

PO Box 1000 S3-30
Richland, WA 99352
(509) 373-7005
(509) 372-0456

Memorandum

To: Michael Neely
CH2M-HILL PRC
PO Box 1600
Richland, WA 99352

Date: September 23, 2009

From: WSCF Laboratory
WSCF Analytical Chemistry

CC:

Subject: FINAL RESULT FOR SAMPLE DELIVERY GROUP WSCF91072

Reference: (1) SOW, Mod 2, #36587, Release 3
(2) HNF-SD-CD-QAPP-017, Rev 9, Waste Sampling & Characterization Facility Quality Assurance Plan

This letter contains the following information for sample delivery group WSCF91072

- * Cover Sheet (Attachment 1)
- * Narrative (Attachment 2)
- * Analytical Results (Attachment 3)
- * Sample Receipt Information (Attachment 4)

Electronically signed by Scot Fitzgerald
For Lab Manager

Attachments 4

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF Number Cross Reference

Group # WSCF91072

Data Deliverable Date 09/30/09

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
F09-039	B212F6	91072001	WATER	09/15/09	09/15/09

ATTACHMENT 2

NARRATIVE

Consisting of 4 pages
Including cover page

Introduction

One (1) S&GRP sample was received at the WSCF Laboratory on September 15, 2009. This sample was analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Statement of Work (SOW), Modification No. 2 to Agreement 36587, Release 3, "FH WSCF ANALYTICAL SERVICES FOR GROUNDWATER."*

The narrative (Attachment 2) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 3) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information as applicable. Copies of the chain of custody and sample receipt documentation are included as Attachment 4.

It should be noted that the attached chain of custody was stamped "ICED" by the WSCF Laboratory Sample Custodian during sample receiving, indicating the presence of ice in the transport container.

The following generic data qualifiers (i.e., B, D, and J) may be applicable to this report, as appropriate

- **B** – Sample results with a concentration greater than the MDL but less than the PQL are B flagged (applies to inorganic and wetchem analyses), as appropriate.
- **D** – Sample results are D flagged if dilution(s) were required, as appropriate.
- **J** – Sample results with a concentration greater than the MDL but less than the PQL are J flagged (applies to organic analyses), as appropriate.

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report*, pages for a complete listing of approved analytical methods.

Inorganic Comments

Anions – Hold time requirements for this analysis were met. A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

All QC controls are within the established limits.

pH – The hold time requirement for this analysis was met. A Duplicate and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

All QC controls are within the established limits.

Attachment 2
Narrative
WSCF91072

We certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this data package has been authorized by the Analytical Laboratory Manager (or designee) and the Client Services representative as verified by electronic signatures shown on the WSCF ANALYTICAL RESULTS REPORT.

ISSUE RESOLUTION FORM**CHPRC TRACKING NUMBER:** 09-071Date : 7-20-2009 SAF No. **F09-039**SDG: **WSCF90697** LOGIN No.: TEST: ANIONS (@IC-30)Sample No.(s) **B212F2****90697002**Submitted By: WW Baird Submitted To: H Hampt
Phone No. 373-7189 Phone No. 376-4319
Fax No. 372-0456 Fax No

<u>ISSUE</u>	<u>PROPOSED RESOLUTION</u>
<p>The 48-hour regulatory hold time requirement for Nitrate-N was missed on sample identified above.</p> <p>Sample was collected in the field on July 1, 2009, and delivered to the WSCF Laboratory on July 2, 2009.</p> <p>Initial analysis was performed within the regulatory hold time. Both a primary and secondary dilution was performed; however due to the high concentration of Nitrate-N present in the above sample, Nitrate-N re-analysis was required at an even higher dilution (@ dilution factor of ~10).</p> <p>Due to a facility closure, we were not able to successfully complete the analysis of this sample until July 7, 2009.</p>	<p>Accept Nitrate-N analytical results (accept as-is) and document missed holding time in the case narrative.</p>

GRP COMMENTS

Accept proposed resolution.

Heidi Hampt 7/20/09
Signature and Date

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 11 pages
Including cover page

WSCF ANALYTICAL RESULTS REPORT

For

CH2M Hill Plateau Remediation

PO Box 1600
Richland, WA 99352

Attention: Michael Neely

Contract # MOA-FH-CHPRC-2008
Group # WSCF91072
Report Date September 23, 2009

Analytical: Electronically signed by Scot Fitzgerald

Client Services: Electronically signed by Andrew Kopriva

All radiochemistry results are reported on an "as received" basis.

This information is intended for the use of the addressee only. If the reader of this report is not the intended recipient or is not authorized by the recipient to receive the report, you are hereby notified that any dissemination, distribution or copying of this report is strictly prohibited. If you have received this report in error, please notify WSCF Laboratory immediately by telephone at (509) 373-7020 or (509) 531-8004. Information designation of this report is the responsibility of the customer.

Batch QC List

Attention Michael Neely
Department Inorganic

Group # WSCF91072

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
63774	63774	2	BLANK	14919	BLANK		Anions by Ion Chromatography (Water)
63774	63774	3	LCS	14920	LCS		Anions by Ion Chromatography (Water)
63774	63774	4	DUP	14921	B21M01(91066009DUP)	91066009	Anions by Ion Chromatography (Water)
63774	63774	5	MS	14922	B21M01(91066009MS)	91066009	Anions by Ion Chromatography (Water)
63774	63774	6	MSD	14923	B21M01(91066009MSD)	91066009	Anions by Ion Chromatography (Water)
63774	63774	14	SAMPLE	91072001	B212F6		Anions by Ion Chromatography (Water)

Batch QC List

Attention Michael Neely
Department Wet Chemistry

Group # WSCF91072

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
63812	63812	1	LCS	15045	LCS		pH Direct Measurement (W)
63812	63812	2	SAMPLE	91072001	B212F6		pH Direct Measurement (W)
63812	63812	3	DUP	15046	B212F6(91072001DUP)	91072001	pH Direct Measurement (W)
63812	63812	5	LCS	15047	LCS		pH Direct Measurement (W)

Method Reference

Attention Michael Neely
Department Inorganic

Group # WSCF91072

The results provided in this report were generated using the following WSCF Laboratory procedures. For your convenience, this table provides a listing of the regulatory, industry methods or HEIS methods that are referenced by each of these WSCF procedures. Please note that the most recent version of the regulatory or industry method is listed here even though WSCF procedure may reference an older version of the method. Also, a reference to a regulatory or industry method here does not necessarily indicate a verbatim implementation of that method.

LA-533-410	Anion Analysis by Ion Chromatography		
	EPA-600/R-94-111	300.0	Determination of Inorganic Anions by Ion Chromatography
	HEIS	300.0_ANIONS_IC	Determination of Inorganic Anions by Ion Chromatography

Note: A complete list of WSCF analytical procedures and reference regulatory or industry methods is available online at <http://www7.rl.gov/rapidweb/AS-DOL/index.cfm>

Method Reference

Attention Michael Neely
Department Wet Chemistry

Group # WSCF91072

The results provided in this report were generated using the following WSCF Laboratory procedures. For your convenience, this table provides a listing of the regulatory, industry methods or HEIS methods that are referenced by each of these WSCF procedures. Please note that the most recent version of the regulatory or industry method is listed here even though WSCF procedure may reference an older version of the method. Also, a reference to a regulatory or industry method here does not necessarily indicate a verbatim implementation of that method.

LA-212-402	Determination of pH Direct Measurement - WSCF		
	EPA-600/4-79-020	pH	150.1
	EPA SW-846	9040B	pH Electrometric Measurement
	HEIS	150.1_PH	pH

Note: A complete list of WSCF analytical procedures and reference regulatory or industry methods is available online at <http://www7.rl.gov/rapidweb/AS-DOL/index.cfm>

WSCF Analytical Results Report

Attention Michael Neely
 Department Inorganic

Group # WSCF91072

Sample # 91072001
 SAF# F09-039
 Sample ID B212F6

Matrix WATER
 Sampled 09/15/09
 Received 09/15/09

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Anions by IC										09/15/09
Anions by IC										
Fluoride	16984-48-8	LA-533-410	UD	<1.5		ug/mL	51	1.5	10	09/15/09
Chloride	16887-00-6	LA-533-410	UD	<2.2		ug/mL	51	2.2	20	09/15/09
Nitrate-N	NO3-N	LA-533-410	UD	<1.6		ug/mL	51	1.6	5.1	09/15/09
Sulfate	14808-79-8	LA-533-410	BD	9.43		ug/mL	51	3.3	51	09/15/09

MDL = Minimum Detection
 RQ = Result Qualifier
 TP Err = Total Propagated
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte < the RDL but >= the IDL/MDL. (Inorganic)
 C - Analyte was found in the Associated Blank. (Inorganic)
 D - Analyte was reported at a secondary dilution factor.
 E - Analyte is an estimate, see comment section.
 N - MS and/or MSD sample recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.
 X,Y or Z - See comment detail and/or narrative.

WSCF Analytical Results Report

Attention Michael Neely
 Department Wet Chemistry

Group # WSCF91072

Sample # 91072001
 SAF# F09-039
 Sample ID B212F6

Matrix WATER
 Sampled 09/15/09
 Received 09/15/09

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
pH										09/16/09
pH										
pH	PH	LA-212-402		7.70		unitless	1	0.010	0.50	09/16/09

MDL = Minimum Detection
 RQ = Result Qualifier
 TP Err = Total Propagated
 DF = Dilution Factor
 + - Indicates more than nine qualifier

B - Analyte < the RDL but >= the IDL/MDL.
 C - Analyte was found in the Associated Blank. (Inorganic)
 D - Analyte was reported at a secondary dilution factor.
 N - MS and/or MSD sample recovery outside control limits.
 U - Analyzed for but not detected above limiting criteria.

N - Spike Recovery is Outside Control Limits.
 X,Y or Z - See comment detail and/or narrative.

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF91072

QC Batch 63774 **Test** Anions by Ion Chromatography (Water)
Associated Samples 91072001

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK		QC Sample #14919								
Fluoride	16984-48-8	<0.030		ug/mL					U	09/15/09
Chloride	16887-00-6	<0.043		ug/mL					U	09/15/09
Nitrate-N	NO3-N	<0.031		ug/mL					U	09/15/09
Sulfate	14808-79-8	<0.066		ug/mL					U	09/15/09
LCS		QC Sample #14920								
Fluoride	16984-48-8	0.934		ug/mL	93.4	90 - 110				09/15/09
Chloride	16887-00-6	1.94		ug/mL	99.3	90 - 110				09/15/09
Nitrate-N	NO3-N	0.868		ug/mL	98.5	90 - 110				09/15/09
Sulfate	14808-79-8	3.94		ug/mL	100.5	90 - 110				09/15/09
DUP		QC Sample #14921								
		Original 91066009								
Fluoride	16984-48-8	0.0809		ug/mL			2.90	20	BD	09/15/09
Chloride	16887-00-6	14.1		ug/mL			0.70	20	D	09/15/09
Nitrate-N	NO3-N	8.09		ug/mL			0.20	20	D	09/15/09
Sulfate	14808-79-8	47.2		ug/mL			0.40	20	D	09/15/09
MS		QC Sample #14922								
		Original 91066009								
Fluoride	16984-48-8	1.00		ug/mL	99.3	80 - 120			D	09/15/09
Chloride	16887-00-6	1.89		ug/mL	95.8	80 - 120			D	09/15/09
Nitrate-N	NO3-N	0.817		ug/mL	91.8	80 - 120			D	09/15/09

Quality Control Report

Attention Michael Neely
 Department Inorganic

Group # WSCF91072

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Sulfate MSD	14808-79-8		4.10	ug/mL	103.4	80 - 120			D	09/15/09
			QC Sample #14923							
			Original	91066009				Paired	14922	
Fluoride	16984-48-8		1.08	ug/mL	106.7	80 - 120	7.20	20	D	09/15/09
Chloride	16887-00-6		1.89	ug/mL	95.9	80 - 120	0.10	20	D	09/15/09
Nitrate-N	NO3-N		0.808	ug/mL	90.8	80 - 120	1.10	20	D	09/15/09
Sulfate	14808-79-8		3.81	ug/mL	96.2	80 - 120	7.20	20	D	09/15/09

Quality Control Report

Attention Michael Neely
 Department Wet Chemistry

Group # WSCF91072

QC Batch 63812
 Associated Samples 91072001

Test pH Direct Measurement (W)

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
LCS		QC Sample #15045								
pH DUP	PH	8.01		unitless	100.1	98.875 - 101.25				09/16/09
		QC Sample #15046								
		Original 91072001								
pH LCS	PH	7.70	7.68	unitless			0.30	20		09/16/09
		QC Sample #15047								
pH	PH	8.04		unitless	100.5	98.875 - 101.25				09/16/09

ATTACHMENT4

SAMPLE RECEIPT

Consisting of 3 pages
Including cover page

Waste Sampling and Characterization Facility
P.O. Box 1970 S3-30, Richland WA 99352
Phone: (509) 373-7004/FAX: (509) 373-7134

ACKNOWLEDGEMENT OF SAMPLES RECEIVED

WSCF Laboratory
PO Box 1000 S3-30
Richland, WA 99352

ATTN: Michael Neely

Customer Code: CHPRC
PO #: 400637
Work Order #: 91072
Profile #: F09-039-012
Proj. Mgr.:
Phone:

The following samples were received from you on 9/15/2009 2:20:00 PM. They have been scheduled for the tests listed beside each sample. If this information is incorrect, please contact your service representative. Thank you for using Waste Sampling and Characterization Facility.

Sample #	Sample ID	Matrix	Collected	Received
Tests scheduled				
91072001	B212F6	WATER	9/15/2009 14:00	9/15/2009 14:20
IC-W; PH-W				

Test Acronym Description

Test Acronym	Description
IC-W	Anions by IC (W)
PH-W	pH (W)

Sample Receipt

CH2M Hill Plateau Remediation Company

COLLECTOR: Futur

SAMPLING LOCATION: 200-BC-1 DVZ Soil Desiccation

ICE CHEST NO.: HVP-N-5853

SHIPPED TO: Waste Sampling & Characterization

COMPANY CONTACT: DYERMAN, DL

PROJECT DESIGNATION: 200-BC-1 DVZ Soil Desiccation Pilot Test - Characterization Phase (Water)

FIELD LOGBOOK NO.: HVP-N-5853

OFFSITE PROPERTY NO.: N/A

PHONE NO.: 373-2530

PROJECT COORDINATOR: DYERMAN, DL

SAF NO.: F09-039

COA: 301-0055510

BILL OF LADING/AIR BILL NO.: N/A

F09-039-012 PRICE CODE: 76 AIR QUALITY: METHOD OF SHIPMENT: GOVERNMENT VEHICLE

DATA TURNAROUND: 15 Days / 30 Days

PAGE 1 OF 2

ICED

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

WASTE SAMPLING & CHARACTERIZATION

PRESERVATION: pH 7 Cool=C

TYPE OF CONTAINER: P

NO. OF CONTAINER(S): 1

VOLUME: 60ml

SAMPLE ANALYSIS: SEE METHOD SECTION (G) IN INSTRUCTIONS

SAMPLE DATE: 9-15-09

SAMPLE TIME: 1700

SAMPLE NO.: B212F6

MATRIX*: WATER

SPECIAL HANDLING AND/OR STORAGE: 91072

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)1973

CHAIN OF POSSESSION:

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
<i>[Signature]</i>	9-15-09 1421	<i>[Signature]</i>	9-15-09 1420
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
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 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.

** If the collected sample volume is not large enough to accommodate standard laboratory QC requirements, at a minimum perform blank and Laboratory Control Sample analyses.

(1) ICP Metals - 6010A (TAL) (Cadmium, Calcium, Chromium, Magnesium, Sodium)

ICP Metals - 6010A (Au-60) (Arsenic, Silica) Tc-99 by ICPMS (Technetium-99)

(2) IC Anions - 300.0 (Chloride, Fluoride, Nitrogen in Nitrate, Sulfate) pH - 150.1 (pH Measurement)

ORIGINAL

LABORATORY SECTION: RECEIVED BY

FINAL SAMPLE DISPOSITION: DISPOSAL METHOD

DATE/TIME:

DISPOSED BY:

A-6003 61801106

Wednesday, September 16, 2009 1:13:16 AM

Page 2 of 2

