WSCF Laboratory

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

RECEIVED FEBRUARY 10, 2010 REVISION 1

Memorandum

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

Date: February 9, 2010

From: WSCF Laboratory
WSCF Analytical Chemistry

CC:

Subject: REVISED91072 - 202571 [Report ID: 91072]

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)

RECEIVED
JUL 28 2010
EDMC

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

Attachment 2
Narrative Rev1
WSCF91072

P&D Correction – Case Narrative Replaces The Prior Submittal in its Entirety

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. **Additionally, a copy of the completed P&D # WSCF91072 is included with this case narrative**

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.

1

Attachment 2
Narrative Rev1
WSCF91072

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.

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.

Attachment 2
Narrative Rev1
WSCF91072

10/15/2009

Problem and Discrepancy Report

WSCF

SDGWSCF91072

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1. The data package has the following issues:

a) The IRF included in this package does not belong in this package.

Resolution: *Provide corrections*

Lab Response: Incorrect IRF has been removed.

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 11 pages
Including cover page

REVISION 1

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	February 9, 2010

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

REVISION 1

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

REVISION 1

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 diltution 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.

REVISED91072 -

WSCF Analytical Results Report

REVISION 1

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 diltution 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.

REVISED91072 -

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF91072

QC Batch 63774
Associated Samples 91072001

Test Anions by Ion Chromatography (Water)

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

REVISED91072 -

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF91072

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
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
Sulfate	14808-79-8		4.10	ug/mL	103.4	80 - 120			D	09/15/09
MSD			**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	PH		8.01	unitless	100.1	98.875 - 101.25				09/16/09
DUP			**QC Sample #15046**							
			Original 91072001							
pH	PH	7.70	7.68	unitless			0.30	20		09/16/09
LCS			**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)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F09-020-012 PAGE 1 OF 1

COLLECTOR: Fulton

COMPANY CONTACT: DVERMAN, D.

TELEPHONE NO.: 373-2536

PROJECT COORDINATOR: DVERMAN, D.

PRICE CODE: 7G

DATA TURNAROUND: 15 Days / 30 Days

SAMPLING LOCATION: 200 BC 1 DVZ Soil Desorption

PROJECT DESIGNATION: 200 BC 1 DVZ Soil Desorption Pilot Test Characterization Phase (Waste)

SAF NO.: F09-020

AIR QUALITY

ICE CHEST NO.: —

FIELD LOGBOOK NO.: HNF-N-585-3

ACTUAL SAMPLE DEPTH: N/A

COA: 201405030

METHOD OF SHIPMENT: GOVERNMENT VEHICLE

SHIPPED TO: Waste Sampling & Characterization

OFFSITE PROPERTY NO.: N/A

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

MATRIX*: A-Air, C-Drum, Liquid, D-Drum, Solids, L-Liquid, O-Oil, S-Soil, SE-Sediment, F-Filter, 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: [illegible] pH [illegible]

TYPE OF CONTAINER: [illegible]

NO. OF CONTAINER(S): [illegible]

VOLUME: [illegible]

SPECIAL HANDLING AND/OR STORAGE

SAMPLE ANALYSIS: [illegible]

91072

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B212F6	WATER	9-15-09	1700

ICED

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
[signature]	9-15-09 1410	[signature]	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 Analyses SKI 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 (Add-on) (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

TITLE

DATE/TIME

FINAL SAMPLE DISPOSITION: DISPOSAL METHOD

DISPOSED BY

DATE/TIME