

PO Box 650 S3-30  
Richland, WA 99352



July 14, 2011

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

Dear Michael Neely,

**FINAL RESULT FOR SAMPLE DELIVERY GROUP WSCF112485**

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

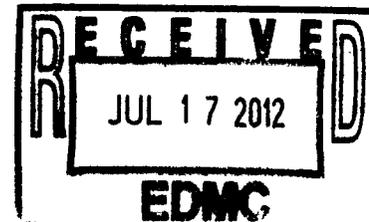
This letter contains the following information for sample delivery group WSCF112485

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

Very truly yours,

Electronically signed by Joseph Hale

For Lab Manager  
WSCF Analytical Lab  
(509) 373-7495



Attachments 4

CC: w/Attachments

File/LB

**ATTACHMENT 1**

**COVER SHEET**

Consisting of 2 pages  
Including cover page

**WSCF SAF Number Cross Reference**

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Group # WSCF112485  
Data Deliverable Date 06/29/11

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
F11-130	B2F880	112485001	WATER	06/08/11	06/08/11

ATTACHMENT 2

**NARRATIVE**

Consisting of 3 pages  
Including cover page

**Introduction**

A sample was received at the WSCF laboratory as referenced on the WSCF SAF Number Cross Reference table included in the final report. The 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 not stamped "ICED" by the WSCF Laboratory Sample Custodian during sample receiving. However, based on procedure LO-090-403 form "NOTICE OF IMPROPER SAMPLE SUBMITTAL" was not submitted and was not stamped "NOT ICED". No anomaly was noted during sample receipt.

The following generic data qualifiers (i.e., B, D, U 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 wet chemical 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.
- **U** – Analyzed for but not detected above limiting criteria. Relative Percent Difference (RPD) values associated with an analyte qualified with a "U" are not applicable.

**Analytical Methodology for Requested Analyses**

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

**Inorganic Comments**

**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):

- The sample was analyzed with pH paper due to limited volume.
- All other applicable QC controls are within the established limits.

Attachment 2  
Narrative  
WSCF112485

**Ignightability** – The hold time requirement for this analysis was met. Analytical Note(s):

- The sample did not flash from 25-100 degrees C.

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 3

**ANALYTICAL RESULTS**

Consisting of 7 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 #** WSCF112485  
**Report Date** July 14, 2011

**Analytical:** Electronically signed by Joseph Hale

**Client Services:** Electronically signed by Richard Barker

*Solid samples results that have a 'Percent Solid' test are reported on a "dry weight basis", except results of TCLP, Percent Solid, and Total Activity. If no 'Percent Solid' test is reported then the 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**

**Group #** WSCF112485

**Attention** Michael Neely  
**Department** Wet Chemistry

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
183877	183877	1	LCS	58654	LCS		pH Direct Measurement (W)
183877	183877	2	DUP	58655	B2F880(112485001DUP)	112485001	pH Direct Measurement (W)
183877	183877	3	SAMPLE	112485001	B2F880		pH Direct Measurement (W)
183877	183877	5	DUP	58656	116266072(112494001DU)	112494001	pH Direct Measurement (W)
183877	183877	6	LCS	58657	LCS		pH Direct Measurement (W)
185789	185789	1	SAMPLE	112485001	B2F880		Ignitability (Setafash) (W)

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**Method Reference****Attention** Michael Neely  
**Department** Wet Chemistry**Group #**

WSCF112485

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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.

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<b>LA-212-402</b>	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
<b>LA-529-401</b>	Setaflash Closed Cup Method for Determining Ignitability
HEIS	1020_FLASHPOINT Flashpoint/Ignitability, Setaflash Closed Cup

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

# WSCF Analytical Results Report

Group # WSCF112485

Attention Michael Neely  
 Department Wet Chemistry

Sample # 112485001 Matrix WATER  
 SAF# F11-130 Sampled 06/08/11  
 Sample ID B2F880 Received 06/08/11

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Ignitability										06/20/11
Ignitability										
Ignitability	IGNITABILITY	LA-529-401	UX	0		C	1			06/20/11
pH										06/16/11
pH										
pH	PH	LA-212-402		7.00		unitless	1	0.010		06/16/11

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.  
 PQL is equivalent to Estimated Quantitation Limit (EQL)

# Quality Control Report

**Attention** Michael Neely      **Group #** WSCF112485  
**Department** Wet Chemistry

**QC Batch** 183877      **Test** pH Direct Measurement (W)  
**Associated Samples** 112485001

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
LCS										
				QC Sample #58654						
pH	PH	7.97	7.97	unitless	99.6	98.75 - 101.25				06/16/11
DUP				QC Sample #58655						
				Original 112485001						
pH	PH	7.00	7.00	unitless			0.00	20		06/16/11
DUP				QC Sample #58656						
				Original 112494001						
pH	PH	5.08	5.08	unitless			0.40	20		06/16/11
LCS				QC Sample #58657						
pH	PH	8.00	8.00	unitless	100	98.75 - 101.25				06/16/11

# Analytical Comment Report

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Attention: Michael Neely

Group # WSCF112485

112485001

B2F880

pH: Sample analyzed using pH paper due to the small volume of sample.

Department Wet Chemistry

**Analyte**

Ignitability - Ignitability (Setaflash) (W)

[1] Sample did not flash in the instrument range (25-100°C).

ATTACHMENT4

**SAMPLE RECEIPT**

Consisting of 6 pages  
Including cover page

# Sample Receipt

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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

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**WSCF Laboratory**  
PO Box 650 S3-30  
Richland, WA 99352

ATTN: Michael Neely

Customer Code: CHPRC  
PO #: 401586  
Work Order #: 112485  
Profile #: F11-130-001  
Proj. Mgr.:  
Phone:

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The following samples were received from you on 6/8/2011 10:50:00 AM. 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.

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Sample #	Sample ID	Matrix	Collected	Received
		<b>Tests scheduled</b>		
112485001	B2F880	WATER	6/8/2011 08:30	6/8/2011 10:50
		IGN-W; PH-W		

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### Test Acronym Description

Test Acronym	Description
IGN-W	Ignitability (W)
PH-W	pH (W)

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# Sample Receipt

F11-130-001 PAGE 1 OF 2  
 PRICE CODE 70  
 AIR QUALITY  
 METHOD OF SHIPMENT  
 GOVERNMENT VEHICLE  
 DATA  
 TURNAROUND  
 21 Days / 31  
 Days  
**ORIGINAL**

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST  
 PROJECT COORDINATOR  
 BAUER, RG  
 S&P NO.  
 F11-130  
 COA  
 302221ES10  
 BILL OF LADING/AIR BILL NO.  
 N/A

COMPANY CONTACT  
 BAUER, RG  
 TELEPHONE NO.  
 373-3931

PROJECT DESIGNATION  
 406-228 - Sampling Analysis for Characterization and Disposition of an Un  
 F11-130  
 ACTUAL SAMPLE DEPTH  
 N/A  
 FIELD LOGBOOK NO.  
 HAF 1507 A

SHIPPED TO  
 Opposite Property No.  
 N/A

WASTE Sampling & Characterization  
 MATRIX:  
 POSSIBLE SAMPLE MATRIX / REMARKS  
 A-Air  
 B-Liquid  
 C-Solid  
 D-Other  
 E-Other  
 F-Other  
 G-Other  
 H-Other  
 I-Other  
 J-Other  
 K-Other  
 L-Other  
 M-Other  
 N-Other  
 O-Other  
 P-Other  
 Q-Other  
 R-Other  
 S-Other  
 T-Other  
 U-Other  
 V-Other  
 W-Other  
 X-Other  
 Y-Other  
 Z-Other

SPECIAL HANDLING AND/OR STORAGE  
 112485  
 SAMPLE NO. 82F88C  
 MATRIX\* WATER  
 SAMPLE DATE JUN 08 2011  
 SAMPLE TIME 0730

CHAIN OF POSSESSION  
 RECEIVED BY / STORED IN  
 DATE/TIME  
 RECEIVED BY / STORED IN  
 DATE/TIME

SPECIAL INSTRUCTIONS  
 SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

LABORATORY SECTION  
 RECEIVED BY  
 DATE/TIME  
 FINAL SAMPLE DISPOSITION  
 DISPOSAL METHOD  
 DATE/TIME  
 PRINTED ON 6/16/2011

Wednesday, June 15, 2011 2:32:27 PM

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# Sample Receipt

## Chain of Custody

OTZEMHILL Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F11-130-001	PAGE 2 OF 2
COLLECTOR	KC Patterson CHPRC	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	DATE
SAMPLING LOCATION	Individual Bores	BAUER, RG	373-3531	BAUER, RG	TURNAROUND
ICE CHEST NO.		PROJECT DESIGNATION		SAF NO.	21 Days / 21 Days
		603-128 - Sampling Analysis for Characterization and Disposition of an Unit		F11-130	
		FIELD LOGBOOK NO.	ACTUAL SAMPLE DEPTH	COA	
		<i>HWS N. 507.15</i>	<i>N/A</i>	302/26510	
SHIPPED TO		OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.	
WASTE SAMPLING & Characterization		N/A		N/A	

**ORIGINAL**

\*\* The CACN for all analytical work at WSCF Laboratory is 40132ES20.

\*\* The 200 Area SRGRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.

\*\* PRIORITY TESTING - Screen testing which includes peroxide test, flashpoint, pH and general organic screening. Followed by, analyze in order of priority - 200.8, 6010, 10, Hexavalent Chromium and VOA.

\*\* GENERIC TESTING - PEROXIDE SCREEN and FTIR ORGANIC SCREEN - WSCF Laboratory shall perform qualitative screens on unknown sample contents by using a peroxide test strip and FTIR, or equivalent. Qualitative data from screens i.e., presence (or lack thereof) of organics and peroxide found in the sample shall be noted in the case narrative.

\*\* The laboratory shall report the requested constituents of concern only in all preliminary or final hardcopy data reports, or EDDs. All samples chosen for matrix spike, and all spike compounds shall be identified in the final data report narrative. No TICs shall be reported.

(1) Generic Testing (No CAS): pH (Water) - 9040 (pH Measurement); Ignitability - 1010 (Ignitability); ICP/MS - 200.8 (TAL) (Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc); ICP Metals - 6010 (Add-On) (Lithium); 200.8\_HG - ICPMS (Mercury); IC Anions - 300.0 (Nitrogen in Nitrate); Chromium Hex - 7196; VOA - 8260 (TCL) (Carbon tetrachloride); VOLATILE ORGANICS BY FIELD GC (1,1,1-Trichloroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 2-Butanone, 2-Hexanone, Acetone, Carbon tetrachloride, Chloroform, Methylene chloride, Tetrachloroethene, Trichloroethene, Vinyl chloride);

Wednesday, June 15, 2011 2:32 27 PM

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PRINTED ON 6/15/2011

6063 618 200 2



# Sample Receipt

## Chain of Custody

**CH2M HILL Fluoro Remediation Company**  
**COLLECTOR** IC-211063Y  
**SAMPLING LOCATION** *Site 1*  
 Individual Box  
**ICE CHEST NO.**  
**COMPANY CONTACT** BAUSER, IG  
**TELEPHONE NO.** 373-3971  
**PROJECT COORDINATOR** BAUSER, IG  
**PRICE CODE** 70  
**AIR QUALITY**  
**METHOD OF SHIPMENT** GOVERNMENT VEHICLE  
**SAF NO.** F13-130  
**COA** 30222ES10  
**BILL OF LADING/AIR BILL NO.** N/A  
**ACTUAL SAMPLE DEPTH** *N/A*  
**FIELD LOGBOOK NO.** *HAUS N 307 19*  
**OFFSITE PROPERTY NO.** NA  
**SHIPPED TO** Waste Sampling & Characterization  
**SPECIAL INSTRUCTIONS**  
 \*\* The CACN for all analytical work at WSCF laboratory is 401352ES20  
 \*\* The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.  
 \*\* PRIORITY TESTING - Screen testing which includes peroxide test, flashpoint, pH and general organic screening. Followed by, analyze in order of priority - 200.8, 6010, 12, Hexavalent Chromium and VOA.  
 \*\* GENERIC TESTING - PEROXIDE SCREEN and FTIR ORGANIC SCREEN - WSCF Laboratory shall perform qualitative screens on unknown sample contents by using a peroxide test strip and FTIR, or equivalent. Qualitative data from screens i.e., presence (or lack thereof) of organics and peroxide found in the sample shall be noted in the case narrative.  
 \*\* The laboratory shall report the requested constituents of concern only in all preliminary or final hardcopy data reports, or EDDs. All samples chosen for matrix spike, and all spike compounds shall be identified in the final data report narrative. No TICs shall be reported.  
 (1) Generic Testing (No CAS); pH (Water) - 9040 (pH Measurement); Ignitability - 1010 (Ignitability); ICP/MS - 200.8 (TAL) (Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc); ICP Metals - 6010 (Aid-On) (Lithium); 200.8 HG - ICPMS (Mercury); IC Anions - 300.0 (Nitrogen in Nitrate); Chromium Hex - 7196; VOA - 8260 (TCL) (Carbon tetrachloride); VOLATILE ORGANICS BY FIELD GC (1,1,1-Trichloroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 2-Butanone, Acetone, Carbon tetrachloride, Chloroform, Methylene chloride, Tetrahydroethene, Trichloroethene, Vinyl chloride);

**CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST**

F13-130-001 PAGE 2 OF 2

**DATA**  
**TURNAROUND** 21 Days / 21 Days  
**ORIGINAL**

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4-900-004 (REV. 0)

COPY