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Data Validation Report for CH2M Hill Plateau Remediation Company

VSR11-037
Project 300 Area RI/FS

Chemical Validation - Level C

Validation Performed By: *Eyda Hergenreder* Date: 3-29-2011
Eyda Hergenreder

Validation Reviewed By: *Carl Schneider* Date: 3-30-2011

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General Chemistry

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Date: 29 March 2011
 To: CH2M Hill (technical representative)
 From: Analytical Quality Associates, Inc.
 Project: 300 Area RI/FS
 Subject: General Chemistry - Sample Data Group (SDG) SL996

INTRODUCTION

This memorandum presents the results of data validation for SDG SL996 prepared by TestAmerica. A list of samples validated along with the analytical methods is provided in the following table.

Sample ID	Sample Date	Media	Validation Level	Analytical Methods
B27JR9	11/04/10	Soil	C	9060 (TC & TIC)
B27JT0	11/09/10	Soil	C	9060 (TC & TIC)
B282Y0	11/10/10	Soil	C	9060 (TC & TIC)
B282X9	11/10/10	Soil	C	9060 (TC & TIC)
B28PN0	11/05/10	Soil	C	9060 (TC & TIC)

Data validation was conducted in accordance with the CHPRC validation statement of work and the 300 Area Remedial Investigation/Feasibility Study Sampling and Analysis Plan for the 300-FF-1, 300-FF-2 and 300-FF-5 Operable Units, DOE/RL-2009-45, Rev. 0/TPA-CN-352 (SAP). Appendices 1 through 6 provide the following information as indicated below:

- Appendix 1. Glossary of Data Reporting Qualifiers
- Appendix 2. Summary of Data Qualification
- Appendix 3. Annotated Laboratory Reports
- Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
- Appendix 5. Data Validation Supporting Documentation
- Appendix 6. Additional Documentation Requested By Client

DATA QUALITY OBJECTIVES

- **Holding Times and Sample Preservation**

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The holding time requirements for total carbon and total inorganic carbon are analysis within 28 days of sample collection. Sample preservation requires chilling to 4 degrees Celsius.

The samples were analyzed within the prescribed holding time and properly preserved.

- **Blanks**

The blank data results are reviewed to assess the extent of contamination introduced through sampling, sample preparation, and analysis.

Laboratory Blanks

All laboratory blank results were acceptable.

Trip Blanks

No trip blanks were submitted for validation.

Field Blanks

No field blanks were submitted for validation.

Equipment Blanks

All equipment blank results were acceptable with the following exception. Total carbon was detected in equipment blank B282X9.

- **Accuracy**

Accuracy is evaluated by reviewing matrix spike sample results and laboratory control sample results. The limits for reported analytes were not listed in the SAP and are specified by the DV procedure.

Matrix Spike (MS) Samples

The MS recoveries for total carbon were acceptable. MS results were not available for total inorganic carbon since it is a calculated result. No sample data should be qualified as a result.

Laboratory Control Samples (LCSs)

LCS results were not available since certified reference material for total carbon was not available. All total carbon results were detects and should be qualified as estimates and flagged "J." All total inorganic carbon sample results *except* for sample B282X9 were detects and should be qualified as estimates and flagged "J." The total inorganic carbon result for sample B282X9 was a non-detect and should be qualified as an estimate and flagged "UJ."

- **Precision**

Precision is evaluated by reviewing laboratory duplicate sample results, field duplicate sample results, and field split sample results. These QC results provide information on the laboratory reproducibility and whether sampling activities are adequate to acquire consistent sample results. The RPD limits for reported analytes were not listed in the SAP and are specified by the DV procedure. When duplicate RPDs exceed the limits and have associated results <5X the reporting limits with differences <2X the reporting limits no precision infraction occurred.

Laboratory Duplicate Samples

All laboratory duplicate results were acceptable with the following exception. The difference for total inorganic carbon was >2X the reporting limit. All total inorganic carbon sample results *except* for sample B282X9 were detects and should be qualified as estimates and flagged "J." The total inorganic carbon result for sample B282X9 was a non-detect and should be qualified as an estimate and flagged "UJ."

Field Duplicate Samples

No field duplicates were submitted for validation.

Field Split Samples

No field splits were submitted for validation.

• Detection Limits

Reported MDLs are compared against the contractually required detection limits (CRDLs) to ensure that laboratory detection limits meet the required criteria.

CRDLs for total carbon and total inorganic carbon were not provided in the SAP.

• Completeness

SDG SL996 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Minor deficiencies leading to qualification of sample results as estimates were due to lack of LCS data and poor laboratory duplicate precision.

REFERENCES

GRP-GD-003, Rev. 0, Change 0, *Data Validation for Chemical Analyses*, August 2010.

DOE/RL-2009-45, Rev. 0, *300 Area Remedial Investigation/Feasibility Study Sampling and Analysis Plan for the 300-FF-1, 300-FF-2 and 300-FF-5 Operable Unit*, April 2010.

TPA-CN-352, Change Notice Form for DOE/RL-2009-45, May 2010.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers that may be applied by data validators in compliance with the CHPRC statement of work are as follows:

- **U** — The constituent was analyzed for, but was not detected. The data should be considered usable for decision-making purposes.
- **UJ** — The constituent was analyzed for and was not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the RL. The data should be considered usable for decision-making purposes.
- **J** — Indicates the constituent was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.
- **J+** — Indicates the constituent was analyzed for and detected. The associated value is estimated with a suspected positive bias due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.
- **J-** — Indicates the constituent was analyzed for and detected. The associated value is estimated with a suspected negative bias due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.
- **N** — The analysis indicates the presence of an analyte that has been tentatively identified.
- **NJ** — The analysis indicates the presence of an analyte that has been tentatively identified and the associated numerical value represents its approximate concentration.
- **NJ+** — The analysis indicates the presence of an analyte that has been tentatively identified. The associated value is estimated with a suspected positive bias due to a quality control deficiency identified during data validation.
- **NJ-** — The analysis indicates the presence of an analyte that has been tentatively identified. The associated value is estimated with a suspected negative bias due to a quality control deficiency identified during data validation.
- **UR** — Indicates the constituent was analyzed for and not detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.
- **R** — Indicates the constituent was analyzed for and detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

Appendix 2
Summary of Data Qualification

General Chemistry Data Qualification Summary			
SDG: SL996	Reviewer: AQA	Project: 300 Area RI/FS	Page 1 of 1
Analyte(s)	Qualifier	Samples Affected	Reason
Total carbon	J	B27JR9, B27JT0, B282Y0, B282X9, B28PN0	Lack of LCS data
Total inorganic carbon	J	B27JR9, B27JT0, B282Y0, B28PN0	Lack of LCS data and poor lab duplicate precision
Total inorganic carbon	UJ	B282X9	Lack of LCS data and poor lab duplicate precision

Comments: None

Appendix 3

Annotated Laboratory Reports

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CH2M Hill Plateau Remediation DOE RL

Client Sample ID: B27JR9

General Chemistry

Lot-Sample #...: FOK130437-001 Work Order #...: L914W Matrix.....: SOLID
 Date Sampled...: 11/04/10 Date Received...: 11/13/10
 % Moisture.....:

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Total Carbon	J 216	100	mg/kg	SW846 9060	11/29-12/03/10	0333350
			Dilution Factor: 1	MDL.....: 33.4		
Total Inorganic Carbon	J 39.9 B	100	mg/kg	SW846 9060	11/29-12/03/10	0333351
			Dilution Factor: 1	MDL.....: 33.4		

NOTE(S) :

- RL Reporting Limit
- B Estimated result. Result is less than RL.

EH
 3-29-2011

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CH2M Hill Plateau Remediation DOE RL

Client Sample ID: B27JT0

General Chemistry

Lot-Sample #...: F0K130437-002 Work Order #...: L914X Matrix.....: SOLID
 Date Sampled...: 11/09/10 Date Received...: 11/13/10
 % Moisture.....:

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Total Carbon	J 8610	100	mg/kg	SW846 9060	11/29-12/03/10	0333350
			Dilution Factor: 1	MDL.....: 33.4		
Total Inorganic Carbon	J 907	100	mg/kg	SW846 9060	11/29-12/03/10	0333351
			Dilution Factor: 1	MDL.....: 33.4		

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CH2M Hill Plateau Remediation DOE RL

Client Sample ID: B282Y0

General Chemistry

Lot-Sample #...: F0K130437-003 Work Order #...: L9140 Matrix.....: SOLID
 Date Sampled...: 11/10/10 Date Received...: 11/13/10
 % Moisture.....:

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Total Carbon	J 775	100	mg/kg	SW846 9060	11/29-12/03/10	0333350
			Dilution Factor: 1	MDL.....: 33.4		
Total Inorganic Carbon	J 332	100	mg/kg	SW846 9060	11/29-12/03/10	0333351
			Dilution Factor: 1	MDL.....: 33.4		

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CH2M Hill Plateau Remediation DOE RL

Client Sample ID: B282X9

General Chemistry

Lot-Sample #...: FOK130437-004 Work Order #...: L9142 Matrix.....: SOLID
 Date Sampled...: 11/10/10 Date Received...: 11/13/10
 % Moisture.....:

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Total Carbon	J 72.0 B	100	mg/kg	SW846 9060	11/29-12/03/10	0333350
			Dilution Factor: 1	MDL.....: 33.4		
Total Inorganic Carbon	UJ ND	100	mg/kg	SW846 9060	11/29-12/03/10	0333351
			Dilution Factor: 1	MDL.....: 33.4		

NOTE(S) :

- RL Reporting Limit
- B Estimated result. Result is less than RL.

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CH2M Hill Plateau Remediation DOE RL

Client Sample ID: B28PN0

General Chemistry

Lot-Sample #...: FOK130437-005 Work Order #...: L9144 Matrix.....: SOLID
 Date Sampled...: 11/05/10 Date Received...: 11/13/10
 % Moisture.....:

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Total Carbon	J 2180	100	mg/kg	SW846 9060	11/29-12/03/10	0333350
			Dilution Factor: 1	MDL.....: 33.4		
Total Inorganic Carbon	J 386	100	mg/kg	SW846 9060	11/29-12/03/10	0333351
			Dilution Factor: 1	MDL.....: 33.4		

EH
3-29-2011

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

CASE NARRATIVE

CH2MHill Plateau Remediation Company
 P.O. Box 1600
 MS B3-60
 Richland, Washington 99352
 December 23, 2010
 Attention: Mike Neely

TestAmerica Laboratories, Inc.

SDG	: SL996
Number of Samples	: five samples
Sample Matrix	: Solid
Data Deliverable	: Summary
Date SDG Closed	: November 13, 2010

II. Introduction

On November 13, 2010, five solid samples were received by TestAmerica - St. Louis for chemical analysis. The samples were received within temperature criteria. See the COC and CUR forms for documentation of any variations on receipt conditions and temperature. Upon receipt, the samples were given laboratory Ids to correspond with specific client Ids. Please refer to the Sample Summary sheets attached to this case narrative. This report is incomplete without the narrative.

The following SAFs are associated with this SDG: F10-196

III. Analytical Results/ Methodology

The analytical results for this report are presented by analytical test. Each set of data includes sample identification information, analytical results and the appropriate detection limits. All results are based upon samples as they were received, i.e. wet weight, unless otherwise noted on the data sheets. See the attached Methods Summary Form for the methods used in this SDG.

MS/MSD/Dup analysis was done per the client requirements. Analytical batches that did not contain matrix QC were analyzed with a LCS/LCS duplicate.

Deviation from Request: None

IV. Definitions

QCBLK-	Quality Control Blank, Method Blank
QCLCS-	Quality Control Laboratory Control Sample, Blank Spike
DUP-	Laboratory Duplicate
MS-	Matrix Spike
MSD-	Matrix Spike Duplicate

The term "Detection Limit" used in the analytical data report refers to either the lab's standard reporting limits or contractually required reporting limits, whichever is applicable.

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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

CH2M Hill Plateau Remediation Company

December 23, 2010

SDG: SL996

TestAmerica Laboratories, Inc.

The following data qualifiers may be applicable to the results in this report, as appropriate.

- **B** – For inorganic analyses, the sample result is greater than the MDL but less than the RL.
- **B** – For organic analyses, Method Blank contamination. The Method Blank contains the target analyte at a concentration above the MDL.
- **J** – For organic analyses, the sample is estimated and less than the RL.
- **C** – For inorganic analyses, Method Blank contamination. The Method Blank contains the target analyte at a concentration above the MDL.
- **D** – For all analyses, the sample result was obtained from the analysis of a dilution.
- **N** – For inorganics and GC analyses, the spike/spike duplicate recoveries are outside QC limits.
- **T** – For GCMS analyses, the spike/spike duplicate recoveries are outside QC limits.

Total Carbon**Batch: 0333350**

The Duplicate RPD value is not within method acceptance criteria of 30% for soils. This is attributed to potential non-homogeneity of the sample due to a sample size of 100mg being used and the predominant component of the sample being larger rocks. In turn, this affected the calculated TIC %RPD for Batch #0333351. Method performance is demonstrated by acceptable LCS recovery as well as the %RPD of the duplication run on Sample FOK170516-001, from which a quadruplicate analysis was performed.

Affected Samples:

FOK130437 (1): B27JR9
 FOK130437 (2): B27JT0
 FOK130437 (3): B282Y0
 FOK130437 (4): B282X9
 FOK130437 (5): B28PN0

The TC value for the LCS was not reported since no certification exists for total carbon from that vendor. We are currently attempting to obtain a certified reference material for both TC and TIC.

Affected Samples:

F0K130437 (1): B27JR9
 F0K130437 (2): B27JT0
 F0K130437 (3): B282Y0
 F0K130437 (4): B282X9
 F0K130437 (5): B28PN0

Total Inorganic Carbon**Batch: 0333351**

The Duplicate RPD is not within method acceptance criteria of 30% for soils. This is attributed to potential non-homogeneity of the sample due to a sample size of 100mg being used and the predominant component of the sample being larger rocks. Method performance is demonstrated by acceptable LCS recovery as well as the %RPD of the duplication run on Sample FOK170516-001, from which a quadruplicate analysis was performed.

RECEIVED DECEMBER 23, 2010

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

CH2M Hill Plateau Remediation Company

TestAmerica Laboratories, Inc.

December 23, 2010

SDG: SL996

Affected Samples:

F0K130437 (1): B27JR9

F0K130437 (2): B27JT0

F0K130437 (3): B282Y0

F0K130437 (4): B282X9

F0K130437 (5): B28PN0

No LCS or MS was reported for TIC Batch #0333351. As TIC values are calculated results, an LCS was performed for the TOC portion of the analyzed samples, which yielded a recovery of 83.84%, which is acceptable by the certification provided with the standard. The MS recoveries on the TOC samples were both within QC requirements.

Affected Samples:

F0K130437 (1): B27JR9

F0K130437 (2): B27JT0

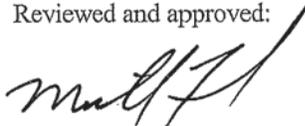
F0K130437 (3): B282Y0

F0K130437 (4): B282X9

F0K130437 (5): B28PN0

I certify that this Summary Package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. The Laboratory Manager or a designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Reviewed and approved:



Michael Franks
St. Louis Project Manager

SDG# 51199
 7
 23

CRP2

COLLECTOR Rust Kauer Higuera		COMPANY CONTACT DYEMAN, DL		TELEPHONE NO. 373-2530	PROJECT COORDINATOR DYEMAN, DL		PRICE CODE 8N	DATA TURNAROUND 45 Days / 45 Days	
SAMPLING LOCATION C790 (399-2-32); I-017		PROJECT DESIGNATION 300 Area Remedial Investigation/Feasibility Analysis - 300-FF-5 Soils			SAF NO. F10-196		AIR QUALITY <input type="checkbox"/>		
ICE CHEST NO. GWS-197		FIELD LOGBOOK NO. 4NF-N-645-1 pg 17		ACTUAL SAMPLE DEPTH 40.5 - 43.0		COA 300204ES10		METHOD OF SHIPMENT FEDERAL EXPRESS	
SHIPPED TO TestAmerica St. Louis		OFFSITE PROPERTY NO. SEE PTR 11/12/10 02357			BILL OF LADING/AIR BILL NO. SEE PTR 7964 4511 4983				

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 5400.5 (1990/1993)	PRESERVATION	Cool~4C
		HOLDING TIME	28 Days
		TYPE OF CONTAINER	aG
		NO. OF CONTAINER(S)	1
		VOLUME	120mL
SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS	
		SEE ITEM (1) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B27JR9	SOIL	11-4-10	0802	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Regane / Jimmy Regane	11-4-10 / 1200	MO-413 550-R1	11-4-10 / 1200
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
SU-R1	11/12/10 1000	SCOTTHAMAKER / Scott Hamaker	11/12/10 1000
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
SCOTTHAMAKER / Scott Hamaker	11/12/10 1430	FED EX	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Fed Ex		Jill Clarke / Jill Clark	11-13-10 0815
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 300 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.

(1) TC - 415.1 {Total carbon}; TIC - 415.1M {Total Inorganic Carbon};

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

RECEIVED DECEMBER 23, 2010

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TestAmerica St. Louis

SL996

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F10-196-076

PAGE 1 OF 1

COLLECTOR
Rosanne Rust Kauer Higuera
SAMPLING LOCATION
C7800 (399-2-32); I-025

COMPANY CONTACT
DYEKMAN, DL

TELEPHONE NO.
373-2530

PROJECT COORDINATOR
RADLOFF, AW

PRICE CODE BN

DATA TURNAROUND
45 Days / 45 Days

ICE CHEST NO.
GWS-197

PROJECT DESIGNATION
300 Area Remedial Investigation/Feasibility Analysis - 300-FF-5 Soils

SAF NO.
F10-196

FIELD LOGBOOK NO.
HNF-N-645-1 p919

ACTUAL SAMPLE DEPTH
121.0 - 123.5

COA
300204ES10

METHOD OF SHIPMENT
FEDERAL EXPRESS

SHIPPED TO
TestAmerica St. Louis

OFFSITE PROPERTY NO.
SEE PTR 02359

BILL OF LADING/AIR BILL NO.
SEE PTR 7964451 4983

MATRIX*
A=Air
DL=Drum
L=Liquids
DS=Drum
S=Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
O=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 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C
HOLDING TIME	28 Days
TYPE OF CONTAINER	aG
NO. OF CONTAINER(S)	1
VOLUME	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*
327JT0	SOIL

SAMPLE DATE	SAMPLE TIME	
11-9-10	0850	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME
<i>Larry Rosanne Sunny Rosanne</i>	<i>11-9-10 1630</i>
<i>SSU-RI</i>	<i>11/12/10 1000</i>
<i>SEATHAMAKER/Scott Hamach</i>	<i>11/12/10 1430</i>
<i>Fed Ex</i>	

SIGN/ PRINT NAMES

RECEIVED BY/STORED IN	DATE/TIME
<i>SSU-RI</i>	<i>11-9-10 1630</i>
<i>SEATHAMAKER/Scott Hamach</i>	<i>11/12/10 1000</i>
<i>FED EX</i>	
<i>Jill Clark/Ozell Clark</i>	<i>11-13-10 0815</i>

SPECIAL INSTRUCTIONS
** The 300 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
(1) TC - 415.1 {Total carbon}; TIC - 415.1M {Total Inorganic Carbon};

LABORATORY SECTION	RECEIVED BY

TITLE	DATE/TIME

FINAL SAMPLE DISPOSITION	DISPOSAL METHOD

DISPOSED BY	DATE/TIME

RECEIVED DECEMBER 23, 2010

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TestAmerica St. Louis

19165

CH2MHill Plateau Remediation Company

SL996

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F10-196-101

PAGE 1 OF 1

COLLECTOR: *Ronnie Rust Kuhn Higuma*
SAMPLING LOCATION: C7993 (399-1-54); I-018

COMPANY CONTACT: DYKMAN, DL

TELEPHONE NO.: 373-2530

PROJECT COORDINATOR: DYKMAN, DL

PRICE CODE: 8N

DATA TURNAROUND: 45 Days / 45 Days

ICE CHEST NO.: *GWS-197*

PROJECT DESIGNATION: 300 Area Remedial Investigation/Feasibility Analysis - 300-FF-5 Soils

FIELD LOGBOOK NO.: HNF-N-503-2

SAF NO.: F10-196

AIR QUALITY:

SHIPPED TO: TestAmerica St. Louis

OFFSITE PROPERTY NO.: *02357*

ACTUAL SAMPLE DEPTH: *36.0 - 38.5*

COA: 300204ES10

METHOD OF SHIPMENT: FEDERAL EXPRESS

MATRIX*
A=Air
DL=Drum
L=Liquids
DS=Drum
S=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 5400.5 (1990/1993)

PRESERVATION: *SEE PTR 11/12/10* Cool~4C

HOLDING TIME: 28 Days

TYPE OF CONTAINER: aG

NO. OF CONTAINER(S): 1

VOLUME: 120mL

SAMPLE ANALYSIS: SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SPECIAL HANDLING AND/OR STORAGE

SAMPLE NO.	MATRIX*
B282Y0	SOIL

SAMPLE DATE	SAMPLE TIME	
<i>11-10-10</i>	<i>1200</i>	<input checked="" type="checkbox"/>
<i>11-10-10</i>	<i>1200</i>	<input checked="" type="checkbox"/>

BILL OF LADING/AIR BILL NO.: *SEE PTR 11/12/10 7964 4511 4983*

RELINQUISHED BY/REMOVED FROM	DATE/TIME
<i>Larry Roscoe Larry Roscoe</i>	<i>11-10-10 16:00</i>
<i>SSU-R1</i>	<i>11/12/10 1800</i>
<i>SouthHamaker/Dott/Hamel</i>	<i>11/12/10 1430</i>
<i>Fed Ex</i>	

SIGN/ PRINT NAMES	DATE/TIME
<i>SSU-R1</i>	<i>NOV 10 2010 16:00</i>
<i>FED EX SOUTH HAMAKER/DOTT/HAMAKER</i>	<i>11/12/10 1800</i>
<i>FED EX</i>	
<i>Jill Clark Jill Clark</i>	<i>11-13-10 0815</i>

SPECIAL INSTRUCTIONS
 ** The 300 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
 (1) TC - 415.1 {Total carbon}; TIC - 415.1M {Total Inorganic Carbon};

LABORATORY SECTION	RECEIVED BY
9	

TITLE	DATE/TIME

DISPOSED BY	DATE/TIME

RECEIVED DECEMBER 23, 2010

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TestAmerica St. Louis

SDG# 5169

CH2MHill Plateau Remediation Company *SL996*

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F10-196-104

PAGE 1 OF 1

COLLECTOR <i>Ross Rust Kauer Haysura</i>		COMPANY CONTACT DYEKMAN, DL	TELEPHONE NO. 373-2530	PROJECT COORDINATOR DYEKMAN, DL	PRICE CODE 8N	DATA TURNAROUND 45 Days / 45 Days
SAMPLING LOCATION C7693 (399-1-54); I-018EB		PROJECT DESIGNATION 300 Area Remedial Investigation/Feasibility Analysis - 300-FF-5 Soils		SAF NO. F10-196	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO. <i>GWS-197</i>		FIELD LOGBOOK NO. HNF-N-503-2 <i>pg 59</i>	ACTUAL SAMPLE DEPTH <i>N/A</i>	COA 300204ES10	METHOD OF SHIPMENT FEDERAL EXPRESS	
SHIPPED TO TestAmerica St. Louis		OFFSITE PROPERTY NO. <i>SEE PTR 02357</i>		BILL OF LADING/AIR BILL NO. <i>SEE PTR 020.11/12/10 7964 4511 4983</i>		

MATRIX* A=Air DL=Drum L=Liquids S=Drum S=Solids L=Liquid O=Oil S=Soil E=Sediment T=Tissue V=Vegetation W=Water WI=Wipe O=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 5400.5 (1990/1993)	PRESERVATION Cool=4C	
		HOLDING TIME 28 Days	
		TYPE OF CONTAINER aG	
		NO. OF CONTAINER(S) 1	
		VOLUME 120mL	
SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
3282X9	SOIL	11-10-10	1115	✓

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
<i>Larry Rosovic Jimmy Rosovic</i>	<i>11-10-10 16:00</i>	<i>SSU-R1</i>	<i>NOV 10 2010 16:00</i>
<i>SU-R1</i>	<i>11/12/10 1000</i>	<i>SCOTT HAMAKER/Scott Hamaker</i>	<i>11/12/10 1000</i>
<i>SCOTT HAMAKER/Scott Hamaker</i>	<i>11/12/10 1430</i>	<i>FED EX</i>	
<i>Fed Ex</i>		<i>Jill Clarke Jer Clark</i>	<i>11-13-10 0805</i>
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS

** The 300 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.

(1) TC - 415.1 {Total carbon}; TIC - 415.1M {Total Inorganic Carbon};

ORIGINAL

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

RECEIVED DECEMBER 23, 2010

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TestAmerica St. Louis

SDG# 111210
11/23

CH2MHill Plateau Remediation Company

SL996

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F10-196-140

PAGE 1 OF 1

COLLECTOR
Rosanne Rust Kauer Higuma
SAMPLING LOCATION
C7800 (399-2-32); I-023

COMPANY CONTACT
RADLOFF, AW

TELEPHONE NO.
376-4554

PROJECT COORDINATOR
RADLOFF, AW

PRICE CODE 8N

DATA TURNAROUND

AIR QUALITY

45 Days / 45 Days

ICE CHEST NO.
GWS-197

PROJECT DESIGNATION
300 Area Remedial Investigation/Feasibility Analysis - 300-FF-5 Soils

FIELD LOGBOOK NO.
HNF-N-645-1 p18

SAF NO.
F10-196

COA
300204ES10

METHOD OF SHIPMENT
FEDERAL EXPRESS

SHIPPED TO
TestAmerica St. Louis

OFFSITE PROPERTY NO.
02357

ACTUAL SAMPLE DEPTH
53.0 - 55.5

BILL OF LADING/AIR BILL NO.
7964 4511 4983

MATRIX*
A=Air
DL=Drum
L=Liquids
DS=Drum
S=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 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C
HOLDING TIME	28 Days
TYPE OF CONTAINER	aG
NO. OF CONTAINER(S)	1
VOLUME	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B28PN0	SOIL	11-5-10	1037

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
<i>Jerry Rosanne</i>	<i>11-5-10 1505</i>	<i>SSURT</i>	<i>11-5-10 1505</i>
<i>SSU-R1</i>	<i>11/12/10 1000</i>	<i>SCOTHAMAKER</i>	<i>11/12/10 1000</i>
<i>SCOTHAMAKER</i>	<i>11/12/10 1430</i>	<i>FED EX</i>	
<i>Fed Ex</i>		<i>Jill Clark</i>	<i>11-13-10 0815</i>

SPECIAL INSTRUCTIONS
 ** The CACN for WSCF Analytical is 401980.
 ** The 300 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.
 (1) TC - 415.1 {Total carbon}; TIC - 415.1M {Total Inorganic Carbon};

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
111210			
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

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Appendix 5

Data Validation Supporting Documentation

Data Validation for Chemical Analyses

Published Date: 08/16/10

Effective Date: 08/16/10

VALIDATION LEVEL:	A	B	<input checked="" type="radio"/> C	D	E
PROJECT: 300 Area RI/FS			DATA PACKAGE: VSR11-037		
VALIDATOR: Eyda Hergenreder		LAB: TestAmerica		DATE: 03-29-2011	
			SDG: SL996		
ANALYSES PERFORMED					
Anions/IC	TOC	TOX	TPH-418.1	Oil and Grease	Alkalinity
Ammonia	BOD/COD	Chloride	Chromium-VI	pH	NO ₃ /NO ₂
Sulfate	TDS	TKN	Phosphate	Cyanide	
TC <input checked="" type="checkbox"/>	TIC <input checked="" type="checkbox"/>				
SAMPLES/MATRIX Soil samples SDG SL996: B27JR9, B27JT0, B282Y0, B282X9, B28PN0					

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present?..... Yes No N/A

Comments: None

Data Validation for Chemical Analyses

Published Date: 08/16/10

Effective Date: 08/16/10

2. INSTRUMENT PERFORMANCE AND CALIBRATIONS (Levels D and E)

Initial calibrations performed on all instruments?..... Yes No N/A

Initial calibrations acceptable? Yes No N/A

ICV and CCV checks performed on all instruments? Yes No N/A

ICV and CCV checks acceptable?..... Yes No N/A

Standards traceable? Yes No N/A

Standards expired? Yes No N/A

Calculation check acceptable? Yes No N/A

Comments:

3. BLANKS (Levels B, C, D, and E)

ICB and CCB checks performed for all applicable analyses? (Levels D, E) Yes No N/A

ICB and CCB results acceptable? (Levels D, E)..... Yes No N/A

Laboratory blanks analyzed? Yes No N/A

Laboratory blank results acceptable? Yes No N/A

Field blanks analyzed? (Levels C, D, E) Yes No N/A

Field blank results acceptable? (Levels C, D, E) Yes No N/A

Transcription/calculation errors? (Levels D, E) Yes No N/A

Comments:

Equipment blank B282X9 TC = 72.0 mg/kg

Data Validation for Chemical Analyses

Published Date: 08/16/10

Effective Date: 08/16/10

4. ACCURACY (Levels C, D, and E)

- Spike samples analyzed? Yes No N/A
- Spike recoveries acceptable? Yes No N/A
- Spike standards NIST traceable? (Levels D, E) Yes No N/A
- Spike standards expired? (Levels D, E) Yes No N/A
- LCS/BSS samples analyzed? Yes No N/A
- LCS/BSS results acceptable? Yes No N/A
- Standards traceable? (Levels D, E) Yes No N/A
- Standards expired? (Levels D, E) Yes No N/A
- Transcription/calculation errors? (Levels D, E) Yes No N/A
- Performance audit sample(s) analyzed? Yes No N/A
- Performance audit sample results acceptable? Yes No N/A

Comments:

Certified reference material for TC and TIC was not available. Therefore, LCSs were not performed.

Data Validation for Chemical Analyses

Published Date: 08/16/10

Effective Date: 08/16/10

5. PRECISION (Levels C, D, and E)

- Duplicate RPD values acceptable?..... Yes No N/A
- Duplicate results acceptable? Yes No N/A
- MS/MSD standards NIST traceable? (Levels D, E)..... Yes No N/A
- MS/MSD standards expired? (Levels D, E) Yes No N/A
- Field duplicate RPD values acceptable? Yes No N/A
- Field split RPD values acceptable? Yes No N/A
- Transcription/calculation errors? (Levels D, E)..... Yes No N/A

Comments:

Total inorganic carbon lab dup difference (211 mg/kg) > 2X the RL (RL = 100 mg/kg)

6. HOLDING TIMES (all levels)

- Samples properly preserved?..... Yes No N/A
- Sample holding times acceptable? Yes No N/A

Comments: None

Data Validation for Chemical Analyses

Published Date: 08/16/10

Effective Date: 08/16/10

7. RESULT QUANTITATION AND DETECTION LIMITS (all levels)

- Results reported for all requested analyses?..... Yes No N/A
- Results supported in the raw data? (Levels D, E) Yes No N/A
- Samples properly prepared? (Levels D, E) Yes No N/A
- Detection limits meet RDL?..... Yes No N/A
- Transcription/calculation errors? (Levels D, E) Yes No N/A

Comments:

CRDLs were not provided in the SAP.

Appendix 6

Additional Documentation Requested By Client

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METHOD BLANK REPORT

General Chemistry

Client Lot #...: SL996

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING		METHOD	PREPARATION-	PREP
		LIMIT	UNITS		ANALYSIS DATE	BATCH #
Total Carbon	ND	Work Order #: MALW91AA 100	mg/kg	MB Lot-Sample #: SW846 9060	F0K290000-350 11/29-12/03/10	0333350
		Dilution Factor: 1				
Total Inorganic Carbon	ND	Work Order #: MALXA1AA 100	mg/kg	MB Lot-Sample #: SW846 9060	F0K290000-351 11/29-12/03/10	0333351
		Dilution Factor: 1				

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

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MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: SL996

Matrix.....: SOLID

Date Sampled...: 11/04/10

Date Received...: 11/13/10

Percent Moisture: 100

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Total Carbon	216	1000	1550	mg/kg	133	SW846 9060	11/29-12/03/10	0333350

Work Order #...: L914W1AJ MS Lot-Sample #: F0K130437-001
Dilution Factor: 1

Total Carbon	352	1000	1650	mg/kg	130	SW846 9060	11/29-12/03/10	0333350
--------------	-----	------	------	-------	-----	------------	----------------	---------

Work Order #...: L963V1AJ MS Lot-Sample #: F0K170516-001
Dilution Factor: 1

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

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SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F0K130437

Work Order #...: L914W-SMP
L914W-DUP

Matrix.....: SOLID

Date Sampled...: 11/04/10

Date Received...: 11/13/10

PARAM	RESULT	DUPLICATE RESULT	UNITS	RPD	RPD LIMIT	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Total Carbon	216	389	mg/kg	57	(0-30)	SW846 9060	11/29-12/03/10	0333350
			Dilution Factor: 1					
Total Inorganic Carbon	39.9 B	251	mg/kg	145	(0-30)	SW846 9060	11/29-12/03/10	0333351
			Dilution Factor: 1					

SD Lot-Sample #: F0K130437-001

SD Lot-Sample #: F0K130437-001

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

RECEIVED DECEMBER 23, 2010

SAMPLE DUPLICATE EVALUATION REPORT

General Chemistry

Client Lot #...: F0K130437

Work Order #...: L963V-SMP
L963V-DUP

Matrix.....: SOLID

Date Sampled...: 11/12/10

Date Received...: 11/17/10

<u>PARAM</u>	<u>RESULT</u>	<u>DUPLICATE RESULT</u>	<u>UNITS</u>	<u>RPD</u>	<u>RPD LIMIT</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Total Carbon	352	392	mg/kg	11	(0-30)	SD Lot-Sample #: F0K170516-001 SW846 9060	11/29-12/03/10	0333350
			Dilution Factor: 1					
Total Inorganic Carbon	ND	117	mg/kg	200	(0-30)	SD Lot-Sample #: F0K170516-001 SW846 9060	11/29-12/03/10	0333351
			Dilution Factor: 1					