



U.S. DEPARTMENT OF
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Geochemical Study of a Grab Sample Collected From 216 B-55 Crib in the 200-SC-1 Operable Unit

Michael Lindberg

JULY 2008



Pacific Northwest
NATIONAL LABORATORY

07/09/08 11:38

To: Dana Widrig

From: Michael J. Lindberg

A handwritten signature in black ink, appearing to read 'MJL', is centered below the name 'Michael J. Lindberg'.

Environmental Sciences Laboratory
Energy and Environment Directorate, Pacific Northwest National Laboratory

Subject: Geochemical Study of a Grab Sample Collected From 216 B-55 Crib in the 200-SC-1 Operable Unit,
Sample Delivery Group ESL080024, SAF Number F08-031

This letter contains the following information for sample delivery group ESL080024

- Cover Sheet
- Narrative
- Analytical Results
- Quality Control
- Chain of Custodies

Introduction

On May 15, 2008 a grab sample was received from 216 B-55 Crib in the 200-SC-1 Operable Unit for geochemical studies.

Analytical Results/Methodology

The analyses for this project were performed at the 325 building located in the 300 Area of the Hanford Site. The analyses were performed according to Pacific Northwest National Laboratory (PNNL) approved procedures and/or nationally recognized test procedures. The data sets include the sample identification numbers, analytical results, estimated quantification limits (EQL), and quality control data.

Quality Control

The preparatory and analytical quality control requirements, calibration requirements, acceptance criteria, and failure actions are defined in the on-line QA plan "Conducting Analytical Work in Support of Regulatory Programs" (CAW). This QA plan implements the Hanford Analytical Services Quality Assurance Requirements Documents (HASQARD) for PNNL.

Definitions

Dup Duplicate
RPD Relative Percent Difference

Sample Receipt

The sample was received with a chain of custody (COC) and was analyzed according to the sample identification number supplied by the client. The sample was refrigerated upon receipt until prepared for analysis.

The sample was received with custody seals intact unless noted in the Case Narrative.

Holding Times

Holding time is defined as the time from sample preparation to the time of analyses. The prescribed holding times were met for all analytes unless noted in the Case Narrative.

Analytical Results

All reported analytical results meet the requirements of the CAW or client specified SOW unless noted in the case narrative.

Case Narrative Report

Test reports/summary forms for blank samples

No Discrepancies Noted

Laboratory control samples (LCS):

No Discrepancies Noted

Post spike (PS) and post spike duplicate (PSD) data

No Discrepancies Noted

Analytical duplicate data

No Discrepancies Noted

Hold Time Report

No Discrepancies Noted

DISCLAIMER

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SAMPLES INCLUDED IN THIS REPORT

216-B-55 C6743

HEIS No.	Laboratory ID	Matrix	Date Collected	Date Received
B1VDW3	0806012-01	SOIL	5/13/08 07:35	5/15/08 12:50

The following analyses were performed on the following samples included in this report:

1:1 DI Water Extract

Anions By Ion Chromatography

Moisture Content

Percent Solids

SAMPLES ANALYZED IN THIS REPORT

HEIS No.	Laboratory ID	Matrix	Date Collected	Date Received
B1VDW3	0806012-01	SOIL	5/13/08 07:35	5/15/08 12:50

Wet Chemistry

Moisture Content (% by Weight) by AGG-WC-001

Lab ID	HEIS No.	Results	EQL	Analyzed	Batch
0806012-01	B1VDW3	3.01	N/A	6/19/08	8F13002

Anions by Ion Chromatography

CAS #	Analyte	Results	Units	EQL	Analyzed	Batch	Method
HEIS No.	B1VDW3	Lab ID: 0806012-01					
16984-48-8	Fluoride	<2.07	ug/g dry	2.07	6/19/08	8F17009	AGG-IC-001
16887-00-6	Chloride	<5.16	ug/g dry	5.16	6/19/08	8F17009	AGG-IC-001
14797-65-0	Nitrite	<10.3	ug/g dry	10.3	6/19/08	8F17009	AGG-IC-001
24959-67-9	Bromide	<10.3	ug/g dry	10.3	6/19/08	8F17009	AGG-IC-001
14797-55-8	Nitrate	<10.3	ug/g dry	10.3	6/19/08	8F17009	AGG-IC-001
14808-79-8	Sulfate	44.5	ug/g dry	15.5	6/19/08	8F17009	AGG-IC-001
14265-44-2	Phosphate	<15.5	ug/g dry	15.5	6/19/08	8F17009	AGG-IC-001

Anions by Ion Chromatography - Quality Control
Environmental Science Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 8F17009 - 1:1 Water Extract (IC)

Blank (8F17009-BLK1)

Prepared: 06/17/08 Analyzed: 06/19/08

Fluoride	<0.200	0.200	ug/g wet							
Chloride	<0.500	0.500	"							
Nitrite	<1.00	1.00	"							
Bromide	<1.00	1.00	"							
Nitrate	<1.00	1.00	"							
Sulfate	<1.50	1.50	"							
Phosphate	<1.50	1.50	"							

LCS (8F17009-BS1)

Prepared: 06/17/08 Analyzed: 06/19/08

Fluoride	2.09	0.200	ug/g wet	2.010		104	80-120			
Chloride	5.16	0.500	"	5.025		103	80-120			
Nitrite	9.64	1.00	"	10.05		96.0	80-120			
Bromide	10.2	1.00	"	10.05		102	80-120			
Nitrate	10.4	1.00	"	10.05		103	80-120			
Sulfate	15.2	1.50	"	15.08		101	80-120			
Phosphate	15.0	1.50	"	15.08		99.2	80-120			

Duplicate (8F17009-DUP1)

Source: 0806012-01

Prepared: 06/17/08 Analyzed: 06/19/08

Fluoride	<2.07	2.07	ug/g dry		ND					20
Chloride	<5.17	5.17	"		ND					20
Nitrite	<10.3	10.3	"		ND					20
Bromide	<10.3	10.3	"		ND					20
Nitrate	<10.3	10.3	"		ND					20
Sulfate	48.1	15.5	"		44.5			7.80		20
Phosphate	<15.5	15.5	"		ND					20

Anions by Ion Chromatography - Quality Control
Environmental Science Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 8F17009 - 1:1 Water Extract (IC)

Post Spike (8F17009-PS1)	Source: 0806012-01			Prepared: 06/17/08		Analyzed: 06/19/08	
Fluoride	0.86		ug/mL	0.769	0.019	109	75-125
Chloride	2.3		"	1.92	0.288	105	75-125
Nitrite	3.68		"	3.85	ND	95.7	75-125
Bromide	3.85		"	3.85	ND	100	75-125
Nitrate	4.55		"	3.85	0.334	110	75-125
Sulfate	10.1		"	5.77	4.31	99.8	75-125
Phosphate	5.71		"	5.77	ND	98.9	75-125

COLLECTOR NCO Sampler <i>Kristi Rose, McIntyre</i>	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR WDRIG, DL	PRICE CODE 8N	DATA TURNAROUND 45 Days / 45 Days
SAMPLING LOCATION C6743, 1-004-SP	PROJECT DESIGNATION 216-B-55 Supplemental Characterization	FIELD LOGBOOK NO. 145F-N-583-1	SAF NO. F08-031	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO.	FIELD LOGBOOK NO. # 2	ACTUAL SAMPLE DEPTH 27.5' - 30'	COA 1230551278	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO Environmental Sciences Laboratory	OFFSITE PROPERTY NO. N/A	BILL OF LADING/AIR BILL NO. N/A			

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS	SPECIAL HANDLING AND/OR STORAGE
A=Air DL=Drum L=Liquid DS=Drum S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)	Cool-d-C	GRP	1	60ml	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Radioactive Tie TO: B1VDT6 or B1TFM2

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	SIGN/ PRINT NAMES
B1VDW3	SOIL	5-13-08	0735	✓ ✓

CHAIN OF POSSESSION	RECEIVED BY/STORER IN	DATE/TIME	RECEIVED BY/STORER IN	DATE/TIME	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM <i>ARW/Inte/qa/af</i>	RECEIVED BY/STORER IN <i>B-55 site Ref</i>	DATE/TIME <i>5-13-08 0830</i>	RECEIVED BY/STORER IN <i>ARW/Inte/qa/af</i>	DATE/TIME <i>5-13-08 0830</i>	SPECIAL INSTRUCTIONS ** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF. ** Analytical batch QC must be run on a sample associated with this SAF. (1)IC Anions - 300.0 {Fluoride, Nitrate, Nitrite, Sulfate}
RELINQUISHED BY/REMOVED FROM <i>B-55 site Ref</i>	RECEIVED BY/STORER IN <i>ARW/Inte/qa/af</i>	DATE/TIME <i>5-14-08 1100</i>	RECEIVED BY/STORER IN <i>ARW/Inte/qa/af</i>	DATE/TIME <i>5-14-08 1100</i>	
RELINQUISHED BY/REMOVED FROM <i>ARW/Inte/qa/af</i>	RECEIVED BY/STORER IN <i>MO 745 Ref</i>	DATE/TIME <i>5/14/08 1230</i>	RECEIVED BY/STORER IN <i>MO 745 Ref</i>	DATE/TIME <i>5/14/08 1230</i>	
RELINQUISHED BY/REMOVED FROM <i>ARW/Inte/qa/af</i>	RECEIVED BY/STORER IN <i>Davis/Inte/qa/af</i>	DATE/TIME <i>5/14/08 1230</i>	RECEIVED BY/STORER IN <i>Davis/Inte/qa/af</i>	DATE/TIME <i>5/14/08 1230</i>	
RELINQUISHED BY/REMOVED FROM <i>ARW/Inte/qa/af</i>	RECEIVED BY/STORER IN <i>D Smith</i>	DATE/TIME <i>5/14/08 1230</i>	RECEIVED BY/STORER IN <i>D Smith</i>	DATE/TIME <i>5/15-08 1230</i>	

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