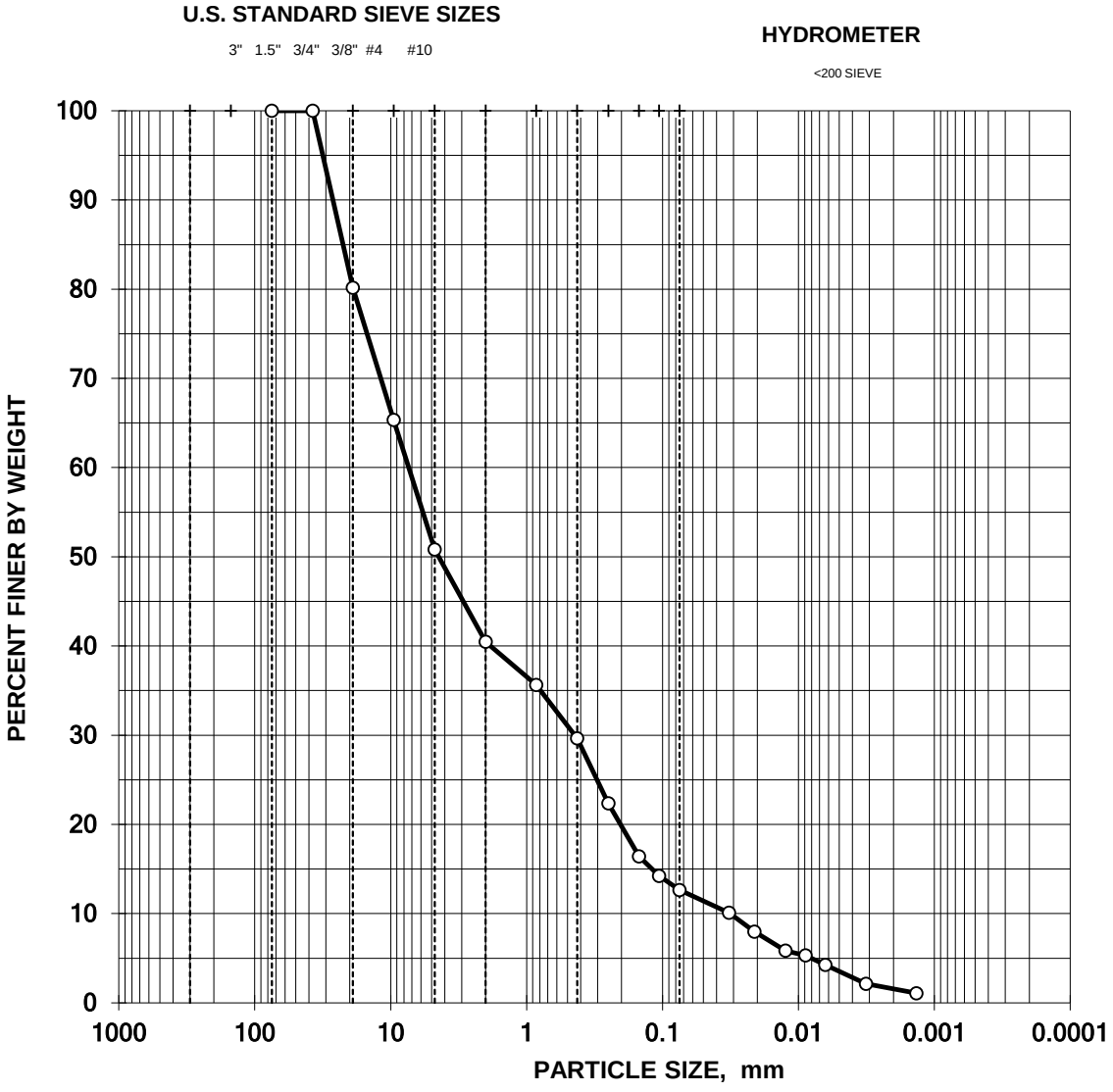
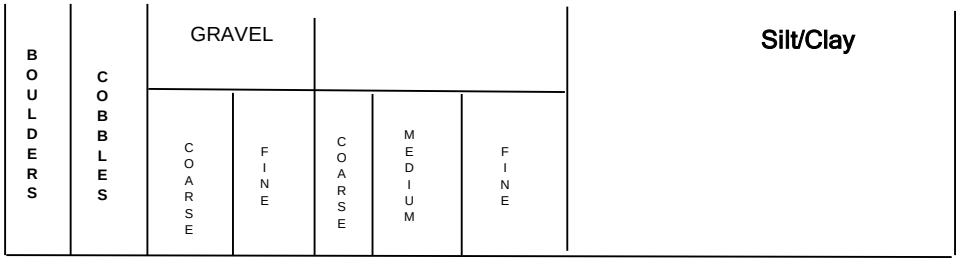
CHPRC



CLIENT SAMPLE NO.: **B2RJ71** **LAB SAMPLE NO.:** **SEK 9583**



Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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PARTICLE-SIZE ANALYSIS
ASTM D 422

Project Name	Client Sample No.	Sample Prep Date/Analyst:
CHPRC	B2RJ86	10/10/2013 MB
Project No.	Lab Sample No.	Analysis Date/Analyst:
500062.2013OCT1	SEK 9584	10/14/2013 MB

Specific Gravity = 2.70 assumed

Moisture Content = 13.5%
based on dry sample weight

SIEVE ANALYSIS

COARSE	Sieve No.	Diameter mm	Percent Finer
	3"	75.000	100.0%
	1.5"	37.500	100.0%
	0.75"	19.000	84.6%
	0.375"	9.500	71.9%
	#4	4.750	64.1%
	#10	2.000	59.2%

FINE	Sieve No.	Diameter mm	Percent Finer
	#20	0.850	55.6%
	#40	0.425	45.1%
	#60	0.250	26.2%
	#100	0.149	16.1%
	#140	0.106	13.7%
	#200	0.075	12.2%

HYDROMETER ANALYSIS

HYDROMETER	Diameter mm	Percent Finer
	0.03371	9.9%
	0.02140	9.1%
	0.01254	7.6%
	0.00890	6.8%
	0.00638	5.3%
	0.00318	3.0%
	0.00135	2.3%

35.9% Gravel

51.8% Sand

12.2% Silt/Clay

D_{85} = 19.468 mm

D_{60} = 2.454 mm

D_{30} = 0.285 mm

D_{15} = 0.130 mm

D_{10} = 0.036 mm

Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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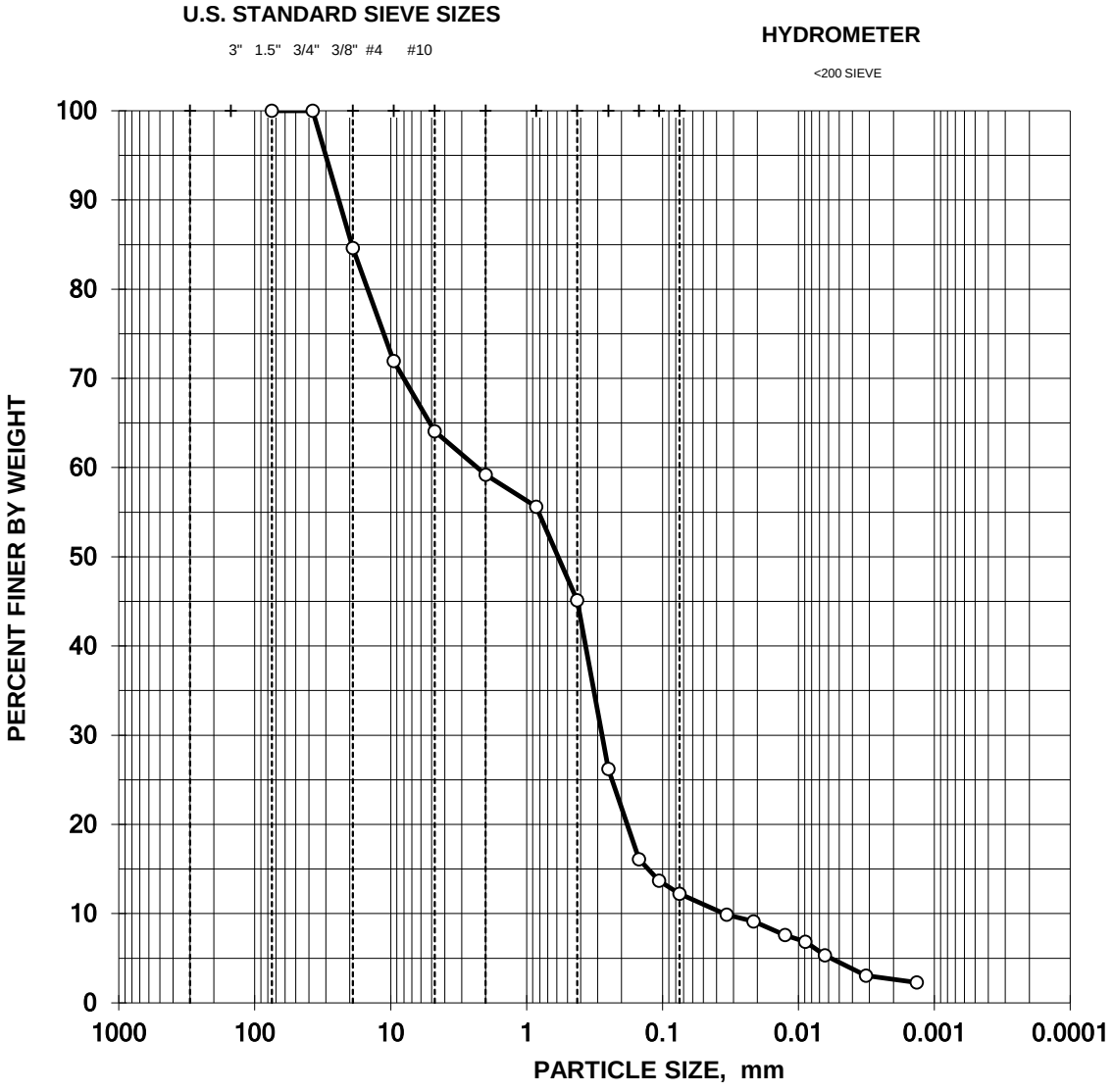
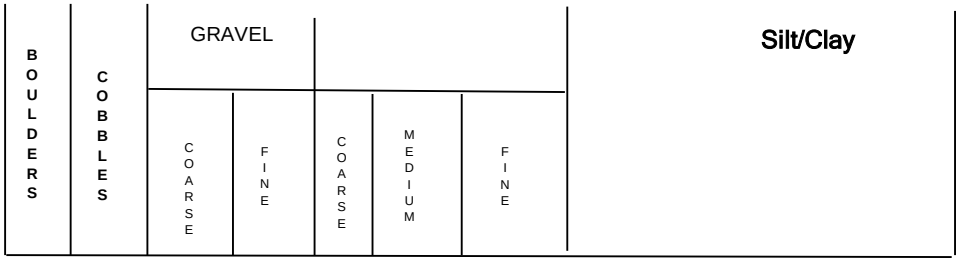
CHPRC



CLIENT SAMPLE NO.: **B2RJ86** **LAB SAMPLE NO.:** **SEK 9584**



Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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PARTICLE-SIZE ANALYSIS
ASTM D 422

Project Name	Client Sample No.	Sample Prep Date/Analyst:
CHPRC	B2R2F4	10/14/2013 MB
Project No.	Lab Sample No.	Analysis Date/Analyst:
500062.2013OCT1	SEK 9585	10/15/2013 MB

Specific Gravity = 2.70 assumed

Moisture Content = 12.6%
based on dry sample weight

SIEVE ANALYSIS

COARSE	Sieve No.	Diameter mm	Percent Finer
	3"	75.000	100.0%
	1.5"	37.500	80.1%
	0.75"	19.000	76.5%
	0.375"	9.500	74.8%
	#4	4.750	72.6%
	#10	2.000	68.7%

FINE	Sieve No.	Diameter mm	Percent Finer
	#20	0.850	63.8%
	#40	0.425	54.9%
	#60	0.250	34.5%
	#100	0.149	20.3%
	#140	0.106	16.2%
	#200	0.075	14.3%

HYDROMETER ANALYSIS

HYDROMETER	Diameter mm	Percent Finer
	0.03637	1.3%
	0.02300	1.3%
	0.01328	1.3%
	0.00939	1.3%
	0.00666	1.0%
	0.00324	0.6%
	0.00136	1.0%

27.4% Gravel

58.3% Sand

14.3% Silt/Clay

D_{85} = 46.684 mm

D_{60} = 0.669 mm

D_{30} = 0.218 mm

D_{15} = 0.086 mm

D_{10} = 0.062 mm

Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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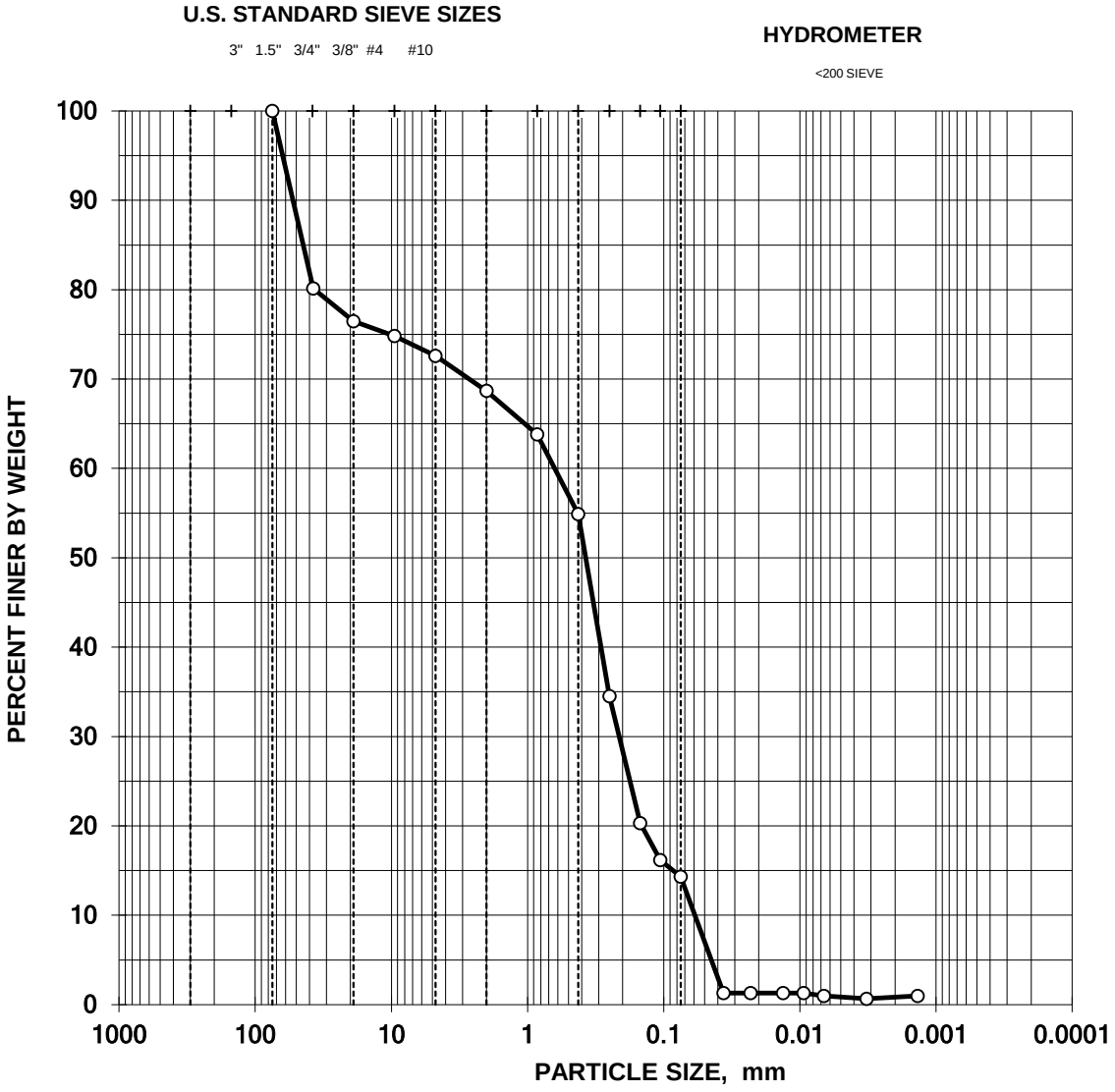
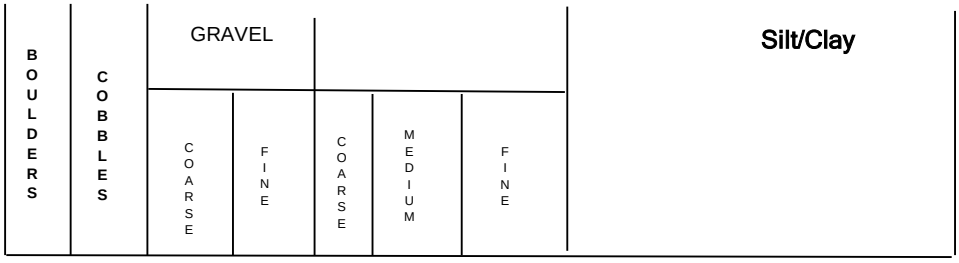
CHPRC



CLIENT SAMPLE NO.: **B2R2F4**

LAB SAMPLE NO.: **SEK 9585**



Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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PARTICLE-SIZE ANALYSIS
ASTM D 422

Project Name	Client Sample No.	Sample Prep Date/Analyst:
CHPRC	B2R2F6	10/14/2013 MB
Project No.	Lab Sample No.	Analysis Date/Analyst:
500062.2013OCT1	SEK 9586	10/15/2013 MB

Specific Gravity = 2.70 assumed

Moisture Content = 7.1%
based on dry sample weight

SIEVE ANALYSIS

COARSE	Sieve No.	Diameter mm	Percent Finer
	3"	75.000	100.0%
	1.5"	37.500	83.1%
	0.75"	19.000	66.2%
	0.375"	9.500	48.8%
	#4	4.750	36.3%
	#10	2.000	30.3%

FINE	Sieve No.	Diameter mm	Percent Finer
	#20	0.850	27.8%
	#40	0.425	24.3%
	#60	0.250	14.2%
	#100	0.149	9.7%
	#140	0.106	8.1%
	#200	0.075	6.8%

HYDROMETER ANALYSIS

HYDROMETER	Diameter mm	Percent Finer
	0.03346	4.7%
	0.02158	3.8%
	0.01269	2.9%
	0.00907	2.4%
	0.00646	2.1%
	0.00318	1.2%
	0.00135	1.0%

63.7% Gravel

29.5% Sand

6.8% Silt/Clay

D_{85} = 41.771 mm

D_{60} = 15.631 mm

D_{30} = 1.858 mm

D_{15} = 0.264 mm

D_{10} = 0.156 mm

Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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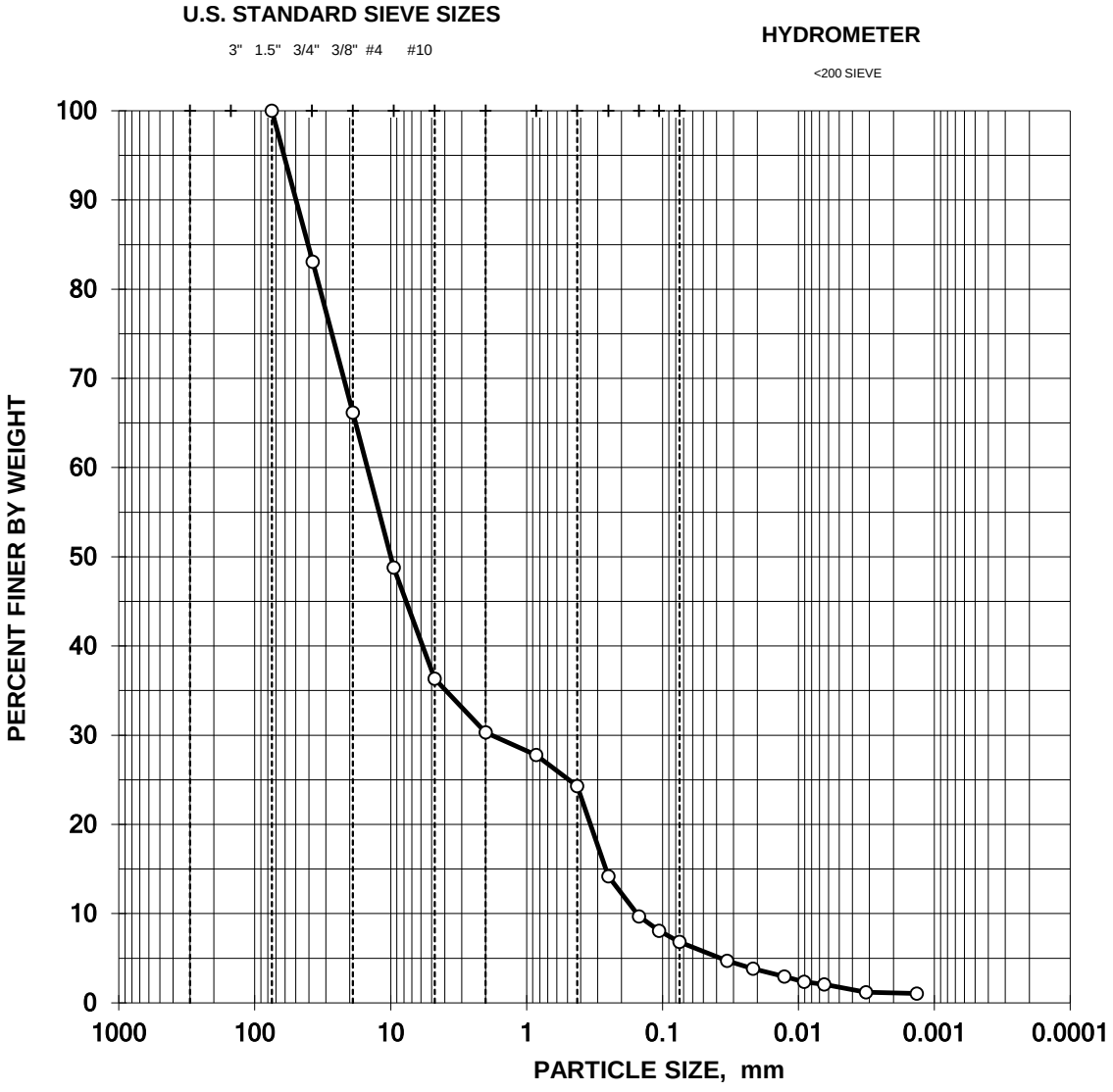
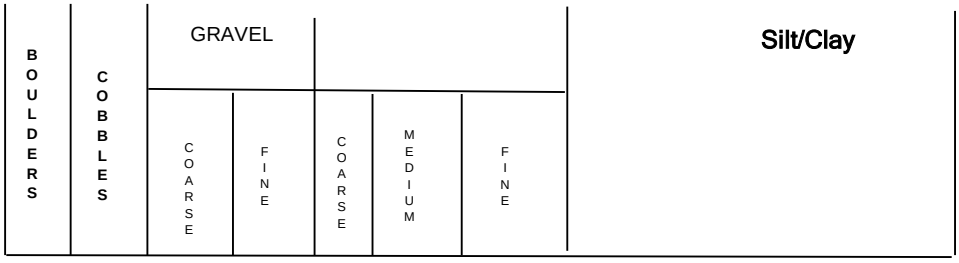
CHPRC



CLIENT SAMPLE NO.: **B2R2F6**

LAB SAMPLE NO.: **SEK 9586**



Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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PARTICLE-SIZE ANALYSIS
ASTM D 422

Project Name	Client Sample No.	Sample Prep Date/Analyst:
CHPRC	B2R2F8	10/17/2013 MB
Project No.	Lab Sample No.	Analysis Date/Analyst:
500062.2013OCT1	SEK 9587	10/18/2013 MB

Specific Gravity = 2.70 assumed

Moisture Content = 16.8%
based on dry sample weight

SIEVE ANALYSIS

COARSE	Sieve No.	Diameter mm	Percent Finer
	3"	75.000	100.0%
	1.5"	37.500	86.4%
	0.75"	19.000	83.1%
	0.375"	9.500	78.1%
	#4	4.750	71.7%
	#10	2.000	66.5%

FINE	Sieve No.	Diameter mm	Percent Finer
	#20	0.850	63.5%
	#40	0.425	57.6%
	#60	0.250	46.6%
	#100	0.149	39.9%
	#140	0.106	36.4%
	#200	0.075	33.0%

HYDROMETER ANALYSIS

HYDROMETER	Diameter mm	Percent Finer
	0.03280	15.1%
	0.02091	14.3%
	0.01212	13.5%
	0.00874	11.2%
	0.00621	10.8%
	0.00311	7.7%
	0.00132	5.0%

28.3% Gravel

38.6% Sand

33.0% Silt/Clay

D_{85} = 29.488 mm

D_{60} = 0.596 mm

D_{30} = 0.068 mm

D_{15} = 0.032 mm

D_{10} = 0.005 mm

Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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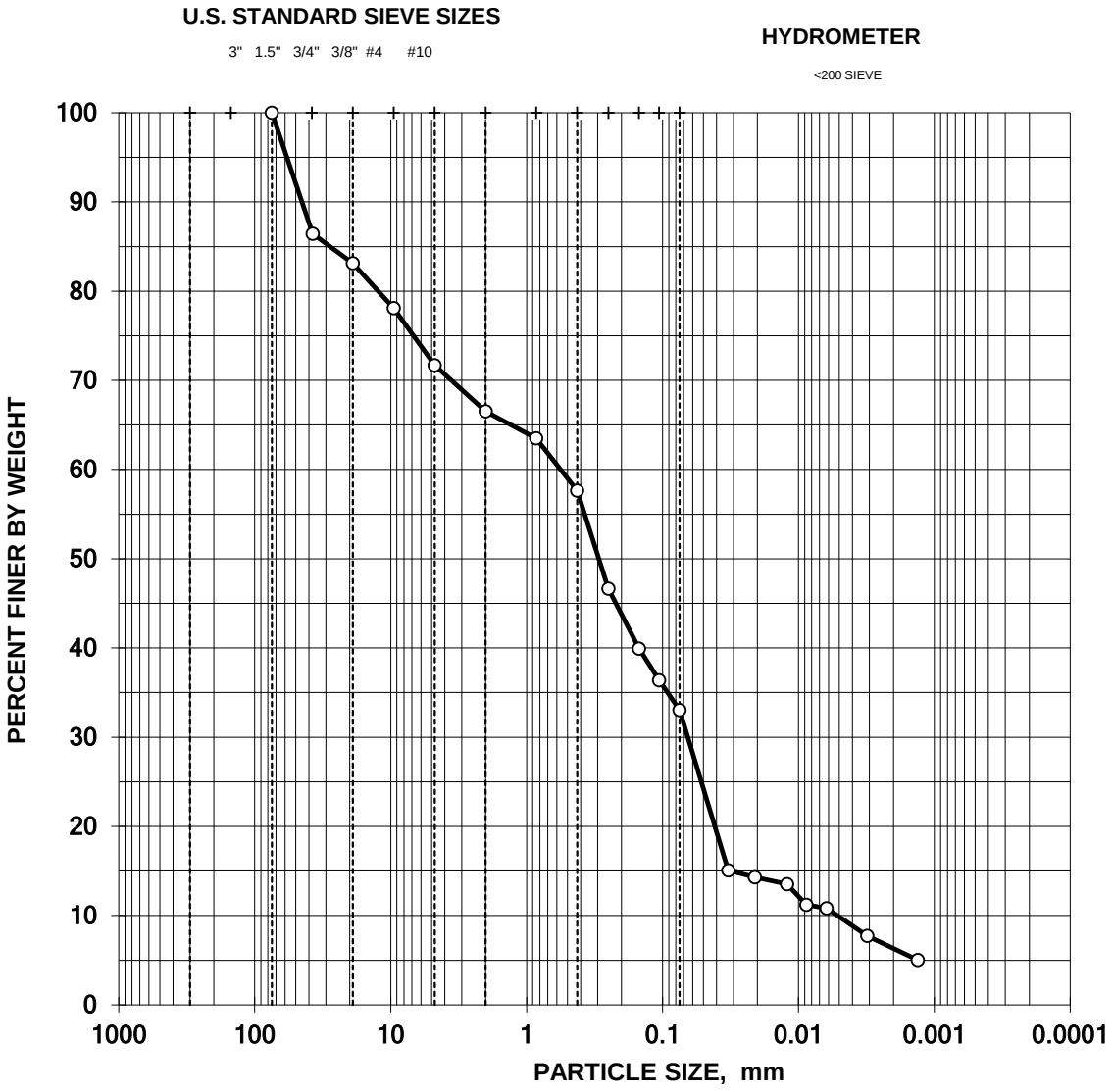
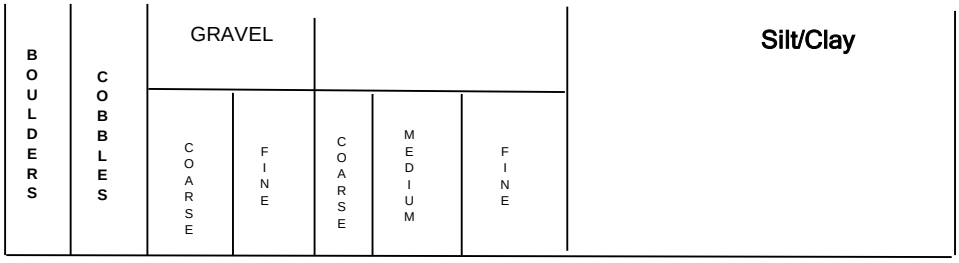
CHPRC



CLIENT SAMPLE NO.: **B2R2F8**

LAB SAMPLE NO.: **SEK 9587**



Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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PARTICLE-SIZE ANALYSIS
ASTM D 422

Project Name	Client Sample No.	Sample Prep Date/Analyst:
CHPRC	B2R2W9	10/15/2013 MB
Project No.	Lab Sample No.	Analysis Date/Analyst:
500062.2013OCT1	SEK 9588	10/16/2013 MB

Specific Gravity = 2.70 assumed

Moisture Content = 20.1%
based on dry sample weight

SIEVE ANALYSIS

COARSE	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	100.0%
	#10	2.000	99.1%

FINE	Sieve No.	Diameter mm	Percent Finer
	#20	0.850	97.2%
	#40	0.425	87.8%
	#60	0.250	56.8%
	#100	0.149	18.1%
	#140	0.106	9.5%
	#200	0.075	5.5%

HYDROMETER ANALYSIS

HYDROMETER	Diameter mm	Percent Finer
	0.03637	2.4%
	0.02315	1.5%
	0.01337	1.5%
	0.00947	1.0%
	0.00671	0.5%
	0.00330	0.0%
	0.00137	0.0%

0.0% Gravel

94.5% Sand

5.5% Silt/Clay

D_{85} = 0.409 mm
D_{60} = 0.268 mm

D_{30} = 0.180 mm
D_{15} = 0.133 mm

D_{10} = 0.108 mm

Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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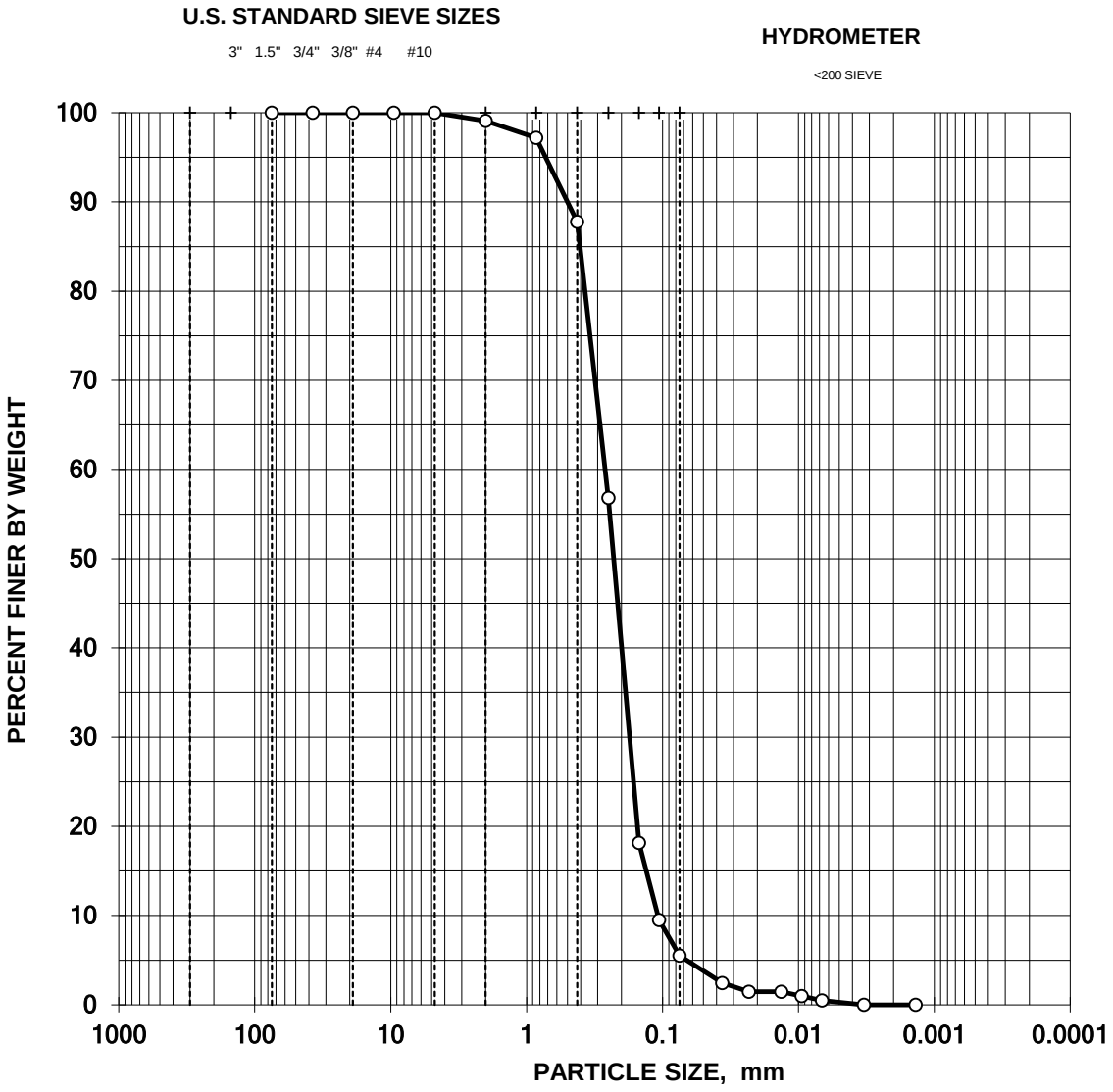
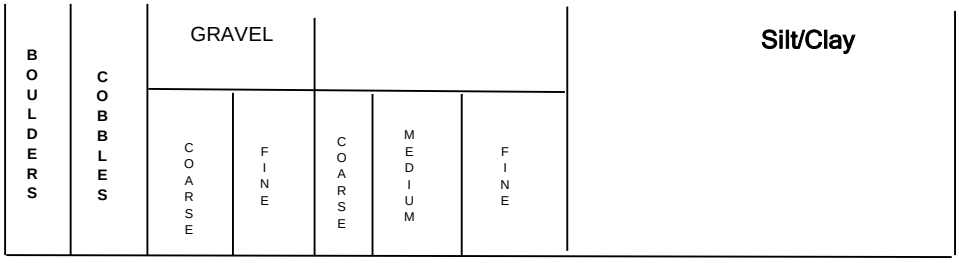
CHPRC



CLIENT SAMPLE NO.: **B2R2W9**

LAB SAMPLE NO.: **SEK 9588**



Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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PARTICLE-SIZE ANALYSIS
ASTM D 422

Project Name	Client Sample No.	Sample Prep Date/Analyst:
CHPRC	B2R2W5	10/15/2013 MB
Project No.	Lab Sample No.	Analysis Date/Analyst:
500062.2013OCT1	SEK 9589	10/16/2013 MB

Specific Gravity = 2.70 assumed

Moisture Content = 16.6%
based on dry sample weight

SIEVE ANALYSIS

COARSE	Sieve No.	Diameter mm	Percent Finer
	3"	75.000	100.0%
	1.5"	37.500	100.0%
	0.75"	19.000	96.5%
	0.375"	9.500	95.1%
	#4	4.750	91.4%
	#10	2.000	90.2%

FINE	Sieve No.	Diameter mm	Percent Finer
	#20	0.850	89.3%
	#40	0.425	79.3%
	#60	0.250	43.2%
	#100	0.149	17.1%
	#140	0.106	13.1%
	#200	0.075	10.9%

HYDROMETER ANALYSIS

HYDROMETER	Diameter mm	Percent Finer
	0.03539	6.7%
	0.02262	4.9%
	0.01315	4.0%
	0.00933	3.1%
	0.00664	2.2%
	0.00325	2.2%
	0.00136	1.8%

8.6% Gravel

80.5% Sand

10.9% Silt/Clay

D_{85} = 0.669 mm

D_{60} = 0.332 mm

D_{30} = 0.199 mm

D_{15} = 0.126 mm

D_{10} = 0.066 mm

Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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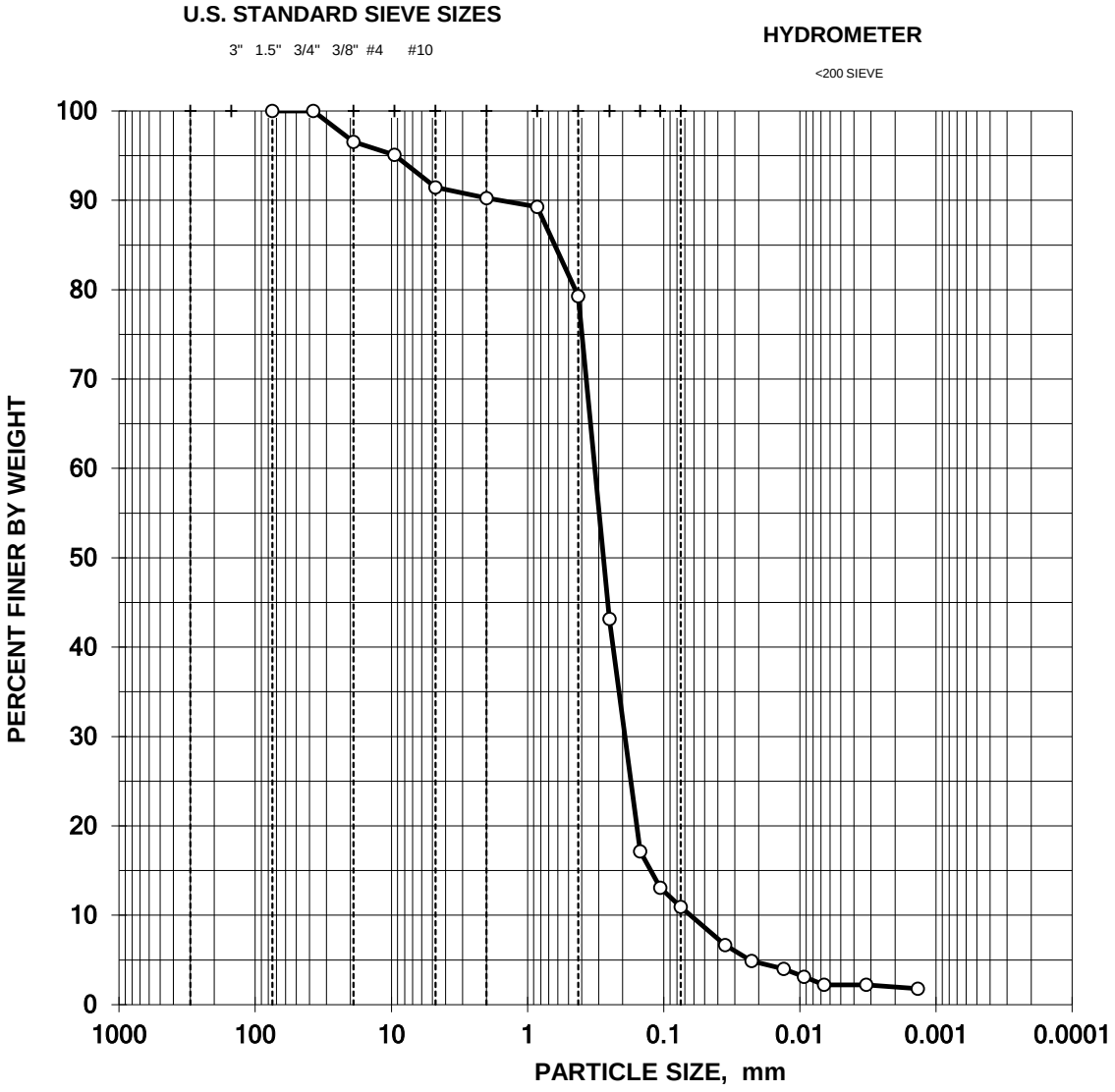
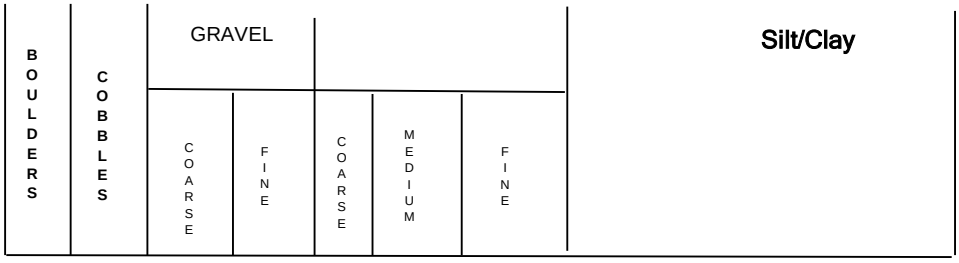
Geotechnical Laboratory
304 Directors Drive
Knoxville, TN 37923
(865) 690-3211

CHPRC



CLIENT SAMPLE NO.: **B2R2W5**

LAB SAMPLE NO.: **SEK 9589**



Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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PARTICLE-SIZE ANALYSIS
ASTM D 422

Project Name	Client Sample No.	Sample Prep Date/Analyst:
CHPRC	B2R2W7	10/15/2013 MB
Project No.	Lab Sample No.	Analysis Date/Analyst:
500062.2013OCT1	SEK 9590	10/16/2013 MB

Specific Gravity = 2.70 assumed

Moisture Content = 24.3%
based on dry sample weight

SIEVE ANALYSIS

COARSE	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	100.0%
	#10	2.000	100.0%

FINE	Sieve No.	Diameter mm	Percent Finer
	#20	0.850	99.9%
	#40	0.425	96.7%
	#60	0.250	47.5%
	#100	0.149	5.3%
	#140	0.106	3.0%
	#200	0.075	2.3%

HYDROMETER ANALYSIS

HYDROMETER	Diameter mm	Percent Finer
	0.03637	2.5%
	0.02308	2.0%
	0.01337	1.5%
	0.00945	1.5%
	0.00668	1.5%
	0.00330	0.0%
	0.00137	0.0%

0.0% Gravel

97.7% Sand

2.3% Silt/Clay

D_{85} = 0.383 mm
D_{60} = 0.294 mm

D_{30} = 0.208 mm
D_{15} = 0.172 mm

D_{10} = 0.160 mm

Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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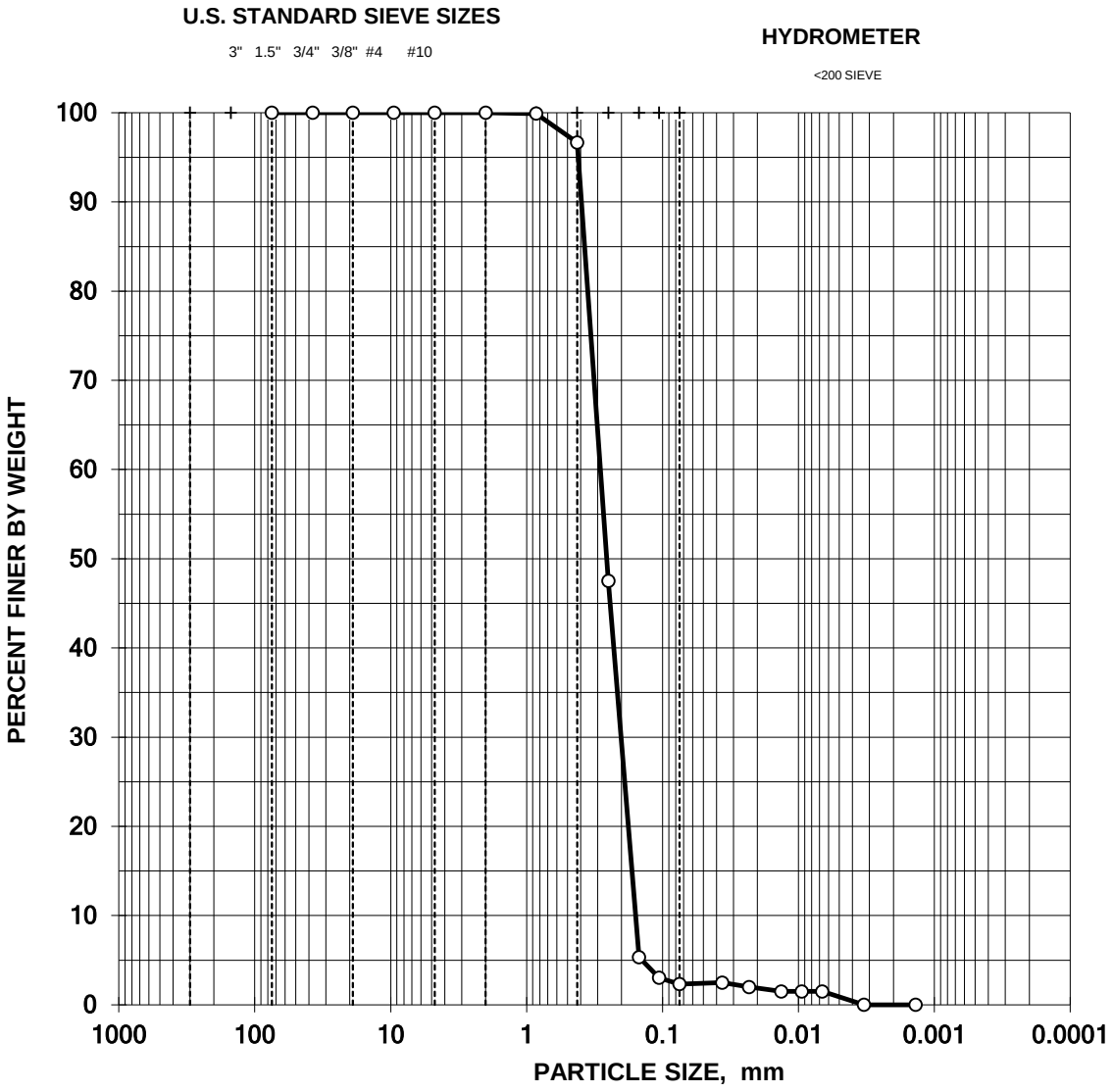
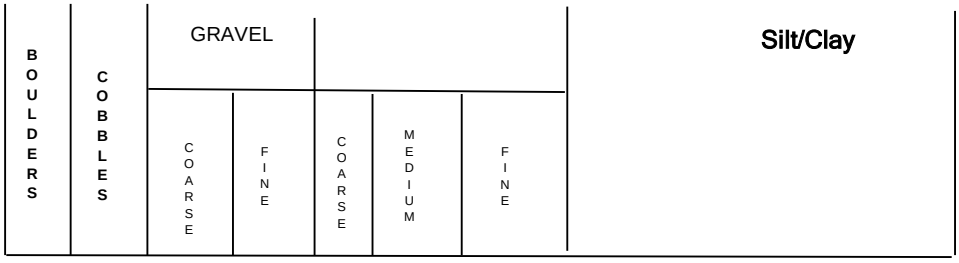
CHPRC



CLIENT SAMPLE NO.: **B2R2W7**

LAB SAMPLE NO.: **SEK 9590**



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Rapid Determination of Carbonate Content of Soils ASTM D4373

PROJECT NAME: CHPRC

PROJECT NO: 500062.2013OCT1

Calcite Equilvalent (% $CaCO_3$) Results

Lab Sample ID	Client Sample ID	% $CaCO_3$
SEK 9585	B2R2F4	2
SEK 9586	B2R2F6	4
SEK 9587	B2R2F8	1
SEK 9588	B2R2W9	1
SEK 9589	B2R2W5	1
SEK 9590	B2R2W7	1

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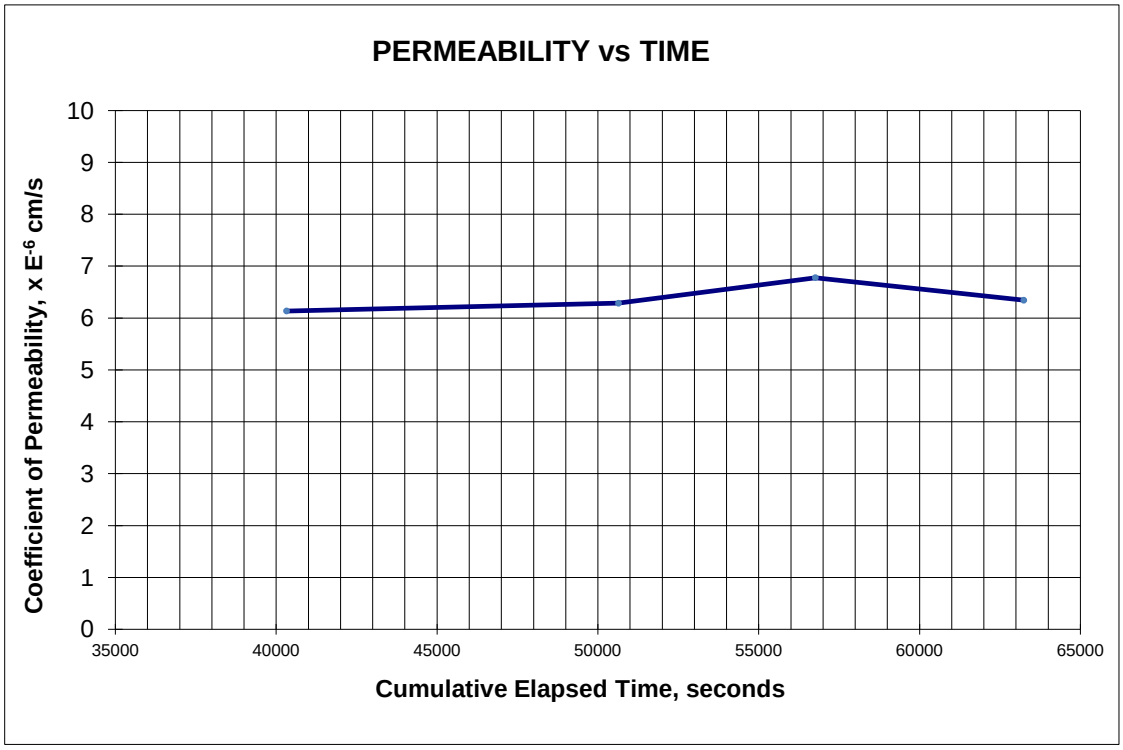
HYDRAULIC CONDUCTIVITY / PERMEABILITY
ASTM D 5084

PROJECT NAME:	CHPRC	CLIENT SAMPLE NO.	B2R276
PROJECT NO.	500062.2013OCT1	LAB SAMPLE NO.	SEK 9575
PREPARED BY:	D Huskey	PREPARED DATE:	10/15/2013
TESTED BY:	D Huskey	TESTED DATE:	10/17/2013

	INITIAL	FINAL		
Specimen diameter, cm	5.10			
Specimen length, cm	5.55		Hydraulic gradient	12.7
Wet weight of specimen, g.	218.26	218.03	Min. consolidation stress, psi	2.0
Specimen cross-sect. area, cm^2	20.41		Max. consolidation stress, psi	3.0
Water content, %	28.1	27.9	Total backpressure, psi	24.0
Wet unit weight, pcf	120.3			
Dry unit weight, pcf	94.0		Permeant Fluid	Deaired Tap Water
Est. degree of saturation, %	97.8	97.8		
Specific gravity of solids, assumed	2.65			

Coefficient of Permeability, cm/s 6.4E-06



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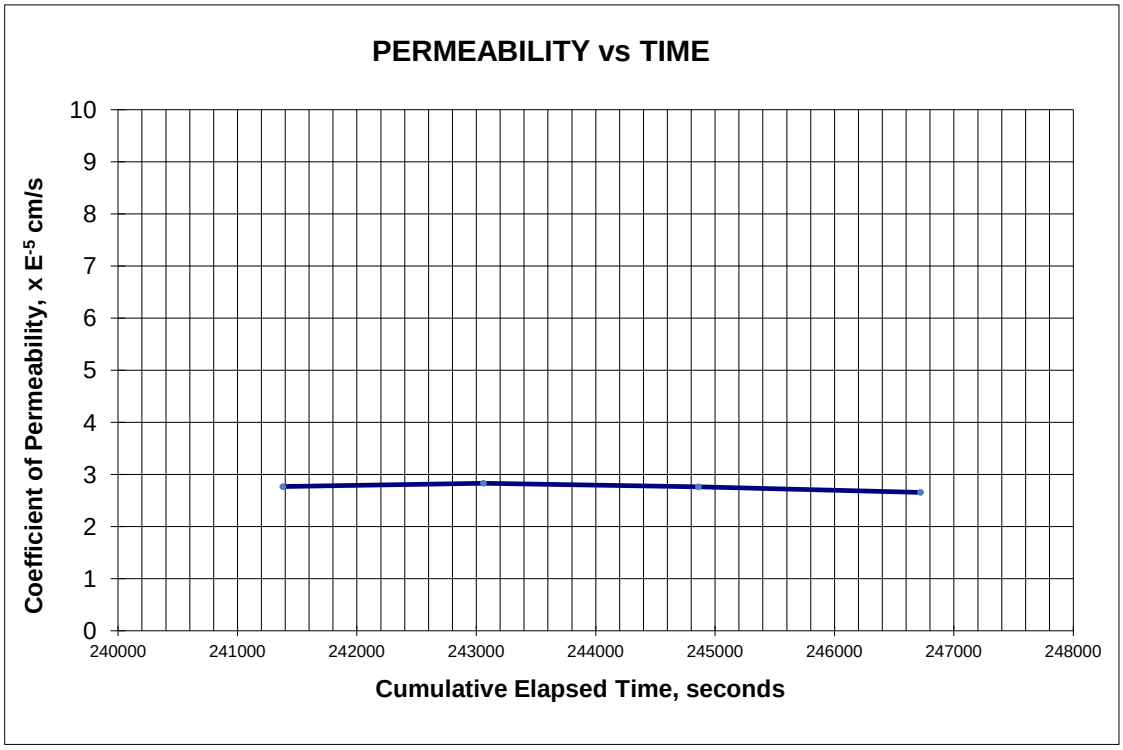
HYDRAULIC CONDUCTIVITY / PERMEABILITY
ASTM D 5084

PROJECT NAME:	CHPRC	CLIENT SAMPLE NO.	B2R278
PROJECT NO.	500062.2013OCT1	LAB SAMPLE NO.	SEK 9576
PREPARED BY:	D Huskey	PREPARED DATE:	10/17/2013
TESTED BY:	D Huskey	TESTED DATE:	10/21/2013

	INITIAL	FINAL		
Specimen diameter, cm	5.08			
Specimen length, cm	6.69		Hydraulic gradient	5.3
Wet weight of specimen, g.	263.42	264.3	Min. consolidation stress, psi	2.0
Specimen cross-sect. area, cm^2	20.26		Max. consolidation stress, psi	3.5
Water content, %	22.2	26.5	Total backpressure, psi	25.5
Wet unit weight, pcf	121.4			
Dry unit weight, pcf	99.3		Permeant Fluid	Deaired Tap Water
Est. degree of saturation, %	88.5	88.5		
Specific gravity of solids, assumed	2.65			

Coefficient of Permeability, cm/s 2.7E-05



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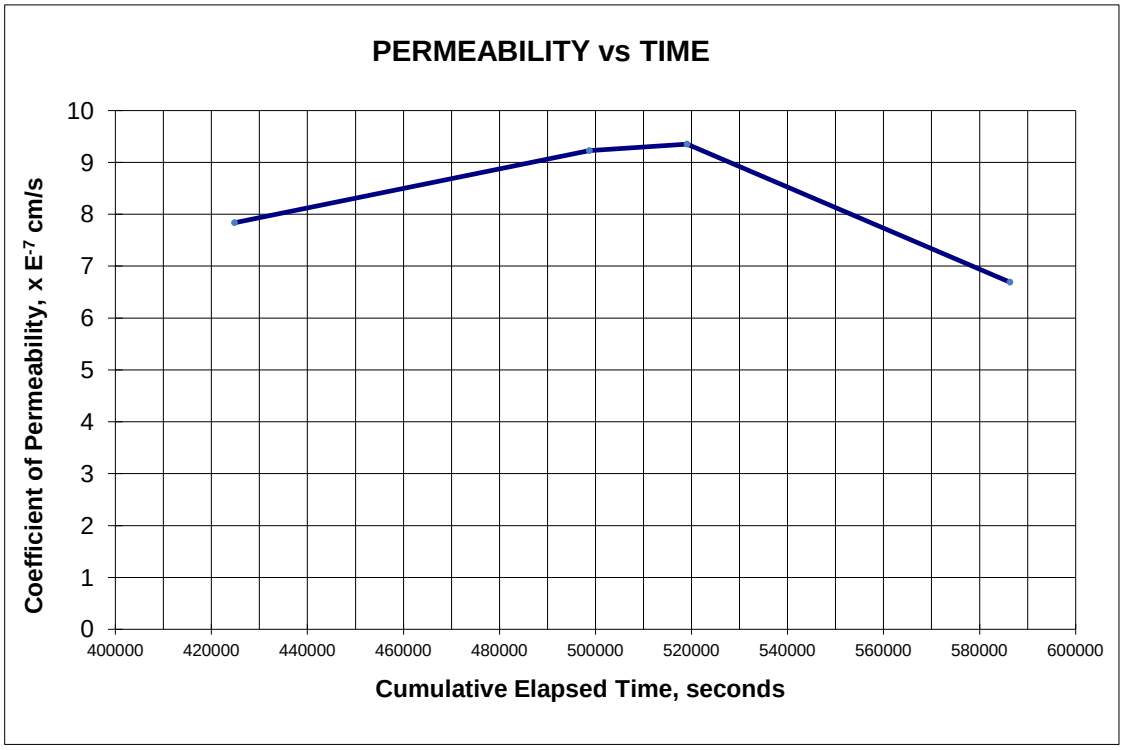
HYDRAULIC CONDUCTIVITY / PERMEABILITY
ASTM D 5084

PROJECT NAME:	CHPRC	CLIENT SAMPLE NO.	B2R2D1
PROJECT NO.	500062.2013OCT1	LAB SAMPLE NO.	SEK 9579
PREPARED BY:	D Huskey	PREPARED DATE:	10/15/2013
TESTED BY:	D Huskey	TESTED DATE:	10/17/2013

	INITIAL	FINAL		
Specimen diameter, cm	5.07			
Specimen length, cm	6.76		Hydraulic gradient	10.4
Wet weight of specimen, g.	285.97	278.46	Min. consolidation stress, psi	2.0
Specimen cross-sect. area, cm^2	20.21		Max. consolidation stress, psi	3.0
Water content, %	19.3	17.6	Total backpressure, psi	24.0
Wet unit weight, pcf	130.6			
Dry unit weight, pcf	109.5		Permeant Fluid	Deaired Tap Water
Est. degree of saturation, %	100.0	100.0		
Specific gravity of solids, assumed	2.65			

Coefficient of Permeability, cm/s 8.3E-07



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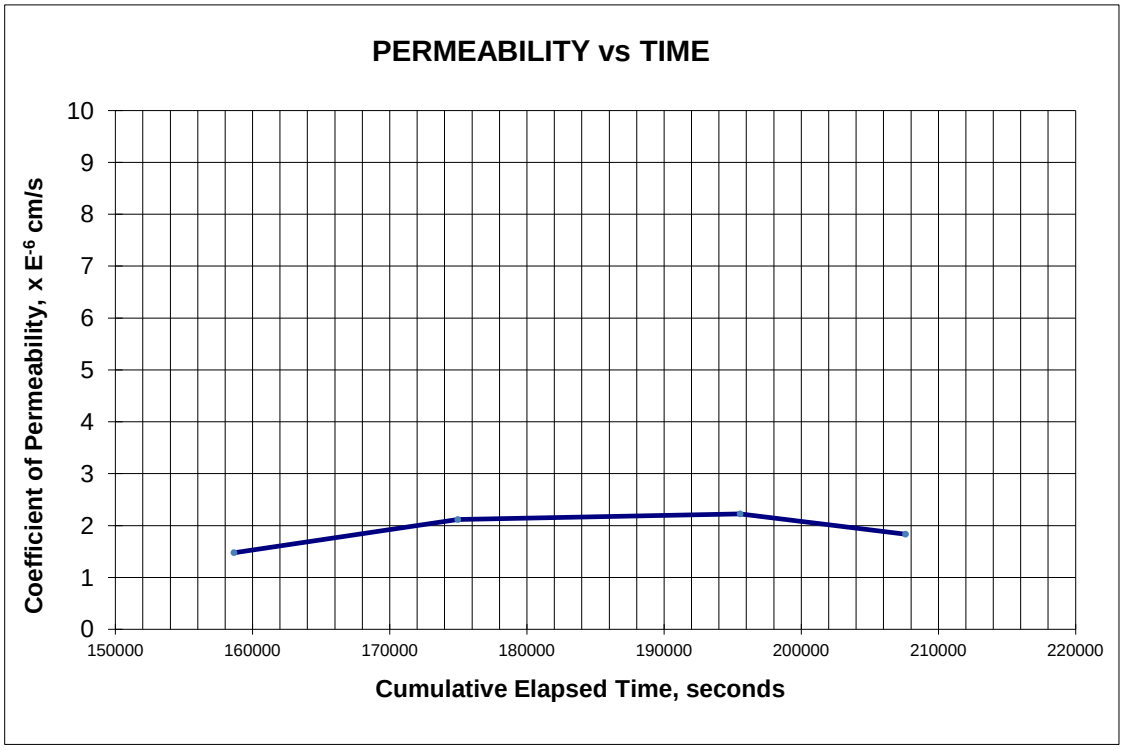
HYDRAULIC CONDUCTIVITY / PERMEABILITY
ASTM D 5084

PROJECT NAME:	CHPRC	CLIENT SAMPLE NO.	B2R2D3
PROJECT NO.	500062.2013OCT1	LAB SAMPLE NO.	SEK 9580
PREPARED BY:	D Huskey	PREPARED DATE:	10/18/2013
TESTED BY:	D Huskey	TESTED DATE:	10/21/2013

	INITIAL	FINAL		
Specimen diameter, cm	5.07			
Specimen length, cm	5.65		Hydraulic gradient	12.5
Wet weight of specimen, g.	223.03	222.16	Min. consolidation stress, psi	2.0
Specimen cross-sect. area, cm^2	20.18		Max. consolidation stress, psi	3.0
Water content, %	26.4	25.4	Total backpressure, psi	24.0
Wet unit weight, pcf	122.2			
Dry unit weight, pcf	96.7		Permeant Fluid	Deaired Tap Water
Est. degree of saturation, %	98.5	98.5		
Specific gravity of solids, assumed	2.65			

Coefficient of Permeability, cm/s 1.9E-06



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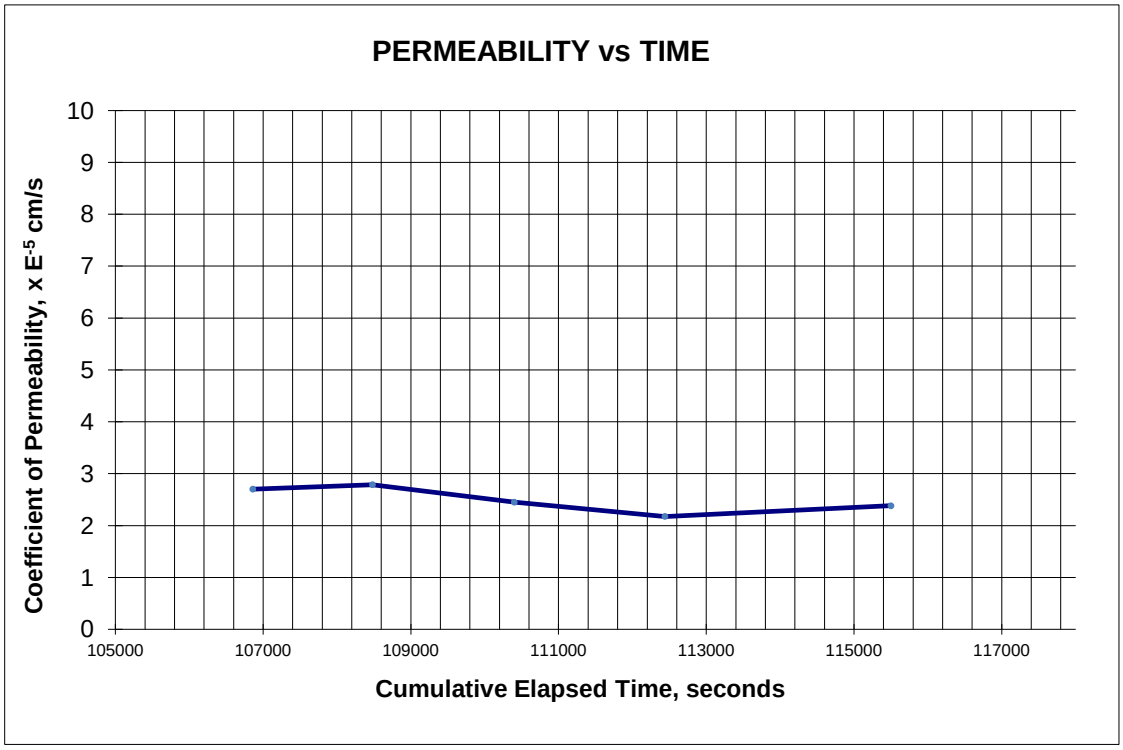
HYDRAULIC CONDUCTIVITY / PERMEABILITY
ASTM D 5084

PROJECT NAME:	CHPRC	CLIENT SAMPLE NO.	B2RJ61
PROJECT NO.	500062.2013OCT1	LAB SAMPLE NO.	SEK 9582
PREPARED BY:	D Huskey	PREPARED DATE:	10/24/2013
TESTED BY:	D Huskey	TESTED DATE:	10/24/2013

	INITIAL	FINAL		
Specimen diameter, cm	4.99			
Specimen length, cm	5.35		Hydraulic gradient	6.6
Wet weight of specimen, g.	213.24	231.34	Min. consolidation stress, psi	2.0
Specimen cross-sect. area, cm^2	19.56		Max. consolidation stress, psi	3.0
Water content, %	5.4	15.0	Total backpressure, psi	25.5
Wet unit weight, pcf	127.2			
Dry unit weight, pcf	120.7		Permeant Fluid	Deaired Tap Water
Est. degree of saturation, %	38.4	38.4		
Specific gravity of solids, assumed	2.65			

Coefficient of Permeability, cm/s 2.4E-05



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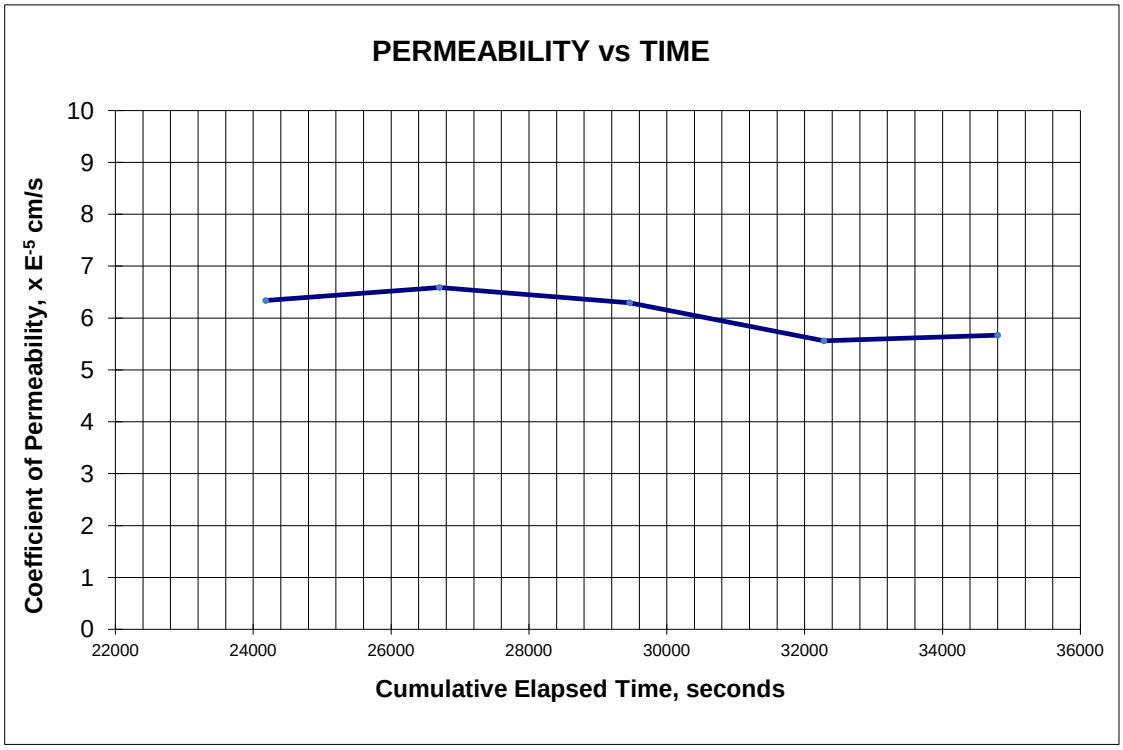
HYDRAULIC CONDUCTIVITY / PERMEABILITY
ASTM D 5084

PROJECT NAME:	CHPRC	CLIENT SAMPLE NO.	B2RJ71
PROJECT NO.	500062.2013OCT1	LAB SAMPLE NO.	SEK 9583
PREPARED BY:	D Huskey	PREPARED DATE:	10/26/2013
TESTED BY:	D Huskey	TESTED DATE:	10/28/2013

	INITIAL	FINAL		
Specimen diameter, cm	4.93			
Specimen length, cm	5.32		Hydraulic gradient	6.6
Wet weight of specimen, g.	229.81	238.39	Min. consolidation stress, psi	2.0
Specimen cross-sect. area, cm^2	19.11		Max. consolidation stress, psi	2.5
Water content, %	7.3	12.1	Total backpressure, psi	24.5
Wet unit weight, pcf	141.1			
Dry unit weight, pcf	131.5		Permeant Fluid	Deaired Tap Water
Est. degree of saturation, %	75.3	75.3		
Specific gravity of solids, assumed	2.65			

Coefficient of Permeability, cm/s 6.0E-05



Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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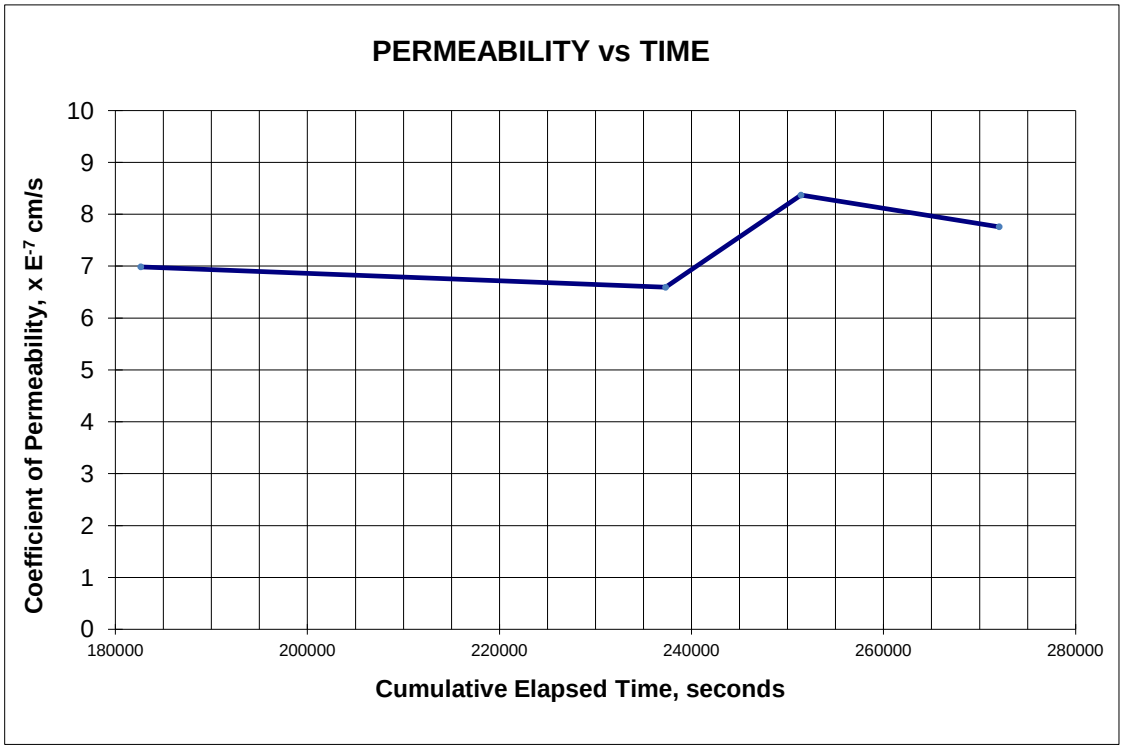
HYDRAULIC CONDUCTIVITY / PERMEABILITY
ASTM D 5084

PROJECT NAME:	CHPRC	CLIENT SAMPLE NO.	B2RJ86
PROJECT NO.	500062.2013OCT1	LAB SAMPLE NO.	SEK 9584
PREPARED BY:	D Huskey	PREPARED DATE:	10/26/2013
TESTED BY:	D Huskey	TESTED DATE:	

	INITIAL	FINAL		
Specimen diameter, cm	4.93			
Specimen length, cm	5.81		Hydraulic gradient	24.2
Wet weight of specimen, g.	263.94	262.06	Min. consolidation stress, psi	2.0
Specimen cross-sect. area, cm^2	19.11		Max. consolidation stress, psi	4.0
Water content, %	13.6	13.8	Total backpressure, psi	24.0
Wet unit weight, pcf	148.5			
Dry unit weight, pcf	130.8		Permeant Fluid	Deaired Tap Water
Est. degree of saturation, %	135.4	135.4		
Specific gravity of solids, assumed	2.65			

Coefficient of Permeability, cm/s 7.4E-07



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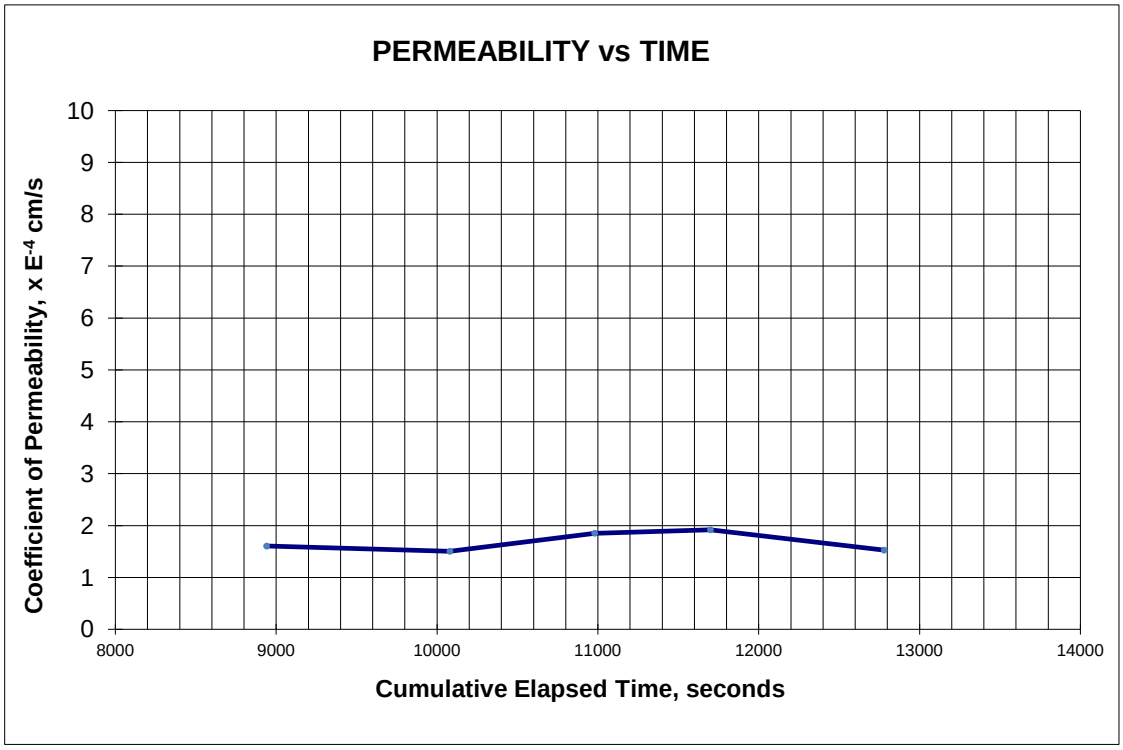
HYDRAULIC CONDUCTIVITY / PERMEABILITY
ASTM D 5084

PROJECT NAME:	CHPRC	CLIENT SAMPLE NO.	B2R2F6
PROJECT NO.	500062.2013OCT1	LAB SAMPLE NO.	SEK 9586
PREPARED BY:	D Huskey	PREPARED DATE:	10/29/2013
TESTED BY:	D Huskey	TESTED DATE:	

	INITIAL	FINAL		
Specimen diameter, cm	4.93			
Specimen length, cm	6.56		Hydraulic gradient	5.4
Wet weight of specimen, g.	272.56	283.56	Min. consolidation stress, psi	2.0
Specimen cross-sect. area, cm^2	19.11		Max. consolidation stress, psi	2.5
Water content, %	7.2	12.1	Total backpressure, psi	23.5
Wet unit weight, pcf	135.7			
Dry unit weight, pcf	126.7		Permeant Fluid	Deaired Tap Water
Est. degree of saturation, %	62.0	62.0		
Specific gravity of solids, assumed	2.65			

Coefficient of Permeability, cm/s 1.7E-04



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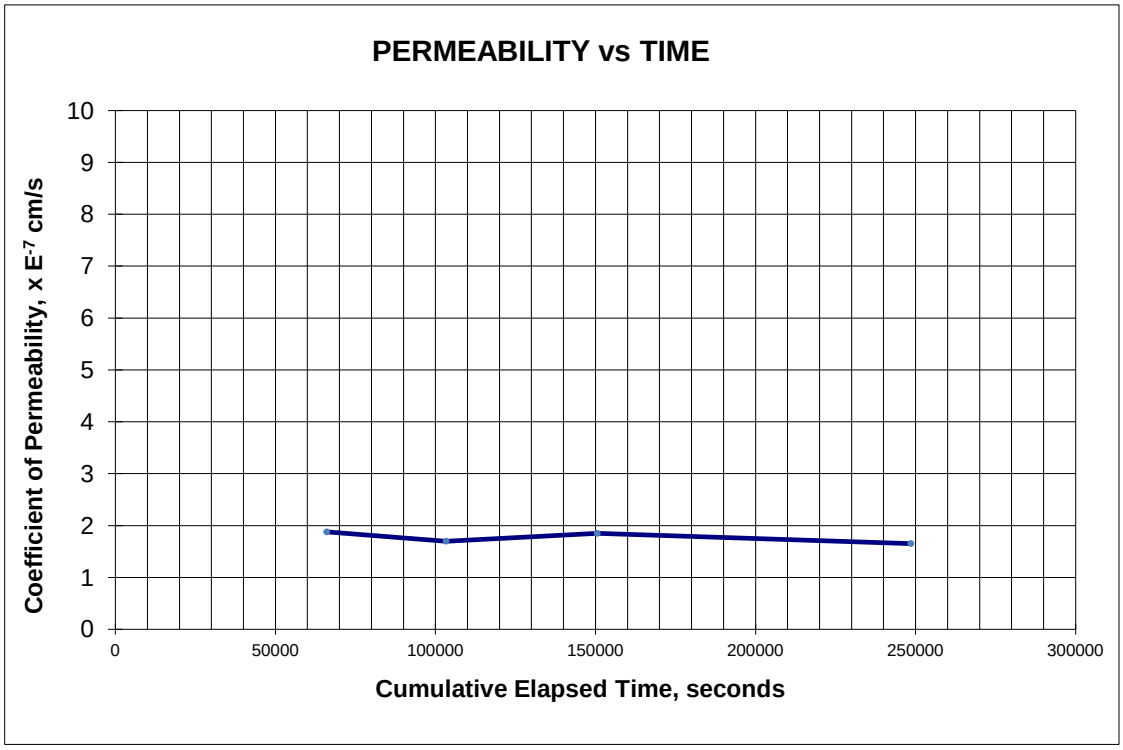
HYDRAULIC CONDUCTIVITY / PERMEABILITY
ASTM D 5084

PROJECT NAME:	CHPRC	CLIENT SAMPLE NO.	B2R2F8
PROJECT NO.	500062.2013OCT1	LAB SAMPLE NO.	SEK 9587
PREPARED BY:	D Huskey	PREPARED DATE:	10/26/2013
TESTED BY:	D Huskey	TESTED DATE:	10/28/2013

	INITIAL	FINAL		
Specimen diameter, cm	4.93			
Specimen length, cm	5.82		Hydraulic gradient	36.2
Wet weight of specimen, g.	255.12	251.72	Min. consolidation stress, psi	2.0
Specimen cross-sect. area, cm^2	19.11		Max. consolidation stress, psi	5.0
Water content, %	15.5	13.6	Total backpressure, psi	24.0
Wet unit weight, pcf	143.1			
Dry unit weight, pcf	123.8		Permeant Fluid	Deaired Tap Water
Est. degree of saturation, %	122.6	122.6		
Specific gravity of solids, assumed	2.65			

Coefficient of Permeability, cm/s 1.8E-07



Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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HYDRAULIC CONDUCTIVITY / PERMEABILITY
ASTM D 2434

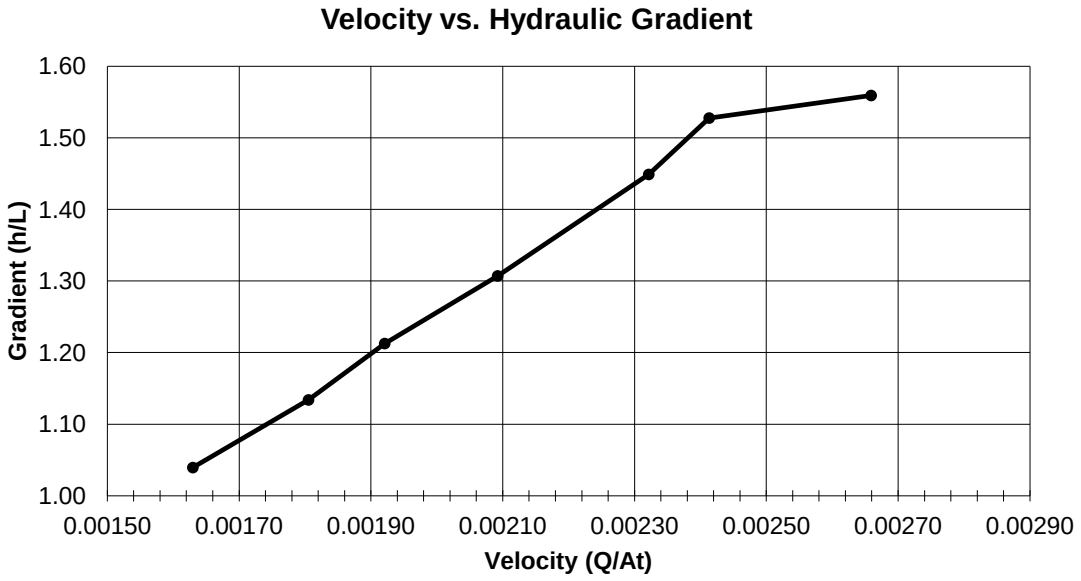
PROJECT NAME:	CHPRC	CLIENT SAMPLE NO.	B2R272
PROJECT NO.	500062.2013OCT1	LAB SAMPLE NO.	SEK 9573

Specimen diameter, cm	6.35	Void ratio	n/a*
Specimen length, cm	9.843		
Wet weight of specimen, g.	580.54	Specific gravity of solids, assumed	2.80
Specimen cross-sect. area, cm^2	31.65		
Water content, %	n/a	Permeant Fluid	Tap Water
Wet unit weight, pcf	116.3	Material Used	-3/8 inch
Dry unit weight, pcf	n/a*		

* n/a is not analyzed due to using the entire -3/8 inch sample to fill permeameter

Trial no.	Head, h	Q, cm3	Time, sec	Q/At	h/L	Temp, °C	k, cm/s
1	6.6	65	1260	0.0016	1.0394	22.5	1.48E-03
2	7.2	72	1260	0.0018	1.1339	23.0	1.48E-03
3	7.7	98.5	1620	0.0019	1.2126	22.5	1.49E-03
4	8.3	75.5	1140	0.0021	1.3071	23.0	1.49E-03
5	9.2	48.5	660	0.0023	1.4488	23.0	1.49E-03
6	9.7	82.5	1080	0.0024	1.5276	22.0	1.51E-03
7	9.9	50.5	600	0.0027	1.5591	23.0	1.59E-03

Coefficient of Permeability, cm/s 1.49E-03



Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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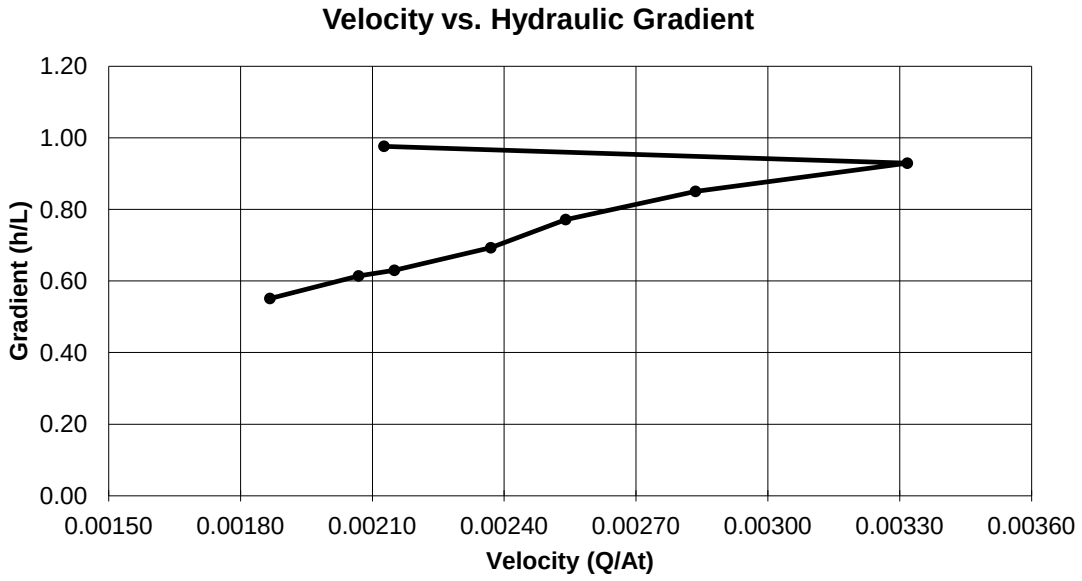
HYDRAULIC CONDUCTIVITY / PERMEABILITY
ASTM D 2434

PROJECT NAME:	CHPRC	CLIENT SAMPLE NO.	B2R274
PROJECT NO.	500062.2013OCT1	LAB SAMPLE NO.	SEK 9574

Specimen diameter, cm	6.35	Void ratio	0.49
Specimen length, cm	12.574		
Wet weight of specimen, g.	752.35	Specific gravity of solids, assumed	2.80
Specimen cross-sect. area, cm^2	31.67		
Water content, %	0.49	Permeant Fluid	Tap Water
Wet unit weight, pcf	118.0	Material Used	-3/8 inch
Dry unit weight, pcf	117.4		

Trial no.	Head, h	Q, cm3	Time, sec	Q/At	h/L	Temp, °C	k, cm/s
1	3.5	39	660	0.0019	0.5512	21.5	3.27E-03
2	3.9	110	1680	0.0021	0.6142	22.0	3.21E-03
3	4.0	73.5	1080	0.0022	0.6299	22.0	3.25E-03
4	4.4	49.5	660	0.0024	0.6929	22.0	3.26E-03
5	4.9	82	1020	0.0025	0.7717	22.0	3.14E-03
6	5.4	70	780	0.0028	0.8504	22.0	3.18E-03
7	5.9	31.5	300	0.0033	0.9291	23.0	3.32E-03
8	6.2	52.5	780	0.0021	0.9764	22.0	2.08E-03

Coefficient of Permeability, cm/s 3.23E-03



Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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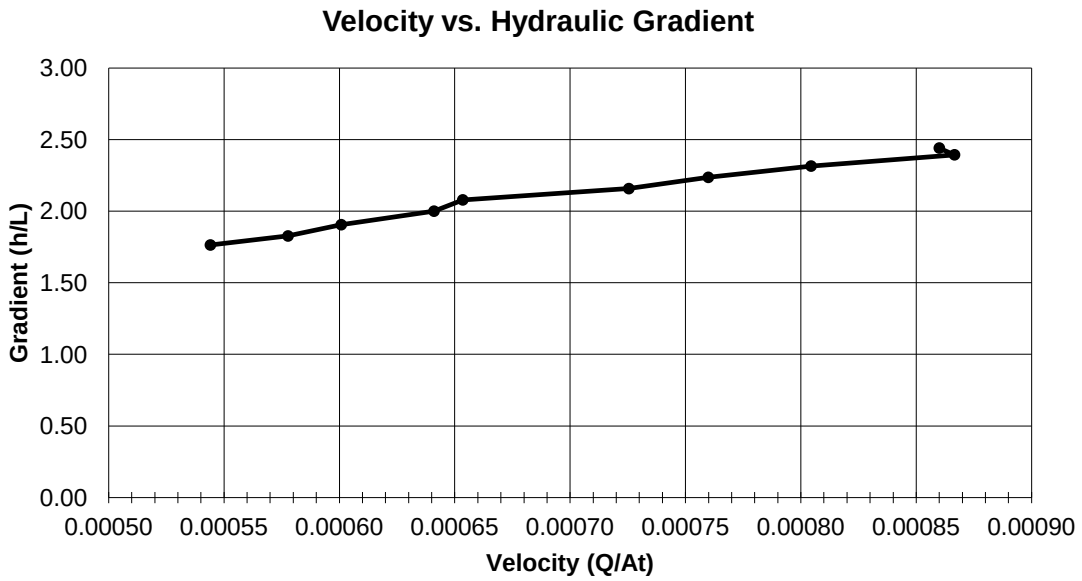
HYDRAULIC CONDUCTIVITY / PERMEABILITY
ASTM D 2434

PROJECT NAME:	CHPRC	CLIENT SAMPLE NO.	B2R2C7
PROJECT NO.	500062.2013OCT1	LAB SAMPLE NO.	SEK 9577

Specimen diameter, cm	6.35	Void ratio	0.20
Specimen length, cm	11.822		
Wet weight of specimen, g.	873.98	Specific gravity of solids, assumed	2.80
Specimen cross-sect. area, cm^2	31.65		
Water content, %	0.40	Permeant Fluid	Tap Water
Wet unit weight, pcf	145.8	Material Used	-3/8 inch
Dry unit weight, pcf	145.2		

Trial no.	Head, h	Q, cm3	Time, sec	Q/At	h/L	Temp, °C	k, cm/s
3	12.1	44.5	2340	0.0006	1.9055	22.5	2.97E-04
4	12.7	28	1380	0.0006	2.0000	22.5	3.02E-04
5	13.2	69.5	3360	0.0007	2.0787	22.5	2.96E-04
6	13.7	62	2700	0.0007	2.1575	22.0	3.20E-04
7	14.2	63.5	2640	0.0008	2.2362	22.5	3.20E-04
8	14.7	55	2160	0.0008	2.3150	22.0	3.31E-04
9	15.2	39.5	1440	0.0009	2.3937	23.0	3.37E-04
10	15.5	73.5	2700	0.0009	2.4409	23.0	3.28E-04

Coefficient of Permeability, cm/s 3.15E-04



Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

Shaw Environmental, Inc.
(A CB&I Company)
Geotechnical Laboratory
304 Directors Drive
Knoxville, TN 37923
(865) 690-3211

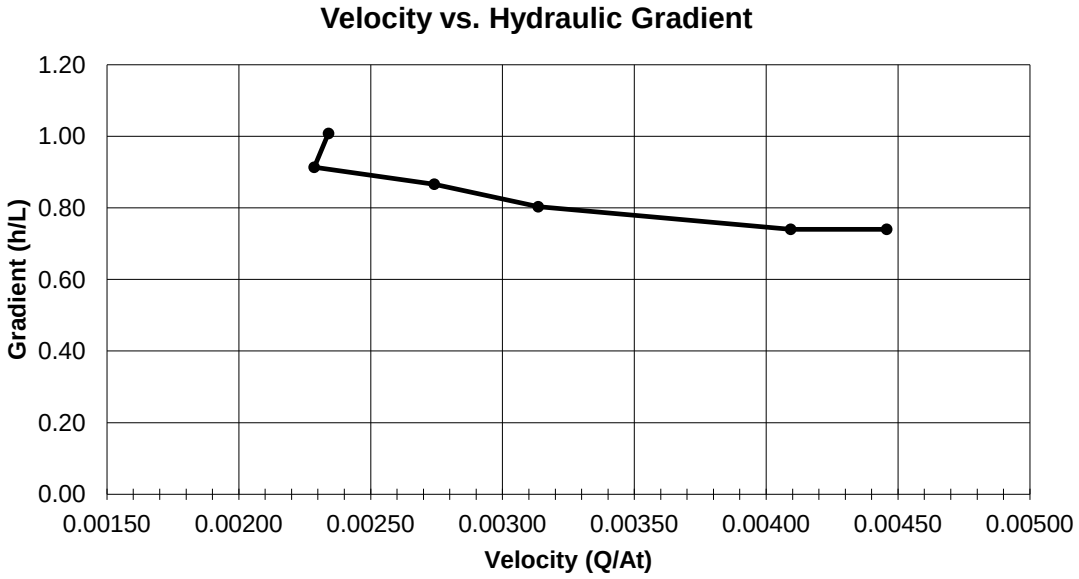
HYDRAULIC CONDUCTIVITY / PERMEABILITY
ASTM D 2434

PROJECT NAME:	CHPRC	CLIENT SAMPLE NO.	B2R2C9
PROJECT NO.	500062.2013OCT1	LAB SAMPLE NO.	SEK 9578

Specimen diameter, cm	6.35	Void ratio	0.36
Specimen length, cm	12.793		
Wet weight of specimen, g.	836.03	Specific gravity of solids, assumed	2.80
Specimen cross-sect. area, cm^2	31.65		
Water content, %	0.42	Permeant Fluid	Tap Water
Wet unit weight, pcf	128.8	Material Used	-3/8 inch
Dry unit weight, pcf	128.3		

Trial no.	Head, h	Q, cm3	Time, sec	Q/At	h/L	Temp, °C	k, cm/s
1	4.7	237	1680	0.0045	0.7402	23.0	5.61E-03
2	4.7	171	1320	0.0041	0.7402	23.0	5.15E-03
3	5.1	65.5	660	0.0031	0.8031	22.0	3.72E-03
4	5.5	177	2040	0.0027	0.8661	22.5	2.98E-03
5	5.8	95.5	1320	0.0023	0.9134	22.5	2.36E-03
6	6.4	120	1620	0.0023	1.0079	22.0	2.21E-03

Coefficient of Permeability, cm/s 3.96E-03



Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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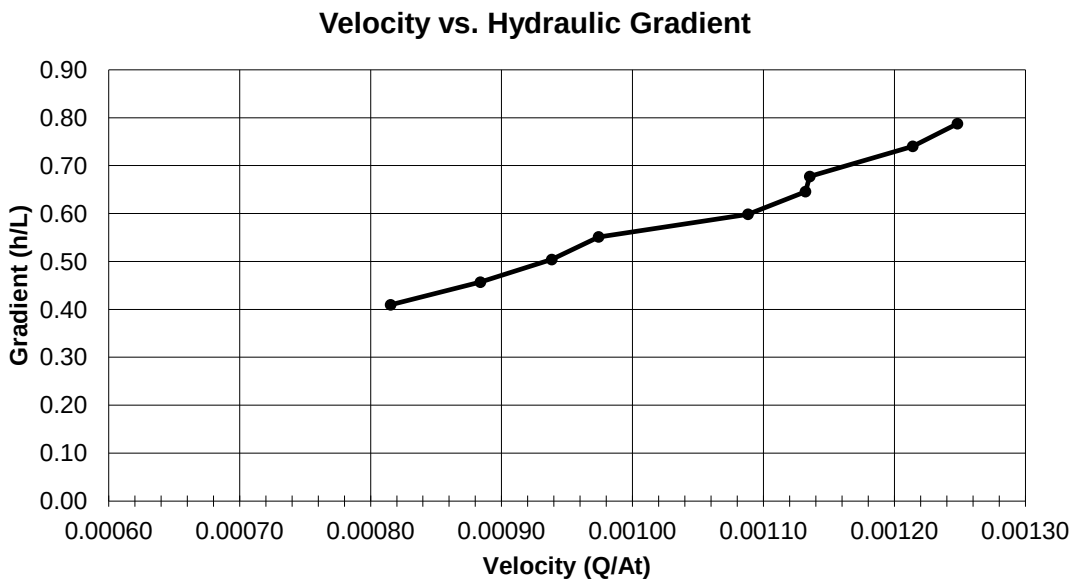
HYDRAULIC CONDUCTIVITY / PERMEABILITY
ASTM D 2434

PROJECT NAME:	CHPRC	CLIENT SAMPLE NO.	B2RJ57
PROJECT NO.	500062.2013OCT1	LAB SAMPLE NO.	SEK 9581

Specimen diameter, cm	6.35	Void ratio	0.35
Specimen length, cm	10.994		
Wet weight of specimen, g.	725.24	Specific gravity of solids, assumed	2.80
Specimen cross-sect. area, cm^2	31.65		
Water content, %	0.33	Permeant Fluid	Tap Water
Wet unit weight, pcf	130.1	Material Used	-3/8 inch
Dry unit weight, pcf	129.6		

Trial no.	Head, h	Q, cm3	Time, sec	Q/At	h/L	Temp, °C	k, cm/s
12	2.6	48	1860	0.0008	0.4094	22.0	1.90E-03
13	2.9	70.5	2520	0.0009	0.4567	22.5	1.82E-03
14	3.2	69.5	2340	0.0009	0.5039	22.5	1.75E-03
15	3.5	37	1200	0.0010	0.5512	22.5	1.66E-03
16	3.8	93	2700	0.0011	0.5984	23.0	1.69E-03
17	4.1	43	1200	0.0011	0.6457	22.5	1.65E-03
18	4.3	34.5	960	0.0011	0.6772	22.5	1.58E-03
19	4.7	41.5	1080	0.0012	0.7402	22.0	1.56E-03

Coefficient of Permeability, cm/s 1.78E-03



Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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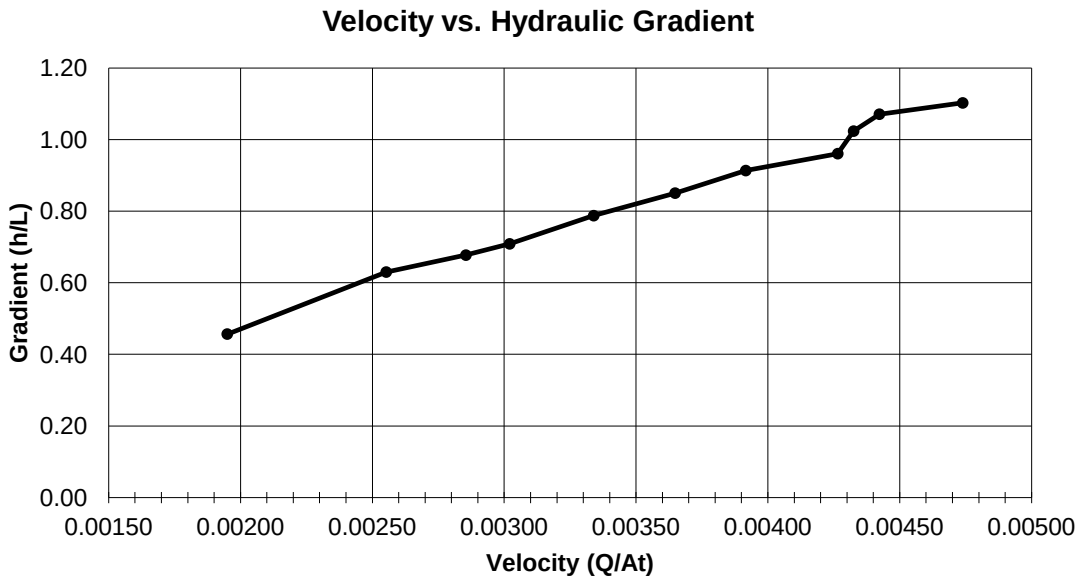
HYDRAULIC CONDUCTIVITY / PERMEABILITY
ASTM D 2434

PROJECT NAME:	CHPRC	CLIENT SAMPLE NO.	B2R2F4
PROJECT NO.	500062.2013OCT1	LAB SAMPLE NO.	SEK 9585

Specimen diameter, cm	6.35	Void ratio	0.63
Specimen length, cm	12.208		
Wet weight of specimen, g.	666.72	Specific gravity of solids, assumed	2.80
Specimen cross-sect. area, cm^2	31.65		
Water content, %	0.28	Permeant Fluid	Tap Water
Wet unit weight, pcf	107.7	Material Used	-3/8 inch
Dry unit weight, pcf	107.4		

Trial no.	Head, h	Q, cm3	Time, sec	Q/At	h/L	Temp, °C	k, cm/s
18	4	223	2760	0.0026	0.6299	22.0	3.86E-03
19	4.3	136	1505	0.0029	0.6772	22.5	3.97E-03
20	4.5	109	1140	0.0030	0.7087	22.5	4.02E-03
21	5	241	2280	0.0033	0.7874	22.5	4.00E-03
22	5.4	194	1680	0.0036	0.8504	22.5	4.04E-03
23	5.8	59.5	480	0.0039	0.9134	22.0	4.09E-03
24	6.1	40.5	300	0.0043	0.9606	22.0	4.23E-03
25	6.5	57.5	420	0.0043	1.0236	22.5	3.98E-03

Coefficient of Permeability, cm/s 4.01E-03



Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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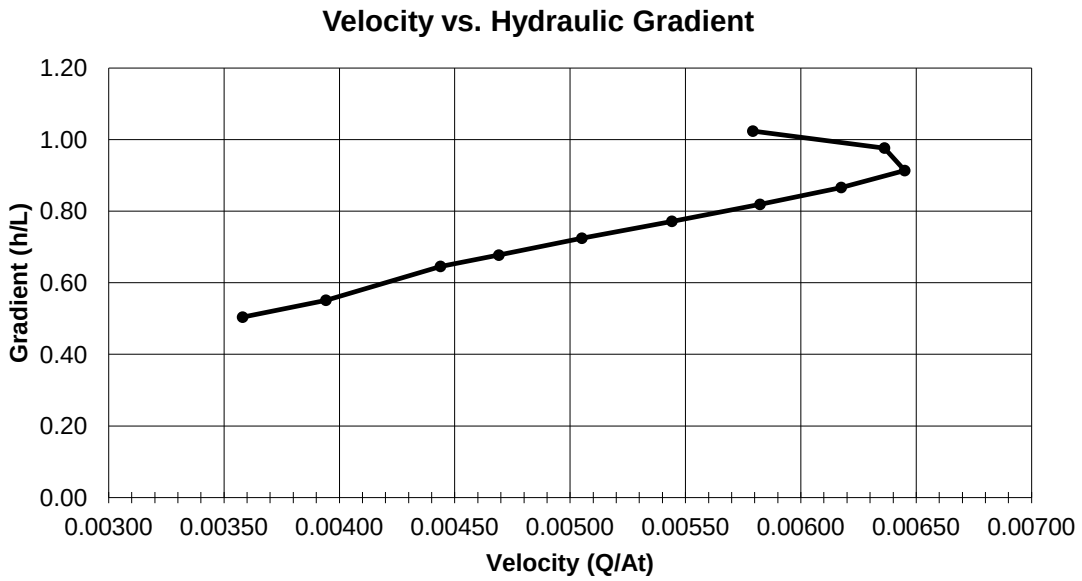
HYDRAULIC CONDUCTIVITY / PERMEABILITY
ASTM D 2434

PROJECT NAME:	CHPRC	CLIENT SAMPLE NO.	B2R2W9
PROJECT NO.	500062.2013OCT1	LAB SAMPLE NO.	SEK 9588

Specimen diameter, cm	6.35	Void ratio	0.78
Specimen length, cm	12.119		
Wet weight of specimen, g.	605.62	Specific gravity of solids, assumed	2.80
Specimen cross-sect. area, cm^2	31.65		
Water content, %	0.27	Permeant Fluid	Tap Water
Wet unit weight, pcf	98.5	Material Used	-3/8 inch
Dry unit weight, pcf	98.3		

Trial no.	Head, h	Q, cm3	Time, sec	Q/At	h/L	Temp, °C	k, cm/s
15	4.1	177	1260	0.0044	0.6457	23.0	6.40E-03
16	4.3	196	1320	0.0047	0.6772	22.5	6.53E-03
17	4.6	259	1620	0.0051	0.7244	22.5	6.57E-03
18	4.9	186	1080	0.0054	0.7717	22.5	6.64E-03
19	5.2	188	1020	0.0058	0.8189	23.0	6.62E-03
20	5.5	129	660	0.0062	0.8661	23.5	6.57E-03
21	5.8	98	480	0.0065	0.9134	23.5	6.50E-03
22	6.2	145	720	0.0064	0.9764	23.0	6.07E-03

Coefficient of Permeability, cm/s 6.57E-03



Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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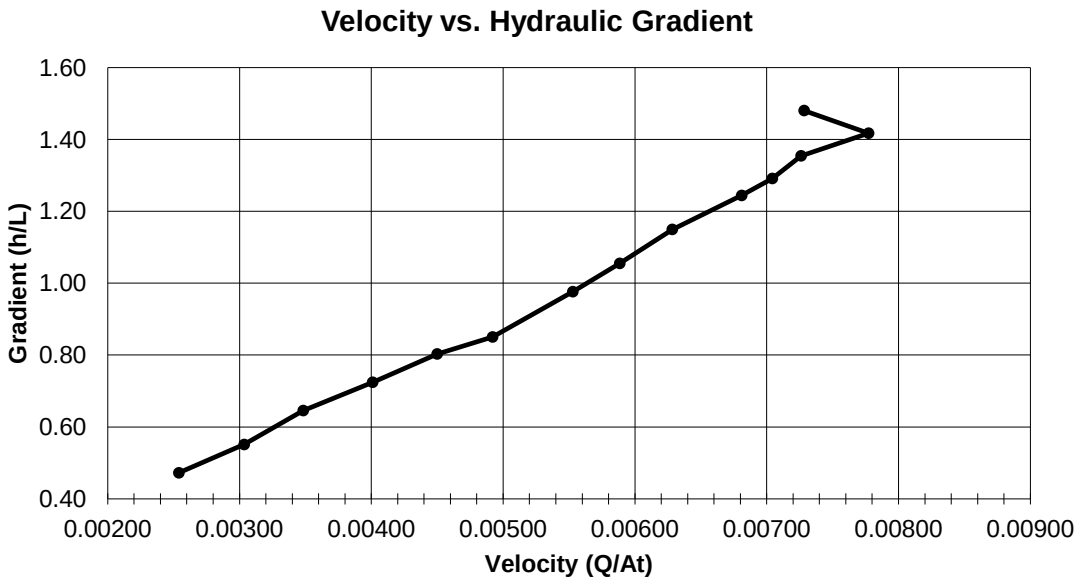
HYDRAULIC CONDUCTIVITY / PERMEABILITY
ASTM D 2434

PROJECT NAME:	CHPRC	CLIENT SAMPLE NO.	B2R2W5
PROJECT NO.	500062.2013OCT1	LAB SAMPLE NO.	SEK 9589

Specimen diameter, cm	6.35	Void ratio	0.81
Specimen length, cm	12.567		
Wet weight of specimen, g.	618.8	Specific gravity of solids, assumed	2.80
Specimen cross-sect. area, cm^2	31.65		
Water content, %	0.38	Permeant Fluid	Tap Water
Wet unit weight, pcf	97.1	Material Used	-3/8 inch
Dry unit weight, pcf	96.7		

Trial no.	Head, h	Q, cm3	Time, sec	Q/At	h/L	Temp, °C	k, cm/s
7	6.2	210	1200	0.0055	0.9764	22.0	5.40E-03
8	6.7	190	1020	0.0059	1.0551	22.0	5.32E-03
9	7.3	179	900	0.0063	1.1496	22.0	5.21E-03
10	7.9	194	900	0.0068	1.2441	22.0	5.28E-03
11	8.2	107	480	0.0070	1.2913	22.0	5.20E-03
12	8.6	262	1140	0.0073	1.3543	22.0	5.11E-03
13	9	310	1260	0.0078	1.4173	22.0	5.23E-03
14	9.4	415	1800	0.0073	1.4803	21.5	4.75E-03

Coefficient of Permeability, cm/s 5.20E-03



Report No: CHPRC1013-147
Scot Fitzgerald
Client: CH2M Hill Plateau Remediation Company
CB&I Project Name: CHPRC
CB&I Project No: 500062

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HYDRAULIC CONDUCTIVITY / PERMEABILITY
ASTM D 2434

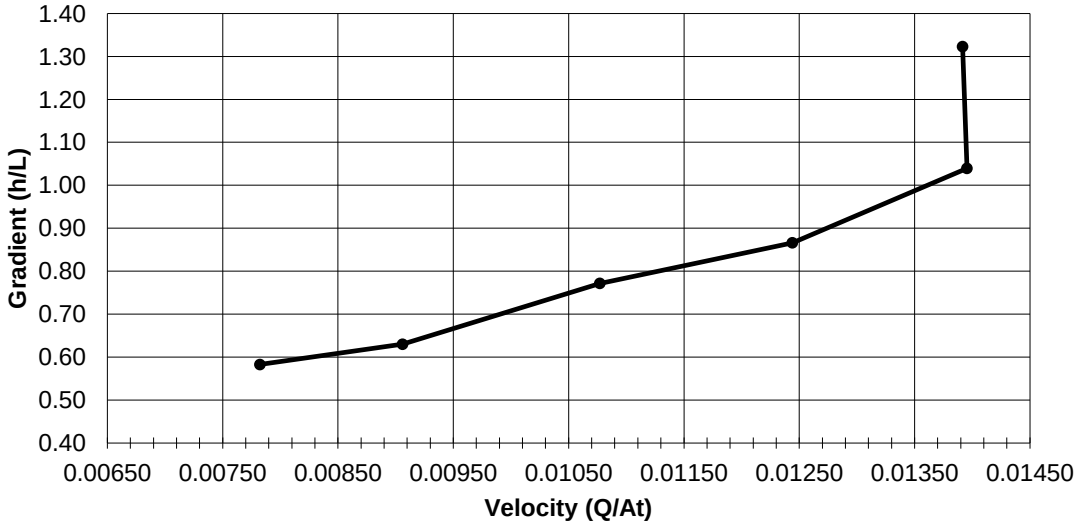
PROJECT NAME:	CHPRC	CLIENT SAMPLE NO.	B2R2W7
PROJECT NO.	500062.2013OCT1	LAB SAMPLE NO.	SEK 9590

Specimen diameter, cm	6.35	Void ratio	0.90
Specimen length, cm	12.445		
Wet weight of specimen, g.	584.25	Specific gravity of solids, assumed	2.80
Specimen cross-sect. area, cm^2	31.65		
Water content, %	0.34	Permeant Fluid	Tap Water
Wet unit weight, pcf	92.6	Material Used	-3/8 inch
Dry unit weight, pcf	92.2		

Trial no.	Head, h	Q, cm3	Time, sec	Q/At	h/L	Temp, °C	k, cm/s
1	3.7	208	840	0.0078	0.5827	22.5	1.25E-02
2	4	292.5	1020	0.0091	0.6299	22.5	1.35E-02
3	4.9	225	660	0.0108	0.7717	23.5	1.29E-02
4	5.5	189	480	0.0124	0.8661	23.0	1.34E-02
5	6.6	212	480	0.0140	1.0394	23.0	1.25E-02
6	8.4	185	420	0.0139	1.3228	24.5	9.47E-03

Coefficient of Permeability, cm/s 1.30E-02

Velocity vs. Hydraulic Gradient



Shaw Environmental, Inc.
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Appendix C
Chain of Custody Records

NOVEMBER 11, 2013

Shaw Environmental, Inc.
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Geotechnical Laboratory
304 Directors Drive
Knoxville, TN 37923
(865) 690-3211

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F13-044-001	PAGE 1 OF 1
COLLECTOR: J. Aguilar	COMPANY CONTACT: TODAK, D	TELEPHONE NO.: 376-6427	PROJECT COORDINATOR: TODAK, D	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: C8787, I-002, 45-47.5 bgs	PROJECT DESIGNATION: 100-HR-3 Long Term & Interim Action Monitoring - Soil		SAF NO.: F13-044	AIR QUALITY: ☐	30 Days / 30 Days
ICE CHEST NO.: GWS-826	FIELD LOGBOOK NO.: HNF-N-507-26 Pg 36	ACTUAL SAMPLE DEPTH: 45'-47.5" FT	COA: 300115ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: CB&I KS 10/8/13 ~~Environmental Sciences Laboratory~~	OFFSITE PROPERTY NO.: SEE PTR		BILL OF LADING/AIR BILL NO.: SEE PTR 7968620277 90		

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 may or may 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: RADIOACTIVE TIE TO: B2R273

PRESERVATION	None
HOLDING TIME	6 Months
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	1
VOLUME	1000g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2R272	SOIL	8-23-13	0850	✓

SEK 9573

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: J. Aguilar	DATE/TIME: 8-23-13 1530	RECEIVED BY/STORED IN: SSU #1	DATE/TIME: 8-23-13 1530
RELINQUISHED BY/REMOVED FROM: SSU #1	DATE/TIME: 10-8-13 0800	RECEIVED BY/STORED IN: E. Kauer	DATE/TIME: 10-8-13 0800
RELINQUISHED BY/REMOVED FROM: E. Kauer	DATE/TIME: 10-8-13 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM: Fedex	DATE/TIME: 10/9/13 1000	RECEIVED BY/STORED IN: M. Butler	DATE/TIME: 10/9/13 1000
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:

SPECIAL INSTRUCTIONS

** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. ** All requests for Geotechnical Parameters will be given a unique HEIS sample number and be assigned to a separate COC. In addition, all split spoon sleeves will be properly stored until authorized for shipment. TRVL13-084
(1) Particle Size (Dry Sieve) - D422; Saturated Hydraulic Conductivity {Hydraulic Conductivity}; ~~AIR PERMEABILITY;~~ KS 10/8/13

TRVL-13-084

LABORATORY SECTION	RECEIVED BY: M. Butler	TITLE	DATE/TIME: 10/9/13 10:00
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/15/2013

A-6003-618 (REV 2)

NOVEMBER 11, 2013

Shaw Environmental, Inc.
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Geotechnical Laboratory
304 Directors Drive
Knoxville, TN 37923
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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F13-044-003	PAGE 1 OF 1
COLLECTOR: Crow Kauk	COMPANY CONTACT: TODAK, D	TELEPHONE NO.: 376-6427	PROJECT COORDINATOR: TODAK, D	PRICE CODE: 8H	DATA TURNAROUND: 30 Days / 30 Days
SAMPLING LOCATION: C8787, I-004, 48-50.5 bgs	PROJECT DESIGNATION: 100-HR-3 Long Term & Interim Action Monitoring - Soil		SAF NO.: F13-044	AIR QUALITY: ☐	
ICE CHEST NO.: GWS-826	FIELD LOGBOOK NO.: HNF-N-507-26/27	ACTUAL SAMPLE DEPTH: 60.0 to 62.5 FT	COA: 300115ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: CB&I KS 10/8/13 ~~Environmental Sciences Laboratory~~	OFFSITE PROPERTY NO.: SEE PTR		BILL OF LADING/AIR BILL NO.: SEE PTR 796862027790		

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 may or may 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: RADIOACTIVE TIE TO: B2R275

PRESERVATION	None
HOLDING TIME	6 Months
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	1
VOLUME	1000g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2R274	SOIL	8-26-13	0927	✓

SEK 9574

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: Ed Kauk [signature]	DATE/TIME: 8-26-13 1355	RECEIVED BY/STORED IN: SSU #1	DATE/TIME: 8-26-13 1355
RELINQUISHED BY/REMOVED FROM: SSU #1	DATE/TIME: 10-8-13 0800	RECEIVED BY/STORED IN: E. Kauk [signature]	DATE/TIME: 10-8-13 0800
RELINQUISHED BY/REMOVED FROM: E. Kauk [signature]	DATE/TIME: 10-8-13 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM: Fedex	DATE/TIME: 10/9/13 1000	RECEIVED BY/STORED IN: M. [signature]	DATE/TIME: 10/9/13 1000
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:

SPECIAL INSTRUCTIONS

** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. ** All requests for Geotechnical Parameters will be given a unique HEIS sample number and be assigned to a separate COC. In addition, all split spoon sleeves will be properly stored until authorized for shipment. TRVL13-084

(1) Particle Size (Dry Sieve) - D422; Saturated Hydraulic Conductivity {Hydraulic Conductivity}; ~~AIR PERMEABILITY;~~ KS 10/8/13

TRVL-13-084

LABORATORY SECTION	RECEIVED BY: M. [signature]	TITLE	DATE/TIME: 10/9/13 10:00
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/15/2013

A-6003-618 (REV 2)

NOVEMBER 11, 2013

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Knoxville, TN 37923
(865) 690-3211

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F13-044-005	PAGE 1 OF 1
COLLECTOR: KAUER Brotherton	COMPANY CONTACT: TODAK, D	TELEPHONE NO.: 376-6427	PROJECT COORDINATOR: TODAK, D	PRICE CODE: 8H	DATA TURNAROUND: 30 Days / 30 Days
SAMPLING LOCATION: C8787, I-005, 60.1-62.5 bgs	PROJECT DESIGNATION: 100-HR-3 Long Term & Interim Action Monitoring - Soil		SAF NO.: F13-044	AIR QUALITY: ☐	
ICE CHEST NO.: GWS-826	FIELD LOGBOOK NO.: HNF-N-507-26/29	ACTUAL SAMPLE DEPTH: 67.2 to 69.7 ft	COA: 300115ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: KS 10/8/13 ~~Environmental Sciences Laboratory~~ CB&I	OFFSITE PROPERTY NO.: SEE PTR		BILL OF LADING/AIR BILL NO.: SEE PTR 7968620277 90		

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 may or may 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: RADIOACTIVE TIE TO: B2R277

PRESERVATION	None
HOLDING TIME	6 Months
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	1
VOLUME	1000g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2R276	SOIL	8-28-13	1016	✓

SEK 9575

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: E. Kauer	DATE/TIME: 8-28-13 1542	RECEIVED BY/STORED IN: SSU #1	DATE/TIME: 8-28-13 1542
RELINQUISHED BY/REMOVED FROM: SSU #1	DATE/TIME: 10-8-13 0800	RECEIVED BY/STORED IN: E. Kauer	DATE/TIME: 10-8-13 0800
RELINQUISHED BY/REMOVED FROM: E. Kauer	DATE/TIME: 10-8-13 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM: Fedex	DATE/TIME: 10/9/13 1000	RECEIVED BY/STORED IN:	DATE/TIME: 10/9/13 1000
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:

SPECIAL INSTRUCTIONS

** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. ** All requests for Geotechnical Parameters will be given a unique HEIS sample number and be assigned to a separate COC. In addition, all split spoon sleeves will be properly stored until authorized for shipment. TRVL13-084
~~(1) Particle Size (Dry Sieve) - D422; Saturated Hydraulic Conductivity (Hydraulic Conductivity); AIR~~ PERMEABILITY;
KS 10/8/13
TRVL 13- 084

LABORATORY SECTION	RECEIVED BY: M. Bates	TITLE	DATE/TIME: 10/9/13 1000
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/15/2013

A-6003-618 (REV 2)

NOVEMBER 11, 2013

Shaw Environmental, Inc.
(A CB&I Company)
Geotechnical Laboratory
304 Directors Drive
Knoxville, TN 37923
(865) 690-3211

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F13-044-007	PAGE 1 OF 1
COLLECTOR: Kevin Brotherton	COMPANY CONTACT: TODAK, D	TELEPHONE NO.: 376-6427	PROJECT COORDINATOR: TODAK, D	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: C8787, I-007, 80-82.5 bgs	PROJECT DESIGNATION: 100-HR-3 Long Term & Interim Action Monitoring - Soil		SAF NO.: F13-044	AIR QUALITY: ☐	30 Days / 30 Days
ICE CHEST NO.: GWS-826	FIELD LOGBOOK NO.: HNF-N-507-26/25	ACTUAL SAMPLE DEPTH: 75.0 to 77.5 FT	COA: 300115ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: ~~Environmental Sciences Laboratory~~ CB+I 10-8-13	OFFSITE PROPERTY NO.: SEE PTR		BILL OF LADING/AIR BILL NO.: SEE PTR 7968620277 90		

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
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	**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 458.1.**	PRESERVATION	None
		HOLDING TIME	6 Months
		TYPE OF CONTAINER	Liner
		NO. OF CONTAINER(S)	1
		VOLUME	1000g
	SPECIAL HANDLING AND/OR STORAGE: RADIOACTIVE TIE TO: B2R279	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2R278	SOIL	8-28-13	1345	✓

SEK 9576

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: Ed Kruger	DATE/TIME: 8-28-13 1542	RECEIVED BY/STORED IN: SSU #1	DATE/TIME: 8-28-13 1542
RELINQUISHED BY/REMOVED FROM: SSU #1	DATE/TIME: 10-8-13 0800	RECEIVED BY/STORED IN: E. Kruger	DATE/TIME: 10-8-13 0800
RELINQUISHED BY/REMOVED FROM: E. Kruger	DATE/TIME: 10-8-13 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM: Fedex	DATE/TIME: 10/9/13 1000	RECEIVED BY/STORED IN: M. Bulger	DATE/TIME: 10/9/13 1000
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:

SPECIAL INSTRUCTIONS

** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. ** All requests for Geotechnical Parameters will be given a unique HEIS sample number and be assigned to a separate COC. In addition, all split spoon sleeves will be properly stored until authorized for shipment. TRVL13-084
(1) Particle Size (Dry Sieve) - D422; Saturated Hydraulic Conductivity {Hydraulic Conductivity}; ~~AIR PERMEABILITY;~~ 10-8-13

TRVL 13- 081

LABORATORY SECTION	RECEIVED BY: M. Bulger	TITLE	DATE/TIME: 10/9/13 1000
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

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A-6003-618 (REV 2)

NOVEMBER 11, 2013

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F13-044-012	PAGE 1 OF 1
COLLECTOR: Kauer, Crow	COMPANY CONTACT: TODAK, D	TELEPHONE NO.: 376-6427	PROJECT COORDINATOR: TODAK, D	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: C8788, I-002, 35-37.5 bgs	PROJECT DESIGNATION: 100-HR-3 Long Term & Interim Action Monitoring - Soil		SAF NO.: F13-044	AIR QUALITY: ☐	30 Days / 30 Days
ICE CHEST NO.: GWS-826	FIELD LOGBOOK NO.: HNF-N-507/26/25	ACTUAL SAMPLE DEPTH: 39.2 FT	COA: 300115ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: CB&I KS 10/8/13 ~~Environmental Sciences Laboratory~~	OFFSITE PROPERTY NO.: SEE PTR		BILL OF LADING/AIR BILL NO.: SEE PTR 796862027790		

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 may or may 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
RADIOACTIVE TIE TO: B2R2C8

PRESERVATION	None
HOLDING TIME	6 Months
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	1
VOLUME	1000g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2R2C7	SOIL	8-22-13	0754	✓

SEK 9577

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: Ed Kauer [signature]	DATE/TIME: 8-22-13 1555	RECEIVED BY/STORED IN: SSU #1	DATE/TIME: 8-22-13 1555
RELINQUISHED BY/REMOVED FROM: SSU #1	DATE/TIME: 10-8-13 0800	RECEIVED BY/STORED IN: E. Kauer [signature]	DATE/TIME: 10-8-13 0800
RELINQUISHED BY/REMOVED FROM: E. Kauer [signature]	DATE/TIME: 10-8-13 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM: Fedex	DATE/TIME: 10/9/13 1000	RECEIVED BY/STORED IN: M. [signature]	DATE/TIME: 10/9/13 1000
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:

SPECIAL INSTRUCTIONS
** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. ** All requests for Geotechnical Parameters will be given a unique HEIS sample number and be assigned to a separate COC. In addition, all split spoon sleeves will be properly stored until authorized for shipment. TRVL-13-085
(1) Particle Size (Dry Sieve) - D422; Saturated Hydraulic Conductivity {Hydraulic Conductivity}; ~~AIR PERMEABILITY;~~ KS 10/8/13

TRVL-13-085

LABORATORY SECTION	RECEIVED BY: M. [signature]	TITLE	DATE/TIME: 10/9/13 1000
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

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A-6003-618 (REV 2)

NOVEMBER 11, 2013

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F13-044-014	PAGE 1 OF 1
COLLECTOR: Kevin Crow	COMPANY CONTACT: TODAK, D	TELEPHONE NO.: 376-6427	PROJECT COORDINATOR: TODAK, D	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: C8788, I-004, 47.5-50 bgs	PROJECT DESIGNATION: 100-HR-3 Long Term & Interim Action Monitoring - Soil		SAF NO.: F13-044	AIR QUALITY: ☐	30 Days / 30 Days
ICE CHEST NO.: GWS-826	FIELD LOGBOOK NO.: HNF-N-507-26/25	ACTUAL SAMPLE DEPTH: 47.5 to 50 FT	COA: 300115ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: CB&I KS 10/8/13 ~~Environmental Sciences Laboratory~~	OFFSITE PROPERTY NO.: SEE PTR		BILL OF LADING/AIR BILL NO.: SEE PTR 7968620277 90		

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 may or may 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
RADIOACTIVE TIE TO: B2R2D0

PRESERVATION	None
HOLDING TIME	6 Months
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	1
VOLUME	1000g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2R2C9	SOIL	08-22-13	1350	✓

SEK 9578

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: Edward Elder	DATE/TIME: 8-22-13 1555	RECEIVED BY/STORED IN: SSU #1	DATE/TIME: 8-22-13 1555
RELINQUISHED BY/REMOVED FROM: SSU #1	DATE/TIME: 10-8-13 0800	RECEIVED BY/STORED IN: E. Kane Elder	DATE/TIME: 10-8-13 0800
RELINQUISHED BY/REMOVED FROM: E. Kane Elder	DATE/TIME: 10-8-13 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM: Fedex	DATE/TIME: 10/9/13 1000	RECEIVED BY/STORED IN: M. Bates	DATE/TIME: 10/9/13 1000
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:

SPECIAL INSTRUCTIONS
** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. ** All requests for Geotechnical Parameters will be given a unique HEIS sample number and be assigned to a separate COC. In addition, all split spoon sleeves will be properly stored until authorized for shipment. TRVL-13-085
(1) Particle Size (Dry Sieve) - D422; Saturated Hydraulic Conductivity {Hydraulic Conductivity}; ~~AIR PERMEABILITY;~~ KS 10/8/13

TRVL 13- 085

LABORATORY SECTION	RECEIVED BY: M. Bates	TITLE	DATE/TIME: 10/9/13 1000
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/19/2013

A-6003-618 (REV 2)

NOVEMBER 11, 2013

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F13-044-016	PAGE 1 OF 1
COLLECTOR: Kaur Crow Brotherton	COMPANY CONTACT: TODAK, D	TELEPHONE NO.: 376-6427	PROJECT COORDINATOR: TODAK, D	PRICE CODE: 8H	DATA TURNAROUND: 30 Days / 30 Days
SAMPLING LOCATION: C8788, I-005, 65-67.5 bgs	PROJECT DESIGNATION: 100-HR-3 Long Term & Interim Action Monitoring - Soil		SAF NO.: F13-044	AIR QUALITY: ☐	
ICE CHEST NO.: GWS-826	FIELD LOGBOOK NO.: HNF-N-507/26/28	ACTUAL SAMPLE DEPTH: 66.0 to 68.5 FT	COA: 300115ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: ~~Environmental Sciences Laboratory~~ CB&I 10-8-13	OFFSITE PROPERTY NO.: SEE PTR		BILL OF LADING/AIR BILL NO.: SEE PTR 79686202 7790		

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 may or may 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
RADIOACTIVE TIE TO: B2R2D2

PRESERVATION	None
HOLDING TIME	6 Months
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	1
VOLUME	1000g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2R2D1	SOIL	8-27-13	1015	✓

SEK 9579

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: E. Kaur Ehlen 8-27-13	DATE/TIME: 1600	RECEIVED BY/STORED IN: SSU #1 8-27-13	DATE/TIME: 1600
RELINQUISHED BY/REMOVED FROM: SSU #1 10-8-13	DATE/TIME: 0800	RECEIVED BY/STORED IN: E. Kaur Ehlen 10-8-13	DATE/TIME: 0800
RELINQUISHED BY/REMOVED FROM: E. Kaur Ehlen 10-8-13	DATE/TIME: 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM: Fedex 10/9/13	DATE/TIME: 1000	RECEIVED BY/STORED IN: M. Bulgo 10/9/13	DATE/TIME: 1000
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:

SPECIAL INSTRUCTIONS
** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. ** All requests for Geotechnical Parameters will be given a unique HEIS sample umber and be assigned to a separate COC. In addition, all split spoon sleeves will be properly stored until authorized for shipment. TRVL-13-085
~~(1) Particle Size (Dry Sieve) - D422; Saturated Hydraulic Conductivity (Hydraulic Conductivity); AIR~~ PERMEABILITY; 10-8-13

TRVL 13- 085

LABORATORY SECTION	RECEIVED BY: M. Bulgo	TITLE	DATE/TIME: 10/9/13 1000
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/19/2013 A-6003-618 (REV 2)

NOVEMBER 11, 2013

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(A CB&I Company)
Geotechnical Laboratory
304 Directors Drive
Knoxville, TN 37923
(865) 690-3211

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F13-044-018	PAGE 1 OF 1
COLLECTOR: Kauer Crowl Brotherton	COMPANY CONTACT: TODAK, D	TELEPHONE NO.: 376-6427	PROJECT COORDINATOR: TODAK, D	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: C8788, I-007, 80-82.5 bgs	PROJECT DESIGNATION: 100-HR-3 Long Term & Interim Action Monitoring - Soil		SAF NO.: F13-044	AIR QUALITY: ☐	30 Days / 30 Days
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-507-26/28	ACTUAL SAMPLE DEPTH: 69.5 to 70.0 FT	COA: 300115ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: ~~Environmental Sciences Laboratory~~ C8+I D 10-8-13	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A 79686202 7790		

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 may or may 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: RADIOACTIVE TIE TO: B2R2D4

PRESERVATION	None
HOLDING TIME	6 Months
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	1
VOLUME	1000g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B2R2D3	SOIL	8-27-13	1212

SEK 9580

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: Ed Kauer	DATE/TIME: 8-27-13 1600	RECEIVED BY/STORED IN: SSU #1	DATE/TIME: 8-27-13 1600
RELINQUISHED BY/REMOVED FROM: SSU #1	DATE/TIME: 10-8-13 0800	RECEIVED BY/STORED IN: E. Kauer	DATE/TIME: 10-8-13 0800
RELINQUISHED BY/REMOVED FROM: E. Kauer	DATE/TIME: 10-8-13 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM: Fedex	DATE/TIME: 10/9/13 1000	RECEIVED BY/STORED IN: M. Bubop	DATE/TIME: 10/9/13 1000
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:

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 404160. ** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-13-085
(1) Particle Size (Dry Sieve) - D422; Saturated Hydraulic Conductivity {Hydraulic Conductivity}; ~~AIR PERMEABILITY;~~
D 10-8-13

TRVL-13-085

LABORATORY SECTION	RECEIVED BY: M. Bubop	TITLE	DATE/TIME: 10/9/13 1000
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/19/2013

A-6003-618 (REV 2)

NOVEMBER 11, 2013

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F13-044-025	PAGE 1 OF 1
COLLECTOR: Kevin Crow, Floyd	COMPANY CONTACT: TODAK, D	TELEPHONE NO.: 376-6427	PROJECT COORDINATOR: TODAK, D	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: C8789, I-002, 80-82.5 bgs	PROJECT DESIGNATION: 100-HR-3 Long Term & Interim Action Monitoring - Soil		SAF NO.: F13-044	AIR QUALITY: ☐	30 Days / 30 Days
ICE CHEST NO.: GWS-826	FIELD LOGBOOK NO.: HNF-N-507-26/37	ACTUAL SAMPLE DEPTH: 82.0 to 83.5 FT	COA: 300115ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: ~~Environmental Sciences Laboratory~~ CB+I 10-8-13	OFFSITE PROPERTY NO.: SEE PTR		BILL OF LADING/AIR BILL NO.: SEE PTR 796862027790		

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 may or may 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
RADIOACTIVE TIE TO: B2RJ58

PRESERVATION	None
HOLDING TIME	6 Months
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	1
VOLUME	1000g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2RJ57	SOIL	9-13-13	1225	✓

SEK 9581

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: Ed Kevin [signature] 9-13-13	DATE/TIME: 1420	RECEIVED BY/STORED IN: SSU #1 9-13-13	DATE/TIME: 1420
RELINQUISHED BY/REMOVED FROM: SSU #1 10-8-13	DATE/TIME: 0800	RECEIVED BY/STORED IN: E. Kauer [signature] 10-8-13	DATE/TIME: 0800
RELINQUISHED BY/REMOVED FROM: E. Kauer [signature] 10-8-13	DATE/TIME: 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM: Fedex 10/9/13	DATE/TIME: 1000	RECEIVED BY/STORED IN: M. [signature] 10/9/13	DATE/TIME: 1000
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:

SPECIAL INSTRUCTIONS
** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. ** All requests for Geotechnical Parameters will be given a unique HEIS sample number and be assigned to a separate COC. In addition, all split spoon sleeves will be properly stored until authorized for shipment. TRVL-13-089
(1) Particle Size (Dry Sieve) - D422; Saturated Hydraulic Conductivity {Hydraulic Conductivity}; ~~AIR PERMEABILITY~~; 10-8-13

TRVL 13- 089

LABORATORY SECTION	RECEIVED BY: M. [signature]	TITLE	DATE/TIME: 10/9/13 1000
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

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A-6003-618 (REV 2)

NOVEMBER 11, 2013

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(865) 690-3211

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F13-044-027	PAGE 1 OF 1
COLLECTOR: Brotherton- Crow	COMPANY CONTACT: TODAK, D	TELEPHONE NO.: 376-6427	PROJECT COORDINATOR: TODAK, D	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: C8789, I-004, 102.5 bgs	PROJECT DESIGNATION: 100-HR-3 Long Term & Interim Action Monitoring - Soil		SAF NO.: F13-044	AIR QUALITY: ☐	30 Days / 30 Days
ICE CHEST NO.: GWS-826	FIELD LOGBOOK NO.: HNF-N-507 26/39	ACTUAL SAMPLE DEPTH: 100 FT	COA: 300115ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: KS 10/8/13 ~~Environmental Sciences Laboratory~~ CB&I	OFFSITE PROPERTY NO.: SEE PTR		BILL OF LADING/AIR BILL NO.: SEE PTR 796862027790		

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 may or may 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
RADIOACTIVE TIE TO: B2RJ62

PRESERVATION	None
HOLDING TIME	6 Months
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	1
VOLUME	1000g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2RJ61	SOIL	9-17-13	0850	✓

SEK 9582

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: Robert Crow R Crow	DATE/TIME: SEP 17 2013 1150	RECEIVED BY/STORED IN: SSU-1	DATE/TIME: SEP 17 2013 1150
RELINQUISHED BY/REMOVED FROM: SSU #1	DATE/TIME: 10-8-13 0800	RECEIVED BY/STORED IN: E. Kauer [signature]	DATE/TIME: 10-8-13 0800
RELINQUISHED BY/REMOVED FROM: E. Kauer [signature]	DATE/TIME: 10-8-13 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM: Fedex	DATE/TIME: 10/9/13 1000	RECEIVED BY/STORED IN: M. [signature]	DATE/TIME: 10/9/13 1000
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:

SPECIAL INSTRUCTIONS
** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. ** All requests for Geotechnical Parameters will be given a unique HEIS sample number and be assigned to a separate COC. In addition, all split spoon sleeves will be properly stored until authorized for shipment. TRVL-13-089
(1) Particle Size (Dry Sieve) - D422; Saturated Hydraulic Conductivity {Hydraulic Conductivity}; ~~AIR PERMEABILITY;~~ KS 10/8/13

TRVL-13-089

LABORATORY SECTION	RECEIVED BY: M. [signature]	TITLE	DATE/TIME: 10/9/13 1000
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 9/3/2013

A-6003-618 (REV 2)

NOVEMBER 11, 2013

Shaw Environmental, Inc.
(A CB&I Company)
Geotechnical Laboratory
304 Directors Drive
Knoxville, TN 37923
(865) 690-3211

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F13-044-029	PAGE 1 OF 1
COLLECTOR: CROW KAVER	COMPANY CONTACT: TODAK, D	TELEPHONE NO.: 376-6427	PROJECT COORDINATOR: TODAK, D	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: C8790, I-002, 80-82.5 bgs	PROJECT DESIGNATION: 100-HR-3 Long Term & Interim Action Monitoring - Soil		SAF NO.: F13-044	AIR QUALITY: ☐	30 Days / 30 Days
ICE CHEST NO.: CWS-826	FIELD LOGBOOK NO.: HNF-N-507-26/32	ACTUAL SAMPLE DEPTH: 80.7 to 83.2 FT	COA: 30011SES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: KS 10/2/13 ~~Environmental Sciences Laboratory~~ CB&I	OFFSITE PROPERTY NO.: SEE PTR		BILL OF LADING/AIR BILL NO.: SEE PTR 79686202779 0		

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 may or may 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
RADIOACTIVE TIE TO: B2RJ72

PRESERVATION	None
HOLDING TIME	6 Months
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	1
VOLUME	1000g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2RJ71	SOIL	09-4-13	1255	✓

SEK 9583

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: Ed Kaver	DATE/TIME: 9-4-13 1536	RECEIVED BY/STORED IN: SSU #1	DATE/TIME: 9-4-13 1536
RELINQUISHED BY/REMOVED FROM: SSU #1	DATE/TIME: 10-8-13 0800	RECEIVED BY/STORED IN: E. Kaver	DATE/TIME: 10-8-13 0800
RELINQUISHED BY/REMOVED FROM: E. Kaver	DATE/TIME: 10-8-13 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM: Fedex	DATE/TIME: 10/9/13 1000	RECEIVED BY/STORED IN: M. Baker	DATE/TIME: 10/9/13 1000
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:

SPECIAL INSTRUCTIONS
** All requests for Geotechnical Parameters will be given a unique HEIS sample number and be assigned to a separate COC. In addition, all split spoon sleeves will be properly stored until authorized for shipment. **
The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-13-090
(1) Particle Size (Dry Sieve) - D422; Saturated Hydraulic Conductivity {Hydraulic Conductivity}; ~~AIR PERMEABILITY,~~ KS 10/8/13

TRVL- 13- 090

LABORATORY SECTION	RECEIVED BY: M. Baker	TITLE	DATE/TIME: 10/9/13 1000
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 9/3/2013

A-6003-618 (REV 2)

NOVEMBER 11, 2013

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F13-044-031	PAGE 1 OF 1
COLLECTOR: Kauer Crow	COMPANY CONTACT: TODAK, D	TELEPHONE NO.: 376-6427	PROJECT COORDINATOR: TODAK, D	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: C8790, I-004, 108.5 bgs	PROJECT DESIGNATION: 100-HR-3 Long Term & Interim Action Monitoring - Soil		SAF NO.: F13-044	AIR QUALITY: ☐	30 Days / 30 Days
ICE CHEST NO.: GWS-826	FIELD LOGBOOK NO.: HNF-N-507-26/35	ACTUAL SAMPLE DEPTH: 105 to 107.5 FT	COA: 300115ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: CB&I KS 10/8/13 ~~Environmental Sciences Laboratory~~	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A 7968620277 90		

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
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	**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 458.1.**	PRESERVATION	None
		HOLDING TIME	6 Months
		TYPE OF CONTAINER	Liner
		NO. OF CONTAINER(S)	1
		VOLUME	1000g
	SPECIAL HANDLING AND/OR STORAGE: RADIOACTIVE TIE TO: B2RJ87	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2RJ86	SOIL	9-9-13	1135	✓

SEK 9584

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: Ed Kauer	DATE/TIME: 9-9-13 1555	RECEIVED BY/STORED IN: SSU #1	DATE/TIME: 9-9-13 1555
RELINQUISHED BY/REMOVED FROM: SSU #1	DATE/TIME: 10-8-13 0800	RECEIVED BY/STORED IN: E. Kauer	DATE/TIME: 10-8-13 0800
RELINQUISHED BY/REMOVED FROM: E. Kauer	DATE/TIME: 10-8-13 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM: Fedex	DATE/TIME: 10/9/13 1000	RECEIVED BY/STORED IN: M. Bailey	DATE/TIME: 10/9/13 1000
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:

SPECIAL INSTRUCTIONS

** The CACN for WSCF Analytical is 404160.☐** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.☐** WSCF will report preliminary data for the GEA within 7 days. All other results will be provided in the final data deliverable in 21 days.☐TRVL-13-090
(1) Particle Size (Dry Sieve) - D422; Saturated Hydraulic Conductivity {Hydraulic Conductivity}; ~~AIR PERMEABILITY;~~ KS 10/8/13

TRVL 13- 090

LABORATORY SECTION	RECEIVED BY: M. Bailey	TITLE	DATE/TIME: 10/9/13 1000
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 9/3/2013

A-6003-618 (REV 2)

NOVEMBER 11, 2013

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F13-046-003	PAGE 1 OF 1
COLLECTOR: Brotherton, White	COMPANY CONTACT: TODAK, D	TELEPHONE NO.: 376-6427	PROJECT COORDINATOR: TODAK, D	PRICE CODE: 8H	DATA TURNAROUND: 30 Days / 30 Days
SAMPLING LOCATION: C8289, I-003, 75-77.5 ft bgs	PROJECT DESIGNATION: 100-KR-4 Long Term & Interim Action Monitoring - Soil		SAF NO.: F13-046	AIR QUALITY: ☐	
ICE CHEST NO.: ~~N/A~~ GWS-292 (JJ 10/8/13)	FIELD LOGBOOK NO.: HNF-N-507-29	ACTUAL SAMPLE DEPTH: 78.5'-81.0'	COA: 300085ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: ~~Environmental Sciences Laboratory~~ CB&I (10-8-13)	OFFSITE PROPERTY NO.: SEE PTR		BILL OF LADING/AIR BILL NO.: SEE PTR 796861995872		

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 may or may 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: RADIOACTIVE TIE TO: B2R2F5

PRESERVATION	None
HOLDING TIME	6 Months
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	1
VOLUME	1000g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2R2F4	SOIL	8-29-13	0955	✓

SEK 9585

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: M.A. White M.A. White DATE/TIME: 8-29-13 1100	RECEIVED BY/STORED IN: L.D. WALL L.D. Wall DATE/TIME: 8-29-13 1100	* The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.☐☐** All requests for Geotechnical Parameters will be given a unique HEIS sample number and be assigned to a separate COC. In addition, all split spoon sleeves will be properly stored until authorized for shipment. TRVL-13-086 (1) Particle Size (Dry Sieve) - D422; Saturated Hydraulic Conductivity {Hydraulic Conductivity}; ~~AIR PERMEABILITY~~; Calcium Carbonate Content; (10-8-13)
RELINQUISHED BY/REMOVED FROM: L.D. WALL L.D. Wall DATE/TIME: 8/29/13 1137	RECEIVED BY/STORED IN: SSU #1 DATE/TIME: 8/29/13 1137	
RELINQUISHED BY/REMOVED FROM: SSU #1 DATE/TIME: 10-8-13 0800	RECEIVED BY/STORED IN: E. Kumer DATE/TIME: 10-8-13 0800	
RELINQUISHED BY/REMOVED FROM: E. Kumer DATE/TIME: 10-8-13 1400	RECEIVED BY/STORED IN: FEDEX DATE/TIME:	
RELINQUISHED BY/REMOVED FROM: Fedex DATE/TIME: 10/9/13 1000	RECEIVED BY/STORED IN: M. Butty DATE/TIME: 10/9/13 1000	
RELINQUISHED BY/REMOVED FROM: DATE/TIME:	RECEIVED BY/STORED IN: DATE/TIME:	
RELINQUISHED BY/REMOVED FROM: DATE/TIME:	RECEIVED BY/STORED IN: DATE/TIME:	

TRVL-13-086

LABORATORY SECTION	RECEIVED BY: M. Butty	TITLE:	DATE/TIME: 10/9/13 1000
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD:	DISPOSED BY:	DATE/TIME:

PRINTED ON 8/20/2013

A-6003-618 (REV 2)

NOVEMBER 11, 2013

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F13-046-005	PAGE 1 OF 1
COLLECTOR: Kauer Crew	COMPANY CONTACT: TODAK, D	TELEPHONE NO.: 376-6427	PROJECT COORDINATOR: TODAK, D	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: C8289, I-005, 120-122.5 ft bgs	PROJECT DESIGNATION: 100-KR-4 Long Term & Interim Action Monitoring - Soil		SAF NO.: F13-046	AIR QUALITY: ☐	30 Days / 30 Days
ICE CHEST NO.: GUSS-292	FIELD LOGBOOK NO.: HNF-N-507-25/7	ACTUAL SAMPLE DEPTH: 118.4 to 121.8 FT	COA: 300085ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: CB&I KS 10/8/13 ~~Environmental Sciences Laboratory~~	OFFSITE PROPERTY NO.: SEE PTR		BILL OF LADING/AIR BILL NO.: SEE PTR 796861995872		

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 may or may 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
RADIOACTIVE TIE TO: B2R2F7

PRESERVATION	None
HOLDING TIME	6 Months
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	1
VOLUME	1000g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2R2F6	SOIL	9-10-13	1125	✓

SEK 9586

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: Ed Kauer	DATE/TIME: 9-10-13 1418	RECEIVED BY/STORED IN: SSU #1	DATE/TIME: 9-10-13 1418
RELINQUISHED BY/REMOVED FROM: SSU #1	DATE/TIME: 10-8-13 0800	RECEIVED BY/STORED IN: E. Kauer	DATE/TIME: 10-8-13 0800
RELINQUISHED BY/REMOVED FROM: E. Kauer	DATE/TIME: 10-8-13 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM: Fedex	DATE/TIME: 10/9/13 1000	RECEIVED BY/STORED IN: M. Baty	DATE/TIME: 10/9/13 1000
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:

SPECIAL INSTRUCTIONS
* The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.☐☐** All requests for Geotechnical Parameters will be given a unique HEIS sample number and be assigned to a separate COC. In addition, all split spoon sleeves will be properly stored until authorized for shipment. TRVL-13-086
(1) Particle Size (Dry Sieve) - D422; Saturated Hydraulic Conductivity {Hydraulic Conductivity}; ~~AIR PERMEABILITY;~~ Calcium Carbonate Content; KS 10/8/13

TRVL-13-086

LABORATORY SECTION	RECEIVED BY: M. Baty	TITLE:	DATE/TIME: 10/9/13 1000
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD:	DISPOSED BY:	DATE/TIME:

PRINTED ON 8/20/2013

A-6003-618 (REV 2)

NOVEMBER 11, 2013

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

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F13-046-007	PAGE 1 OF 1
COLLECTOR: Xavier Floyd White	COMPANY CONTACT: TODAK, D	TELEPHONE NO.: 376-6427	PROJECT COORDINATOR: TODAK, D	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: C8289, I-007, 158-160.5 ft bgs	PROJECT DESIGNATION: 100-KR-4 Long Term & Interim Action Monitoring - Soil		SAF NO.: F13-046	AIR QUALITY: ☐	30 Days / 30 Days
ICE CHEST NO.: GWS - 292	FIELD LOGBOOK NO.: HNF-N-527-29/9	ACTUAL SAMPLE DEPTH: 153.2 to 155.1 FT	COA: 300085ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: ~~Environmental Sciences Laboratory~~ CB4 I 10-8-13	OFFSITE PROPERTY NO.: SEE PTR		BILL OF LADING/AIR BILL NO.: SEE PTR 7968619958 72		

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 may or may 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
RADIOACTIVE TIE TO: B2R2F9

PRESERVATION	None
HOLDING TIME	6 Months
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	1
VOLUME	1000g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2R2F8	SOIL	9-16-13	1330	✓

SEK 9587

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: Ed Kauer	DATE/TIME: 9-16-13 1532	RECEIVED BY/STORED IN: SSU #1	DATE/TIME: 9-16-13 1532
RELINQUISHED BY/REMOVED FROM: SSU #1	DATE/TIME: 10-8-13 0800	RECEIVED BY/STORED IN: E. Kauer	DATE/TIME: 10-8-13 0800
RELINQUISHED BY/REMOVED FROM: E. Kauer	DATE/TIME: 10-8-13 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM: Fedex	DATE/TIME: 10/9/13 1000	RECEIVED BY/STORED IN: M. Baty	DATE/TIME: 10/9/13 1000
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:

SPECIAL INSTRUCTIONS
* The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.☐☐** All requests for Geotechnical Parameters will be given a unique HEIS sample number and be assigned to a separate COC. In addition, all split spoon sleeves will be properly stored until authorized for shipment. TRVL-13-086
(1) Particle Size (Dry Sieve) - D422; Saturated Hydraulic Conductivity {Hydraulic Conductivity}; ~~AIR PERMEABILITY~~; Calcium Carbonate Content; 10-8-13

TRVL-13-086

LABORATORY SECTION	RECEIVED BY: M. Baty	TITLE	DATE/TIME: 10/9/13 1000
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/20/2013

A-6003-618 (REV 2)

NOVEMBER 11, 2013

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F13-046-021	PAGE 1 OF 1
COLLECTOR: Kauer, Floyd	COMPANY CONTACT: TODAK, D	TELEPHONE NO.: 376-6427	PROJECT COORDINATOR: TODAK, D	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: C8292, I-007, 78-80.5 ft bgs	PROJECT DESIGNATION: 100-KR-4 Long Term & Interim Action Monitoring - Soil		SAF NO.: F13-046	AIR QUALITY: ☐	30 Days / 30 Days
ICE CHEST NO.: GWS-292	FIELD LOGBOOK NO.: HNF-N-507-29 / PG 15	ACTUAL SAMPLE DEPTH: 95' ft - 97.5' ft	COA: 300085ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: Environmental Sciences Laboratory 10-8-13 CB+I	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A 7968619958 72		

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 may or may 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: RADIOACTIVE TIE TO: B2R2W4

PRESERVATION	None
HOLDING TIME	6 Months
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	1
VOLUME	1000g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SEK 9588

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2R2W9	SOIL	9/24/13	0735	✓

CHAIN OF POSSESSION	SIGN/ PRINT NAMES
RELINQUISHED BY/REMOVED FROM: Dave Floyd 1000 — DATE/TIME: 9-24-13	RECEIVED BY/STORED IN: SSU #1 — DATE/TIME: 9-24-13 1613
RELINQUISHED BY/REMOVED FROM: SSU #1 — DATE/TIME: 10-8-13 0800	RECEIVED BY/STORED IN: E. Kauer — DATE/TIME: 10-8-13 0800
RELINQUISHED BY/REMOVED FROM: E. Kauer — DATE/TIME: 10-8-13 1400	RECEIVED BY/STORED IN: FEDEX — DATE/TIME:
RELINQUISHED BY/REMOVED FROM: Fedex — DATE/TIME: 10/9/13 1000	RECEIVED BY/STORED IN: [signature] — DATE/TIME: 10/9/13 1000
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:

SPECIAL INSTRUCTIONS

** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. TRVL-13-087
(1) Particle Size (Dry Sieve) - D422; Saturated Hydraulic Conductivity {Hydraulic Conductivity}; ~~AIR PERMEABILITY~~; Calcium Carbonate Content; 10-8-13

TRVL- 13- 087

LABORATORY SECTION	RECEIVED BY: [signature]	TITLE:	DATE/TIME: 10/9/13 1000
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD:	DISPOSED BY:	DATE/TIME:

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NOVEMBER 11, 2013

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CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F13-046-017	PAGE 1 OF 1
COLLECTOR: D. Floyd	COMPANY CONTACT: TODAK, D	TELEPHONE NO.: 376-6427	PROJECT COORDINATOR: TODAK, D	PRICE CODE: 8H	DATA TURNAROUND
SAMPLING LOCATION: C8292, I-009, 120-122.5 ft bgs	PROJECT DESIGNATION: 100-KR-4 Long Term & Interim Action Monitoring - Soil		SAF NO.: F13-046	AIR QUALITY: ☐	30 Days / 30 Days
ICE CHEST NO.: GW3-292	FIELD LOGBOOK NO.: HNF-N-507.29	ACTUAL SAMPLE DEPTH: 125 Ft	COA: 300085ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: ~~Environmental Sciences Laboratory~~ CBFI	OFFSITE PROPERTY NO.: SEE PTR		BILL OF LADING/AIR BILL NO.: SEE PTR 7968619958 72		

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 may or may 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
RADIOACTIVE TIE TO: B2R2W6

PRESERVATION	None
HOLDING TIME	6 Months
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	1
VOLUME	1000g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SEK 9589

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2R2W5	SOIL	SEP 2 5 2013	0755	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: D. Floyd	DATE/TIME: SEP 2 5 2013 1500	RECEIVED BY/STORED IN: SSU #1	DATE/TIME: SEP 2 5 2013 1500
RELINQUISHED BY/REMOVED FROM: SSU #1	DATE/TIME: 10-8-13 0800	RECEIVED BY/STORED IN: E. Kauer	DATE/TIME: 10-8-13 0800
RELINQUISHED BY/REMOVED FROM: E. Kauer	DATE/TIME: 10-8-13 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM: Fedex	DATE/TIME: 10/9/13 1000	RECEIVED BY/STORED IN: M. Baker	DATE/TIME: 10/9/13 1000
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:

SPECIAL INSTRUCTIONS
** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.☐☐** All requests for Geotechnical Parameters will be given a unique HEIS sample number and be assigned to a separate COC. In addition, all split spoon sleeves will be properly stored until authorized for shipment. TRVL-13-087
(1) Particle Size (Dry Sieve) - D422; Saturated Hydraulic Conductivity {Hydraulic Conductivity}; ~~AIR PERMEABILITY~~; Calcium Carbonate Content;
10-8-13
TRVL 13- 087

LABORATORY SECTION	RECEIVED BY: M. Baker	TITLE	DATE/TIME: 10/9/13 1000
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/22/2013

A-6003-618 (REV 2)

NOVEMBER 11, 2013

Shaw Environmental, Inc.
(A CB&I Company)
Geotechnical Laboratory
304 Directors Drive
Knoxville, TN 37923
(865) 690-3211

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F13-046-019	PAGE 1 OF 1
COLLECTOR: D. Floyd	COMPANY CONTACT: TODAK, D	TELEPHONE NO.: 376-6427	PROJECT COORDINATOR: TODAK, D	PRICE CODE: 8H	DATA TURNAROUND: 30 Days / 30 Days
SAMPLING LOCATION: C8292, I-011, 160-160.5 ft bgs	PROJECT DESIGNATION: 100-KR-4 Long Term & Interim Action Monitoring - Soil		SAF NO.: F13-046	AIR QUALITY: ☐	
ICE CHEST NO.: GWS-292	FIELD LOGBOOK NO.: HNF-N-507-29	ACTUAL SAMPLE DEPTH: 160' - 162.5'	COA: 300085ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO: ~~Environmental Sciences Laboratory~~ CB+I KS 10/8/13	OFFSITE PROPERTY NO.: SEE PTR		BILL OF LADING/AIR BILL NO.: SEE PTR 7968619958 72		

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 may or may 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
RADIOACTIVE TIE TO: B2R2W8

PRESERVATION	None
HOLDING TIME	6 Months
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	1
VOLUME	1000g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2R2W7	SOIL	SEP 25 2013	1513	✓

SEK 9590

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: D. Floyd	DATE/TIME: SEP 25 2013 1602	RECEIVED BY/STORED IN: SSU #1	DATE/TIME: SEP 25 2013 1602
RELINQUISHED BY/REMOVED FROM: SSU #1	DATE/TIME: 10-8-13 0800	RECEIVED BY/STORED IN: E. Kuner	DATE/TIME: 10-8-13 0800
RELINQUISHED BY/REMOVED FROM: E. Kuner	DATE/TIME: 10-8-13 1400	RECEIVED BY/STORED IN: FEDEX	DATE/TIME:
RELINQUISHED BY/REMOVED FROM: Fedex	DATE/TIME: 10/9/13 1000	RECEIVED BY/STORED IN: M. Bailey	DATE/TIME: 10/9/13 1000
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:

SPECIAL INSTRUCTIONS
** The 100 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.☐☐** All requests for Geotechnical Parameters will be given a unique HEIS sample number and be assigned to a separate COC. In addition, all split spoon sleeves will be properly stored until authorized for shipment. TRVL-13-087
(1) Particle Size (Dry Sieve) - D422; Saturated Hydraulic Conductivity {Hydraulic Conductivity}; ~~AIR PERMEABILITY;~~ Calcium Carbonate Content; KS 10/8/13

TRVL-13-087

LABORATORY SECTION	RECEIVED BY: M. Bailey	TITLE	DATE/TIME: 10/9/13 1000
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

PRINTED ON 8/22/2013

A-6003-618 (REV 2)