WSCF Laboratory

PO Box 650 S3-30
Richland, WA 99352

RECEIVED SEPTEMBER 28, 2010

0095563

September 27, 2010

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

Dear Michael Neely,

FINAL RESULT FOR SAMPLE DELIVERY GROUP WSCF102488

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 WSCF102488

* 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

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Attachments 4
CC: w/Attachments

File/LB

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF Number Cross Reference

Group # WSCF102488
Data Deliverable Date 09/27/10

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
F10-275	B28153	102488001	WATER	09/10/10	09/10/10
F10-275	B28156	102488002	WATER	09/10/10	09/10/10
F10-275	B28155	102488003	WATER	09/10/10	09/10/10

ATTACHMENT 2

NARRATIVE

Consisting of 5 pages
Including cover page

Attachment 2
Narrative
WSCF102488

Introduction

Three (3) S&GRP samples were received at the WSCF Laboratory on September 10, 2010. The samples were 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

ICP-MS Metals – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

- Batch QC 165133 analyzed on sample# B27PW8 (102546002)
  - All QC controls are within the established limits.

Attachment 2
Narrative
WSCF102488

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

- Batch QC 162534 analyzed on sample# B27752 (102493001)
    - All QC controls are within the established limits.

Organic Comments

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

- Batch QC 162838 analyzed on sample# B27RV0 (102388001)
    - All QC controls are within the established limits.

Radiochemistry Comments

Rad Chem – The hold time requirement for this analysis was met. A Duplicate, Matrix Spike (Applies only to Technetium and Tritium), Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

Tracers are used to determine chemical yield. RPD is monitored in sample duplicate and is not required for tracer recovery per SOW.

- Tritium:
    - Batch QC 162133 analyzed on sample# B24TY8 (102496008)
        - All QC controls are within the established limits.
- Technetium-99:
    - Batch QC 162239 analyzed on sample# B27T01 (102479001)
        - Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results below 5X the minimum detectable activity. No flags issued.
        - All other QC controls are within the established limits.
- Gamma Energy Analysis:
    - Batch QC 164050 analyzed on sample#B26F40 (102141001)

Attachment 2
Narrative
WSCF102488

- Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results below 5X the minimum detectable activity. No flags issued.

- All other QC controls are within the established limits.

- Strontium-89/90:
  - Batch QC 161635 analyzed on sample# B27T01 (102479001)
    - All QC controls are within the established limits.
- Americium-241:
  - Batch QC 160133 analyzed on sample# B28153 (102488001)
    - Americium-241 - The Blank is less than two times the MDC. "B" Flag not required.
    - Americium-241 - Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results below 5X the minimum detectable activity. No flags issued.
    - All other QC controls are within the established limits.
- Isotopic Plutonium analysis.
  - Batch QC 160133 analyzed on sample# B28153 (102488001)
    - Plutonium-238 and plutonium-239/240 - Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits. Duplicate Relative Percent Difference (RPD) does not apply to results below 5X the minimum detectable activity. No flags issued.
    - All other QC controls are within the established limits.
- Isotopic Uranium analysis:
  - Batch QC 160133 analyzed on sample# B28153 (102488001)
    - Uranium-235 - The Blank is less than two times the MDC. "B" Flag not required.
    - Uranium-234, uranium-235 and uranium-238 - Duplicate Relative Percent Difference(s) (RPD) did not meet the established laboratory limits.

Attachment 2
Narrative
WSCF102488

Duplicate Relative Percent Difference (RPD) does not apply to results below 5X the minimum detectable activity. No flags issued.

- All other 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.

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ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 39 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 #	WSCF102488
Report Date	September 27, 2010

Analytical: Electronically signed by Joseph Hale

Client Services: Electronically signed by Marisol Avila

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

Attention Michael Neely
Department Inorganic

Group # WSCF102488

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
162534	162534	1	BLANK	38485	BLANK		Hexavalent chromium Discrete Analyzer
162534	162534	3	LCS	38487	LCS		Hexavalent chromium Discrete Analyzer
162534	162534	4	DUP	38488	B27752(102493001DUP)	102493001	Hexavalent chromium Discrete Analyzer
162534	162534	5	MS	38489	B27752(102493001MS)	102493001	Hexavalent chromium Discrete Analyzer
162534	162534	6	SAMPLE	102488001	B28153		Hexavalent chromium Discrete Analyzer
162534	162534	7	SAMPLE	102488002	B28156		Hexavalent chromium Discrete Analyzer
165133	165134	4	BLANK	39194	BLANK		ICP-2008 MS All possible metal
165133	165134	5	LCS	39195	LCS		ICP-2008 MS All possible metal
165133	165134	7	MS	39196	B27PW8(102546002MS)	102546002	ICP-2008 MS All possible metal
165133	165134	8	MSD	39197	B27PW8(102546002MSD	102546002	ICP-2008 MS All possible metal
165133	165134	23	SAMPLE	102488001	B28153		ICP-2008 MS All possible metal
165133	165134	24	SAMPLE	102488002	B28156		ICP-2008 MS All possible metal

Batch QC List

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF102488

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
162838	163543	1	BLANK	38528	BLANK		PCBs by EPA SW-846 Method 8082
162838	163543	2	LCS	38529	LCS		PCBs by EPA SW-846 Method 8082
162838	163543	3	MS	38530	B27RV0(102388001MS)	102388001	PCBs by EPA SW-846 Method 8082
162838	163543	4	MSD	38531	B27RV0(102388001MSD)	102388001	PCBs by EPA SW-846 Method 8082
162838	163543	9	SAMPLE	102488001	B28153		PCBs by EPA SW-846 Method 8082
162838	163543	10	SAMPLE	102488002	B28156		PCBs by EPA SW-846 Method 8082

Batch QC List

Attention Michael Neely
Department Radiochemistry

Group # WSCF102488

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
160133	163836	1	DUP	38174	B28153(102488001DUP)	102488001	Uranium (AEA)
160133	163836	2	SAMPLE	102488001	B28153		Uranium (AEA)
160133	163836	3	SAMPLE	102488002	B28156		Uranium (AEA)
160133	163836	4	BLANK	38172	BLANK		Uranium (AEA)
160133	163836	5	LCS	38173	LCS		Uranium (AEA)
160133	163837	1	DUP	38174	B28153(102488001DUP)	102488001	Americium/Curium (AEA)
160133	163837	2	SAMPLE	102488001	B28153		Americium/Curium (AEA)
160133	163837	3	SAMPLE	102488002	B28156		Americium/Curium (AEA)
160133	163837	4	BLANK	38172	BLANK		Americium/Curium (AEA)
160133	163837	5	LCS	38173	LCS		Americium/Curium (AEA)
160133	163838	1	DUP	38174	B28153(102488001DUP)	102488001	Plutonium (AEA)
160133	163838	2	SAMPLE	102488001	B28153		Plutonium (AEA)
160133	163838	3	SAMPLE	102488002	B28156		Plutonium (AEA)
160133	163838	4	BLANK	38172	BLANK		Plutonium (AEA)
160133	163838	5	LCS	38173	LCS		Plutonium (AEA)
161635	165733	1	BLANK	38375	BLANK		Strontium 89/90 (GPC/GEA)
161635	165733	2	LCS	38376	LCS		Strontium 89/90 (GPC/GEA)
161635	165733	3	DUP	38377	B27T01(102479001DUP)	102479001	Strontium 89/90 (GPC/GEA)
161635	165733	5	SAMPLE	102488001	B28153		Strontium 89/90 (GPC/GEA)
161635	165733	6	SAMPLE	102488002	B28156		Strontium 89/90 (GPC/GEA)
162133	165833	1	BLANK	38396	BLANK		Tritium by LSC
162133	165833	2	LCS	38397	LCS		Tritium by LSC
162133	165833	3	SAMPLE	102488001	B28153		Tritium by LSC

Batch QC List

Attention Michael Neely
Department Radiochemistry

Group # WSCF102488

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
162133	165833	4	DUP	38398	B24TY8(102496009DUP)	102496009	Tritium by LSC
162133	165833	5	MS	38399	B24TY8(102496009MS)	102496009	Tritium by LSC
162133	165833	6	SAMPLE	102488002	B28156		Tritium by LSC
162133	165833	7	SAMPLE	102488003	B28155		Tritium by LSC
162239	164256	1	BLANK	38413	BLANK		TC99 by Liquid Scintillation
162239	164256	2	LCS	38414	LCS		TC99 by Liquid Scintillation
162239	164256	4	DUP	38415	B27T01(102479001DUP)	102479001	TC99 by Liquid Scintillation
162239	164256	5	MS	38416	B27T01(102479001MS)	102479001	TC99 by Liquid Scintillation
162239	164256	6	SAMPLE	102488001	B28153		TC99 by Liquid Scintillation
162239	164256	7	SAMPLE	102488002	B28156		TC99 by Liquid Scintillation
164050	164253	1	IBLANK	38864	IBLANK		Gamma Energy Analysis-general
164050	164253	2	LCS	38865	LCS		Gamma Energy Analysis-general
164050	164253	3	DUP	38866	B26F40(102141001DUP)	102141001	Gamma Energy Analysis-general
164050	164253	7	SAMPLE	102488001	B28153		Gamma Energy Analysis-general
164050	164253	8	SAMPLE	102488002	B28156		Gamma Energy Analysis-general

Method Reference

Attention Michael Neely
Department Inorganic

Group # WSCF102488

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-265-403	Hexavalent Chromium Analysis		
	EPA SW-846	7196A	Hexavalent Chromium
	HEIS	7196_CR6	Hexavalent Chromium
LA-505-412	Determination of Trace Elements in Waters & Wastes by ICP-Mass Spectrometry		
	EPA-600/R-94-111	200.8	Determination of Trace Elements in Waters and Waste by Inductively Coupled Plasma
	HEIS	200.8_METALS_ICPMS	Determination of Trace Elements in Waters and Waste by Inductively Coupled Plasma, Mass Spec.

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 Organic, Semivolatiles

Group # WSCF102488

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-523-427	Polychlorinated Biphenyls (PCB'S) by Gas Chromatography		
	EPA SW-846	3510C	Separatory Funnel Liquid-Liquid Extraction
	EPA SW-846	3545	Pressurized Fluid Extraction (PFE)
	EPA SW-846	3665A	Sulfuric Acid/Permanganate Cleanup
	EPA SW-846	8000B	Determinative Chromatographic Separations
	EPA SW-846	8082	Polychlorinated Biphenyls (PCBs) by Gas Chromatography
	HEIS	8082_PCB_GC	Polychlorinated Biphenyls (PCBs) by Gas 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 Radiochemistry

Group # WSCF102488

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-220-406	Strontium-89 and 90 in Aqueous Samples by SR-SPEC Separation		
	HEIS	SRTOT_SEP_PRECIP_GPC	Strontium 89/90, by Sr-Spec Sep.
LA-508-471	Thorium, Neptunium, Plutonium, Americium, and Uranium In Soil and Water Using Eichrom Column Separation (Prep)		
	HEIS	PUISO_IE_PRECIP_AEA	Isotopic Plutonium, Alpha Spec
LA-508-471	Determination Of Uranium, Plutonium, And Americium		
	HEIS	AMCMISO_IE_PREC_AEA	Americium/Curium Iso, Alpha Spec
LA-508-481	Gamma Energy Analysis using the Canberra Genie Ssystem		
	HEIS	GAMMA_GS	Gamma Energy Analysis
LA-508-471	Determination Of Uranium, Plutonium, And Americium		
	HEIS	UISO_IE_PRECIP_AEA	Uranium Iso, Alpha Spec
LA-508-421	Operation of the Tri-Carb Model 2500TR Liquid Scintillation Analyzer		
	HEIS	ALPHA_LSC	A/B Liquid Scintillation
	HEIS	BETA_LSC	A/B Liquid Scintillation
	HEIS	TC99_3MDSK_LSC	TC99 by Liquid Scintillation
	HEIS	TRITIUM_EIE_LSC	Tritium, by Eichrome ion exchange, LSC

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 # WSCF102488

Sample # 102488001
SAF# F10-275
Sample ID B28153

Matrix WATER
Sampled 09/10/10
Received 09/10/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Cr(VI)										**09/10/10**
Cr(VI)										
Hexavalent chromium	18540-29-9	LA-265-403	U	<0.0020		mg/L	1	0.0020	0.0050	09/10/10
ICPMS Prep										**09/21/10**
ICP-MS										
Manganese	7439-96-5	LA-505-412	U	<0.10		ug/L	1	0.10	1.0	09/22/10
Antimony	7440-36-0	LA-505-412	U	<0.30		ug/L	1	0.30	3.0	09/22/10
Barium	7440-39-3	LA-505-412	B	0.220		ug/L	1	0.20	2.0	09/22/10
Cadmium	7440-43-9	LA-505-412	U	<0.10		ug/L	1	0.10	1.0	09/22/10
Chromium	7440-47-3	LA-505-412	U	<0.50		ug/L	1	0.50	5.0	09/22/10
Zinc	7440-66-6	LA-505-412	U	<0.80		ug/L	1	0.80	5.0	09/22/10
Lead	7439-92-1	LA-505-412	U	<0.10		ug/L	1	0.10	1.0	09/22/10
Mercury	7439-97-6	LA-505-412	U	<0.050		ug/L	1	0.050	0.20	09/22/10
Arsenic	7440-38-2	LA-505-412	U	<0.40		ug/L	1	0.40	4.0	09/22/10
Thorium	7440-29-1	LA-505-412	U	<0.10		ug/L	1	0.10	0.50	09/22/10

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 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 Inorganic

Group # WSCF102488

Sample # 102488002
SAF# F10-275
Sample ID B28156

Matrix WATER
Sampled 09/10/10
Received 09/10/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Cr(VI)										**09/10/10**
Cr(VI)										
Hexavalent chromium	18540-29-9	LA-265-403	U	<0.0020		mg/L	1	0.0020	0.0050	09/10/10
ICPMS Prep										**09/21/10**
ICP-MS										
Manganese	7439-96-5	LA-505-412	U	<0.10		ug/L	1	0.10	1.0	09/22/10
Antimony	7440-36-0	LA-505-412	U	<0.30		ug/L	1	0.30	3.0	09/22/10
Barium	7440-39-3	LA-505-412	U	<0.20		ug/L	1	0.20	2.0	09/22/10
Cadmium	7440-43-9	LA-505-412	U	<0.10		ug/L	1	0.10	1.0	09/22/10
Chromium	7440-47-3	LA-505-412	U	<0.50		ug/L	1	0.50	5.0	09/22/10
Zinc	7440-66-6	LA-505-412	U	<0.80		ug/L	1	0.80	5.0	09/22/10
Lead	7439-92-1	LA-505-412	U	<0.10		ug/L	1	0.10	1.0	09/22/10
Mercury	7439-97-6	LA-505-412	U	<0.050		ug/L	1	0.050	0.20	09/22/10
Arsenic	7440-38-2	LA-505-412	U	<0.40		ug/L	1	0.40	4.0	09/22/10
Thorium	7440-29-1	LA-505-412	U	<0.10		ug/L	1	0.10	0.50	09/22/10

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 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 Organic, Semivolatiles

Group # WSCF102488

Sample # 102488001
SAF# F10-275
Sample ID B28153

Matrix WATER
Sampled 09/10/10
Received 09/10/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
SPE										**09/14/10**
PCBs										
Aroclor-1016	12674-11-2	LA-523-427	U	<0.09		ug/L	1	0.09	0.2	09/15/10
Aroclor-1221	11104-28-2	LA-523-427	U	<0.2		ug/L	1	0.2	0.4	09/15/10
Aroclor-1232	11141-16-5	LA-523-427	U	<0.09		ug/L	1	0.09	0.2	09/15/10
Aroclor-1242	53469-21-9	LA-523-427	U	<0.09		ug/L	1	0.09	0.2	09/15/10
Aroclor-1248	12672-29-6	LA-523-427	U	<0.09		ug/L	1	0.09	0.2	09/15/10
Aroclor-1254	11097-69-1	LA-523-427	U	<0.09		ug/L	1	0.09	0.2	09/15/10
Aroclor-1260	11096-82-5	LA-523-427	U	<0.09		ug/L	1	0.09	0.2	09/15/10
Aroclor-1262	37324-23-5	LA-523-427	U	<0.09		ug/L	1	0.09	0.2	09/15/10
Aroclor-1268	11100-14-4	LA-523-427	U	<0.09		ug/L	1	0.09	0.2	09/15/10

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

B - Analyte was detected in both the BLANK and SAMPLE
D - Analyte was reported at a secondary diltution factor.
E - The calibration exceeds the calibration range (GC/MS).
J - Analyte < lowest calibration but >= MDL.
N - Presumed evidence based on MS library search(GC/MS only)

T - MS/MSD recovery outside control limits(GC/MS only).
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 Organic, Semivolatiles

Group # WSCF102488

Sample # 102488002
SAF# F10-275
Sample ID B28156

Matrix WATER
Sampled 09/10/10
Received 09/10/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
SPE										**09/14/10**
PCBs										
Aroclor-1016	12674-11-2	LA-523-427	U	<0.09		ug/L	1	0.09	0.2	09/15/10
Aroclor-1221	11104-28-2	LA-523-427	U	<0.2		ug/L	1	0.2	0.4	09/15/10
Aroclor-1232	11141-16-5	LA-523-427	U	<0.09		ug/L	1	0.09	0.2	09/15/10
Aroclor-1242	53469-21-9	LA-523-427	U	<0.09		ug/L	1	0.09	0.2	09/15/10
Aroclor-1248	12672-29-6	LA-523-427	U	<0.09		ug/L	1	0.09	0.2	09/15/10
Aroclor-1254	11097-69-1	LA-523-427	U	<0.09		ug/L	1	0.09	0.2	09/15/10
Aroclor-1260	11096-82-5	LA-523-427	U	<0.09		ug/L	1	0.09	0.2	09/15/10
Aroclor-1262	37324-23-5	LA-523-427	U	<0.09		ug/L	1	0.09	0.2	09/15/10
Aroclor-1268	11100-14-4	LA-523-427	U	<0.09		ug/L	1	0.09	0.2	09/15/10

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

B - Analyte was detected in both the BLANK and SAMPLE
D - Analyte was reported at a secondary diltution factor.
E - The calibration exceeds the calibration range (GC/MS).
J - Analyte < lowest calibration but >= MDL.
N - Presumed evidence based on MS library search(GC/MS only)

T - MS/MSD recovery outside control limits(GC/MS only).
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 Radiochemistry

Group # WSCF102488

Sample # 102488001
SAF# F10-275
Sample ID B28153

Matrix WATER
Sampled 09/10/10
Received 09/10/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
GEA Prep										**09/17/10**
GEA										
Americium-241	14596-10-2	LA-508-481	U	13	17	pCi/L	1	30		09/20/10
Antimony-125	14234-35-6	LA-508-481	U	-0.081	12	pCi/L	1	21		09/20/10
Barium-133	13981-41-4	LA-508-481	U	-1.1	6.3	pCi/L	1	9.2		09/20/10
Cerium-144	14762-78-8	LA-508-481	U	6.0	29	pCi/L	1	49		09/20/10
Cerium/Praseodymium -144	CE/PR-144	LA-508-481	U	12	58	pCi/L	1	97		09/20/10
Cesium-134	13967-70-9	LA-508-481	U	0.87	4.3	pCi/L	1	7.5		09/20/10
Cesium-137	10045-97-3	LA-508-481	U	0.041	4.7	pCi/L	1	8.2		09/20/10
Cobalt-60	10198-40-0	LA-508-481	U	-1.2	4.6	pCi/L	1	8.0		09/20/10
Europium-152	14683-23-9	LA-508-481	U	1.2	14	pCi/L	1	23		09/20/10
Europium-154	15585-10-1	LA-508-481	U	-5.9	11	pCi/L	1	19		09/20/10
Europium-155	14391-16-3	LA-508-481	U	2.7	14	pCi/L	1	23		09/20/10
Niobium-94	14681-63-1	LA-508-481	U	2.9	4.4	pCi/L	1	7.8		09/20/10
Potassium-40	13966-00-2	LA-508-481	U	-94	67	pCi/L	1	120		09/20/10
Radium-226	13982-63-3	LA-508-481		62	26	pCi/L	1	17		09/20/10
Radium-228	15262-20-1	LA-508-481	U	16	15	pCi/L	1	27		09/20/10
Ruthenium-106	13967-48-1	LA-508-481	U	19	41	pCi/L	1	73		09/20/10
Tin-126	15832-50-5	LA-508-481	U	-3.7	11	pCi/L	1	17		09/20/10

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

B - Analyte was detected in both the BLANK and SAMPLE
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.

WSCF Analytical Results Report

Attention Michael Neely
Department Radiochemistry

Group # WSCF102488

Sample # 102488001
SAF# F10-275
Sample ID B28153

Matrix WATER
Sampled 09/10/10
Received 09/10/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Thorium-234	15065-10-8	LA-508-481	U	11	60	pCi/L	1	100		09/20/10
Uranium-235	15117-96-1	LA-508-481	U	4.0	6.2	pCi/L	1	11		09/20/10
Zinc-65	13982-39-3	LA-508-481	U	5.6	9.8	pCi/L	1	16		09/20/10
Actinium-228	14331-83-0	LA-508-481	U	16	15	pCi/L	1	27		09/20/10
Bismuth-212	14913-49-6	LA-508-481	U	-41	56	pCi/L	1	92		09/20/10
Bismuth-214	14733-03-0	LA-508-481		91	41	pCi/L	1	17		09/20/10
Lead-212	15092-94-1	LA-508-481	U	-16	9.5	pCi/L	1	15		09/20/10
Lead-214	15067-28-4	LA-508-481		57	23	pCi/L	1	16		09/20/10
Ruthenium-103	13968-53-1	LA-508-481	U	-3.8	5.1	pCi/L	1	8.2		09/20/10
Tin-113	13966-06-8	LA-508-481	U	0.35	6.3	pCi/L	1	11		09/20/10
Thallium-208	14913-50-9	LA-508-481	U	0.074	4.3	pCi/L	1	7.6		09/20/10
Beryllium-7	13966-02-4	LA-508-481	U	-9.9	41	pCi/L	1	67		09/20/10
Cobalt-57	13981-50-5	LA-508-481	U	2.0	3.7	pCi/L	1	6.4		09/20/10
Manganese-54	13966-31-9	LA-508-481	U	-2.6	4.5	pCi/L	1	7.5		09/20/10
H3 EICHROM										**09/13/10**
TRI-CARB LSC										
Tritium	10028-17-8	LA-508-421	U	71	120	pCi/L	1	210		09/14/10
SR-89/90										**09/20/10**
SR-89/90										

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

B - Analyte was detected in both the BLANK and SAMPLE
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.

WSCF Analytical Results Report

Attention Michael Neely
Department Radiochemistry

Group # WSCF102488

Sample # 102488001
SAF# F10-275
Sample ID B28153

Matrix WATER
Sampled 09/10/10
Received 09/10/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium-89/90	SR-RAD	LA-220-406	U	-7.1	3.6	pCi/L	1	1.8		09/27/10
Tc-99										**09/14/10**
TRI-CARB LSC										
Technetium-99	14133-76-7	LA-508-421	U	-7.3		pCi/L	1	6.4		09/20/10
Th/Pu/Am/U Teva										**09/15/10**
AEA Am-U-Pu										
Americium-241	14596-10-2	LA-508-471		0.25	.12	pCi/L	1	0.062		09/16/10
AEA Pu-Np										
Plutonium-238	13981-16-3	LA-508-471	U	8.1E-3	.059	pCi/L	1	0.11		09/16/10
Plutonium-239/240	PU-239/240	LA-508-471		0.38	.14	pCi/L	1	0.075		09/16/10
Uranium Iso										
Uranium-234	U-233/234	LA-508-471	U	0.011	.057	pCi/L	1	0.12		09/16/10
Uranium-235	15117-96-1	LA-508-471	U	0.013	.027	pCi/L	1	0.036		09/16/10
Uranium-238	U-238	LA-508-471	U	0.021	.031	pCi/L	1	0.029		09/16/10

MDL = Minimum Detection
RQ = Result Qualifier
TP Err = Total Propagated
DF = Dilution Factor
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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.

WSCF Analytical Results Report

Attention Michael Neely
Department Radiochemistry

Group # WSCF102488

Sample # 102488002
SAF# F10-275
Sample ID B28156

Matrix WATER
Sampled 09/10/10
Received 09/10/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
GEA Prep										**09/17/10**
GEA										
Americium-241	14596-10-2	LA-508-481	U	-28	17	pCi/L	1	27		09/21/10
Antimony-125	14234-35-6	LA-508-481	U	5.4	27	pCi/L	1	46		09/21/10
Barium-133	13981-41-4	LA-508-481	U	-24	15	pCi/L	1	23		09/21/10
Cerium-144	14762-78-8	LA-508-481	U	-41	58	pCi/L	1	98		09/21/10
Cerium/Praseodymium -144	CE/PR-144	LA-508-481	U	-82	120	pCi/L	1	200		09/21/10
Cesium-134	13967-70-9	LA-508-481	U	-5.1	11	pCi/L	1	18		09/21/10
Cesium-137	10045-97-3	LA-508-481	U	1.3	10	pCi/L	1	18		09/21/10
Cobalt-60	10198-40-0	LA-508-481	U	-3.1	10	pCi/L	1	17		09/21/10
Europium-152	14683-23-9	LA-508-481	U	-5.4	30	pCi/L	1	49		09/21/10
Europium-154	15585-10-1	LA-508-481	U	-2.5	26	pCi/L	1	45		09/21/10
Europium-155	14391-16-3	LA-508-481	U	3.1	27	pCi/L	1	44		09/21/10
Niobium-94	14681-63-1	LA-508-481	U	3.2	9.2	pCi/L	1	16		09/21/10
Potassium-40	13966-00-2	LA-508-481		170	230	pCi/L	1	170		09/21/10
Radium-226	13982-63-3	LA-508-481		68	32	pCi/L	1	43		09/21/10
Radium-228	15262-20-1	LA-508-481	U	-29	45	pCi/L	1	64		09/21/10
Ruthenium-106	13967-48-1	LA-508-481	U	-55	92	pCi/L	1	150		09/21/10
Tin-126	15832-50-5	LA-508-481	U	-23	19	pCi/L	1	26		09/21/10

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

B - Analyte was detected in both the BLANK and SAMPLE
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.

WSCF Analytical Results Report

Attention Michael Neely
Department Radiochemistry

Group # WSCF102488

Sample # 102488002
SAF# F10-275
Sample ID B28156

Matrix WATER
Sampled 09/10/10
Received 09/10/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Thorium-234	15065-10-8	LA-508-481	U	21	150	pCi/L	1	210		09/21/10
Uranium-235	15117-96-1	LA-508-481	U	-10	19	pCi/L	1	24		09/21/10
Zinc-65	13982-39-3	LA-508-481	U	-16	21	pCi/L	1	35		09/21/10
Actinium-228	14331-83-0	LA-508-481	U	-29	45	pCi/L	1	64		09/21/10
Bismuth-212	14913-49-6	LA-508-481	U	10	140	pCi/L	1	240		09/21/10
Bismuth-214	14733-03-0	LA-508-481		74	32	pCi/L	1	34		09/21/10
Lead-212	15092-94-1	LA-508-481	U	-2.3	23	pCi/L	1	32		09/21/10
Lead-214	15067-28-4	LA-508-481	U	-31	33	pCi/L	1	42		09/21/10
Ruthenium-103	13968-53-1	LA-508-481	U	3.4	13	pCi/L	1	20		09/21/10
Tin-113	13966-06-8	LA-508-481	U	1.8	13	pCi/L	1	22		09/21/10
Thallium-208	14913-50-9	LA-508-481	U	2.8	14	pCi/L	1	19		09/21/10
Beryllium-7	13966-02-4	LA-508-481	U	-66	95	pCi/L	1	160		09/21/10
Cobalt-57	13981-50-5	LA-508-481	U	1.4	6.8	pCi/L	1	12		09/21/10
Manganese-54	13966-31-9	LA-508-481	U	-3.1	9.7	pCi/L	1	16		09/21/10
H3 EICHROM										**09/13/10**
TRI-CARB LSC										
Tritium	10028-17-8	LA-508-421	U	150	120	pCi/L	1	210		09/14/10
SR-89/90										**09/20/10**
SR-89/90										

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

B - Analyte was detected in both the BLANK and SAMPLE
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.

WSCF Analytical Results Report

Attention Michael Neely
Department Radiochemistry

Group # WSCF102488

Sample # 102488002
SAF# F10-275
Sample ID B28156

Matrix WATER
Sampled 09/10/10
Received 09/10/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium-89/90	SR-RAD	LA-220-406	U	-2.0	4.2	pCi/L	1	1.9		09/27/10
Tc-99										**09/14/10**
TRI-CARB LSC										
Technetium-99	14133-76-7	LA-508-421	U	-4.5		pCi/L	1	6.4		09/20/10
Th/Pu/Am/U Teva										**09/15/10**
AEA Am-U-Pu										
Americium-241	14596-10-2	LA-508-471	U	0.060	.078	pCi/L	1	0.078		09/16/10
AEA Pu-Np										
Plutonium-238	13981-16-3	LA-508-471	U	9.3E-3	.049	pCi/L	1	0.10		09/16/10
Plutonium-239/240	PU-239/240	LA-508-471	U	0.037	.038	pCi/L	1	0.071		09/16/10
Uranium Iso										
Uranium-234	U-233/234	LA-508-471		0.067	.057	pCi/L	1	0.030		09/16/10
Uranium-235	15117-96-1	LA-508-471	U	0.014	.028	pCi/L	1	0.037		09/16/10
Uranium-238	U-238	LA-508-471		0.067	.056	pCi/L	1	0.030		09/16/10

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

B - Analyte was detected in both the BLANK and SAMPLE
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.

WSCF Analytical Results Report

Attention Michael Neely
Department Radiochemistry

Group # WSCF102488

Sample # 102488003
SAF# F10-275
Sample ID B28155

Matrix WATER
Sampled 09/10/10
Received 09/10/10

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
H3 EICHROM										**09/13/10**
TRI-CARB LSC										
Tritium	10028-17-8	LA-508-421	U	84	110	pCi/L	1	210		09/14/10

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

B - Analyte was detected in both the BLANK and SAMPLE
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 # WSCF102488

QC Batch 162534
Associated Samples 102488001, 102488002

Test Hexavalent chromium Discrete Analyzer

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #38485**							
Hexavalent chromium	18540-29-9		<0.0020	mg/L					U	09/10/10
LCS			**QC Sample #38487**							
Hexavalent chromium	18540-29-9		0.0474	mg/L	94.8	90 - 110				09/10/10
DUP			**QC Sample #38488**							
			Original 102493001							
Hexavalent chromium	18540-29-9		0.00970	mg/L			2.00	20		09/10/10
MS			**QC Sample #38489**							
			Original 102493001							
Hexavalent chromium	18540-29-9		0.0353	mg/L	88.2	85 - 115				09/10/10

Quality Control Report

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF102488

QC Batch 162838
Associated Samples 102488001, 102488002

Test PCBs by EPA SW-846 Method 8082

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #38528**							
Aroclor-1016	12674-11-2		<0.1	ug/L					U	09/15/10
Aroclor-1221	11104-28-2		<0.2	ug/L					U	09/15/10
Aroclor-1232	11141-16-5		<0.1	ug/L					U	09/15/10
Aroclor-1242	53469-21-9		<0.1	ug/L					U	09/15/10
Aroclor-1248	12672-29-6		<0.1	ug/L					U	09/15/10
Aroclor-1254	11097-69-1		<0.1	ug/L					U	09/15/10
Aroclor-1260	11096-82-5		<0.1	ug/L					U	09/15/10
Aroclor-1262	37324-23-5		<0.1	ug/L					U	09/15/10
Aroclor-1268	11100-14-4		<0.1	ug/L					U	09/15/10
LCS			**QC Sample #38529**							
Aroclor-1254	11097-69-1		1.8	ug/L	92.3	70 - 130				09/15/10
MS			**QC Sample #38530**							
			Original 102388001							
Aroclor-1254	11097-69-1		1.6	ug/L	81	60 - 130				09/15/10
MSD			**QC Sample #38531**							
			Original 102388001					**Paired**	**38530**	
Aroclor-1254	11097-69-1		1.9	ug/L	98	60 - 130	19.00	20		09/15/10

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF102488

QC Batch 165133
Associated Samples 102488001, 102488002

Test ICP-2008 MS All possible metal

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #39194**							
Manganese	7439-96-5		<0.10	ug/L					U	09/22/10
Antimony	7440-36-0		<0.30	ug/L					U	09/22/10
Barium	7440-39-3		<0.20	ug/L					U	09/22/10
Cadmium	7440-43-9		<0.10	ug/L					U	09/22/10
Chromium	7440-47-3		<0.50	ug/L					U	09/22/10
Zinc	7440-66-6		<0.80	ug/L					U	09/22/10
Lead	7439-92-1		<0.10	ug/L					U	09/22/10
Mercury	7439-97-6		<0.050	ug/L					U	09/22/10
Arsenic	7440-38-2		<0.40	ug/L					U	09/22/10
Thorium	7440-29-1		<0.10	ug/L					U	09/22/10
LCS			**QC Sample #39195**							
Manganese	7439-96-5		37.3	ug/L	93.3	85 - 115				09/22/10
Antimony	7440-36-0		39.0	ug/L	97.5	85 - 115				09/22/10
Barium	7440-39-3		38.4	ug/L	96	85 - 115				09/22/10
Cadmium	7440-43-9		37.6	ug/L	94.1	85 - 115				09/22/10
Chromium	7440-47-3		37.5	ug/L	93.8	85 - 115				09/22/10
Zinc	7440-66-6		37.7	ug/L	94.3	85 - 115				09/22/10
Lead	7439-92-1		38.1	ug/L	95.2	85 - 115				09/22/10

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF102488

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Mercury	7439-97-6		1.89	ug/L	94.5	85 - 115				09/22/10
Arsenic	7440-38-2		37.2	ug/L	93.1	85 - 115				09/22/10
Thorium	7440-29-1		38.9	ug/L	97.3	85 - 115				09/22/10
MS			**QC Sample #39196**							
			Original 102546002							
Manganese	7439-96-5		34.1	ug/L	85.3	70 - 130				09/22/10
Antimony	7440-36-0		36.9	ug/L	92.2	70 - 130				09/22/10
Barium	7440-39-3		31.1	ug/L	77.6	70 - 130				09/22/10
Cadmium	7440-43-9		35.8	ug/L	89.5	70 - 130				09/22/10
Chromium	7440-47-3		35.0	ug/L	87.4	70 - 130				09/22/10
Zinc	7440-66-6		30.9	ug/L	77.2	70 - 130				09/22/10
Lead	7439-92-1		35.2	ug/L	88.1	70 - 130				09/22/10
Mercury	7439-97-6		1.89	ug/L	94.6	70 - 130				09/22/10
Arsenic	7440-38-2		35.0	ug/L	87.6	70 - 130				09/22/10
Thorium	7440-29-1		36.6	ug/L	91.4	70 - 130				09/22/10
MSD			**QC Sample #39197**							
			Original 102546002						**Paired 39196**	
Manganese	7439-96-5		36.4	ug/L	90.9	70 - 130	6.40	20		09/22/10
Antimony	7440-36-0		39.4	ug/L	98.5	70 - 130	6.60	20		09/22/10
Barium	7440-39-3		33.9	ug/L	84.8	70 - 130	8.90	20		09/22/10
Cadmium	7440-43-9		38.2	ug/L	95.4	70 - 130	6.40	20		09/22/10
Chromium	7440-47-3		37.0	ug/L	92.6	70 - 130	5.80	20		09/22/10
Zinc	7440-66-6		33.0	ug/L	82.6	70 - 130	6.80	20		09/22/10
Lead	7439-92-1		36.8	ug/L	92.1	70 - 130	4.40	20		09/22/10
Mercury	7439-97-6		1.89	ug/L	94.7	70 - 130	0.10	20		09/22/10

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF102488

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Arsenic	7440-38-2		38.9	ug/L	97.2	70 - 130	10.40	20		09/22/10
Thorium	7440-29-1		38.0	ug/L	94.9	70 - 130	3.80	20		09/22/10

Quality Control Report

Attention Michael Neely
Department Radiochemistry

Group # WSCF102488

QC Batch 160133
Associated Samples 102488001, 102488002

Test Plutonium (AEA)

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit		RQ	Analyzed
BLANK			**QC Sample #38172**								
Plutonium-238	13981-16-3		0.040	pCi/L						U	09/16/10
Americium-241	14596-10-2		0.10	pCi/L						X	09/16/10
Uranium-234	U-233/234		0.010	pCi/L						U	09/16/10
Plutonium-239/240	PU-239/240		0.0080	pCi/L						U	09/16/10
Uranium-235	15117-96-1		0.062	pCi/L						X	09/16/10
Uranium-238	U-238		0.010	pCi/L						U	09/16/10
LCS			**QC Sample #38173**								
Americium-241	14596-10-2		6.3	pCi/sample	113.5	80 - 120					09/16/10
Plutonium-239/240	PU-239/240		5.9	pCi/sample	102	80 - 120					09/16/10
Uranium-238	U-238		6.8	pCi/sample	80.1	80 - 120					09/16/10
DUP			**QC Sample #38174**								
			Original 102488001								
Plutonium-238	13981-16-3	8.1E-3	-0.016	pCi/L			-610.10	-20 - 20	*	U	09/16/10
Americium-241	14596-10-2	0.25	0.10	pCi/L			85.70	-20 - 20	*	X	09/16/10
Uranium-234	U-233/234	0.011	0.11	pCi/L			163.60	-20 - 20	*	X	09/16/10
Plutonium-239/240	PU-239/240	0.38	0.040	pCi/L			161.90	-20 - 20	*	U	09/16/10
Uranium-235	15117-96-1	0.013	0.039	pCi/L			100.00	-20 - 20	*	U	09/16/10
Uranium-238	U-238	0.021	0.012	pCi/L			54.50	-20 - 20	*	U	09/16/10

Quality Control Report

Attention Michael Neely
Department Radiochemistry

Group # WSCF102488

QC Batch 161635
Associated Samples 102488001, 102488002

Test Strontium 89/90 (GPC/GEA)

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #38375**							
Strontium-89/90	SR-RAD		0.23	pCi/L					U	09/27/10
LCS			**QC Sample #38376**							
Strontium-89/90	SR-RAD		110	pCi/L	95.7	80 - 120				09/27/10
DUP			**QC Sample #38377**							
			Original 102479001							
Strontium-89/90	SR-RAD		-5.7	pCi/L			-17.10	-20 - 20	U	09/27/10

Quality Control Report

Attention Michael Neely
Department Radiochemistry

Group # WSCF102488

QC Batch 162133
Associated Samples 102488001, 102488002, 102488003

Test Tritium by LSC

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #38396**							
Tritium	10028-17-8		14	pCi/L					U	09/14/10
LCS			**QC Sample #38397**							
Tritium	10028-17-8		3100	pCi/L	101.1	80 - 120				09/14/10
DUP			**QC Sample #38398**							
			Original 102496009							
Tritium	10028-17-8		1.0E4	pCi/L			0.00	-20 - 20		09/14/10
MS			**QC Sample #38399**							
			Original 102496009							
Tritium	10028-17-8		19000	pCi/L	90.2	75 - 125				09/14/10

Quality Control Report

Attention Michael Neely
Department Radiochemistry

Group # WSCF102488

QC Batch 162239
Associated Samples 102488001, 102488002

Test TC99 by Liquid Scintillation

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit		RQ	Analyzed
BLANK			**QC Sample #38413**								
Technetium-99	14133-76-7		-3.1	pCi/L						U	09/20/10
LCS			**QC Sample #38414**								
Technetium-99	14133-76-7		250	pCi/L	100.6	80 - 120					09/20/10
DUP			**QC Sample #38415**								
			Original 102479001								
Technetium-99	14133-76-7		-5.7	pCi/L			-28.00	-20 - 20	*	U	09/20/10
MS			**QC Sample #38416**								
			Original 102479001								
Technetium-99	14133-76-7		1000	pCi/L	101.5	75 - 125					09/20/10

Quality Control Report

Attention Michael Neely
Department Radiochemistry

Group # WSCF102488

QC Batch 164050
Associated Samples 102488001, 102488002

Test Gamma Energy Analysis-general

Analyte	CAS #	Original Found	QC Found	Units	% Recov Limits	RPD	RPD Limit	RQ	Analyzed
IBLANK			**QC Sample #38864**						
Americium-241	14596-10-2		-57	pCi/L				U	09/22/10
Antimony-125	14234-35-6		9.3	pCi/L				U	09/22/10
Barium-133	13981-41-4		-35	pCi/L				U	09/22/10
Cerium-144	14762-78-8		-22	pCi/L				U	09/22/10
Cerium/Praseodymium-144	CE/PR-144		-44	pCi/L				U	09/22/10
Cesium-134	13967-70-9		4.3	pCi/L				U	09/22/10
Cesium-137	10045-97-3		-3.1	pCi/L				U	09/22/10
Cobalt-60	10198-40-0		0.95	pCi/L				U	09/22/10
Europium-152	14683-23-9		-10	pCi/L				U	09/22/10
Europium-154	15585-10-1		-0.18	pCi/L				U	09/22/10
Europium-155	14391-16-3		-12	pCi/L				U	09/22/10
Niobium-94	14681-63-1		-1.8	pCi/L				U	09/22/10
Potassium-40	13966-00-2		-110	pCi/L				U	09/22/10
Radium-226	13982-63-3		-21	pCi/L				U	09/22/10
Radium-228	15262-20-1		-22	pCi/L				U	09/22/10
Ruthenium-106	13967-48-1		-77	pCi/L				U	09/22/10
Tin-126	15832-50-5		-18	pCi/L				U	09/22/10
Thorium-234	15065-10-8		-96	pCi/L				U	09/22/10

Quality Control Report

Attention Michael Neely
Department Radiochemistry

Group # WSCF102488

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit		RQ	Analyzed
Uranium-235	15117-96-1		-9.3	pCi/L						U	09/22/10
Zinc-65	13982-39-3		-12	pCi/L						U	09/22/10
Actinium-228	14331-83-0		-22	pCi/L						U	09/22/10
Bismuth-212	14913-49-6		28	pCi/L						U	09/22/10
Bismuth-214	14733-03-0		-21	pCi/L						U	09/22/10
Lead-212	15092-94-1		-9.2	pCi/L						U	09/22/10
Lead-214	15067-28-4		-20	pCi/L						U	09/22/10
Ruthenium-103	13968-53-1		-2.8	pCi/L						U	09/22/10
Tin-113	13966-06-8		2.1	pCi/L						U	09/22/10
Thallium-208	14913-50-9		-3.0	pCi/L						U	09/22/10
Beryllium-7	13966-02-4		-27	pCi/L						U	09/22/10
Cobalt-57	13981-50-5		-4.0	pCi/L						U	09/22/10
Manganese-54	13966-31-9		0.45	pCi/L						U	09/22/10
LCS			**QC Sample #38865**								
Americium-241	14596-10-2		17000	pCi/sample	100.7	80 - 120					09/22/10
Cesium-137	10045-97-3		6300	pCi/sample	104.1	80 - 120					09/22/10
Cobalt-60	10198-40-0		10000	pCi/sample	105.1	80 - 120					09/22/10
DUP			**QC Sample #38866**								
			Original 102141001								
Americium-241	14596-10-2		0.82	pCi/L			137.20	-20 - 20	*	U	09/22/10
Antimony-125	14234-35-6		1.1	pCi/L			-234.10	-20 - 20	*	U	09/22/10
Barium-133	13981-41-4		-36	pCi/L			-14.90	-20 - 20		U	09/22/10
Cerium-144	14762-78-8		7.1	pCi/L			119.10	-20 - 20	*	U	09/22/10
Cerium/Praseodymium-144	CE/PR-144		14	pCi/L			118.20	-20 - 20	*	U	09/22/10

Quality Control Report

Attention Michael Neely
Department Radiochemistry

Group # WSCF102488

Analyte	CAS #	Original Found	QC Found	Units	% Recov Limits	RPD	RPD Limit		RQ	Analyzed
Cesium-134	13967-70-9		5.1	pCi/L		400.00	-20 - 20	*	U	09/22/10
Cesium-137	10045-97-3		-4.7	pCi/L		-19.20	-20 - 20		U	09/22/10
Cobalt-60	10198-40-0		-5.0	pCi/L		-22.20	-20 - 20	*	U	09/22/10
Europium-152	14683-23-9		24	pCi/L		105.70	-20 - 20	*	U	09/22/10
Europium-154	15585-10-1		-4.0	pCi/L		-202.80	-20 - 20	*	U	09/22/10
Europium-155	14391-16-3		8.1	pCi/L		21.00	-20 - 20	*	U	09/22/10
Niobium-94	14681-63-1		3.3	pCi/L		75.00	-20 - 20	*	U	09/22/10
Potassium-40	13966-00-2		270	pCi/L		250.00	-20 - 20	*	U	09/22/10
Radium-226	13982-63-3		-5.3	pCi/L		-49.40	-20 - 20	*	U	09/22/10
Radium-228	15262-20-1		-10	pCi/L		-64.90	-20 - 20	*	U	09/22/10
Ruthenium-106	13967-48-1		1.7	pCi/L		182.00	-20 - 20	*	U	09/22/10
Tin-126	15832-50-5		-18	pCi/L		-53.10	-20 - 20	*	U	09/22/10
Thorium-234	15065-10-8		-190	pCi/L		-37.50	-20 - 20	*	U	09/22/10
Uranium-235	15117-96-1		-1.4	pCi/L		-98.20	-20 - 20	*	U	09/22/10
Zinc-65	13982-39-3		-1.9	pCi/L		-77.40	-20 - 20	*	U	09/22/10
Actinium-228	14331-83-0		-10	pCi/L		-64.90	-20 - 20	*	U	09/22/10
Bismuth-212	14913-49-6		44	pCi/L		44.20	-20 - 20	*	U	09/22/10
Bismuth-214	14733-03-0		-5.3	pCi/L		-49.40	-20 - 20	*	U	09/22/10
Lead-212	15092-94-1		-12	pCi/L		-150.40	-20 - 20	*	U	09/22/10
Lead-214	15067-28-4		-18	pCi/L		-40.00	-20 - 20	*	U	09/22/10
Ruthenium-103	13968-53-1		2.3	pCi/L		-684.20	-20 - 20	*	U	09/22/10
Tin-113	13966-06-8		-8.4	pCi/L		-157.40	-20 - 20	*	U	09/22/10
Thallium-208	14913-50-9		-7.8	pCi/L		-146.70	-20 - 20	*	U	09/22/10
Beryllium-7	13966-02-4		13	pCi/L		63.20	-20 - 20	*	U	09/22/10
Cobalt-57	13981-50-5		3.9	pCi/L		13.70	-20 - 20		U	09/22/10

Quality Control Report

Attention Michael Neely
Department Radiochemistry

Group # WSCF102488

Analyte	CAS #	Original Found	QC Found	Units	% Recov Limits	RPD	RPD Limit		RQ	Analyzed
Manganese-54	13966-31-9		-3.5	pCi/L		-307.20	-20 - 20	*	U	09/22/10

Quality Control Report

Attention Michael Neely
Department Radiochemistry

Group # WSCF102488

QC Batch 160133
Associated Samples 102488001, 102488002

Test Uranium (AEA)

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
SAMPLE			**Sample #102488001**							
Uranium-232 Tracer	14158-29-3				62.1	25 - 105				09/16/10
Americium-243 Tracer	14993-75-0				84.7	25 - 105				09/16/10
Plutonium-242 Tracer	13982-10-0				84.2	25 - 105				09/16/10
SAMPLE			**Sample #102488002**							
Uranium-232 Tracer	14158-29-3				67.4	25 - 105				09/16/10
Americium-243 Tracer	14993-75-0				85.3	25 - 105				09/16/10
Plutonium-242 Tracer	13982-10-0				73.3	25 - 105				09/16/10
BLANK			**QC Sample #38172**							
Uranium-232 Tracer	14158-29-3				63.7	25 - 105				09/16/10
Americium-243 Tracer	14993-75-0				92.2	25 - 105				09/16/10
Plutonium-242 Tracer	13982-10-0				87.6	25 - 105				09/16/10
LCS			**QC Sample #38173**							
Uranium-232 Tracer	14158-29-3				60	25 - 105				09/16/10
Americium-243 Tracer	14993-75-0				82.7	25 - 105				09/16/10
Plutonium-242 Tracer	13982-10-0				81.9	25 - 105				09/16/10
DUP			**QC Sample #38174**							
			Original 102488001							

Quality Control Report

Attention Michael Neely
Department Radiochemistry

Group # WSCF102488

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Americium-243 Tracer	14993-75-0				81.6	25 - 105	0.00			09/16/10
Uranium-232 Tracer	14158-29-3				70.2	25 - 105	0.00			09/16/10
Plutonium-242 Tracer	13982-10-0				85.2	25 - 105	0.00			09/16/10

Quality Control Report

Attention Michael Neely
Department Radiochemistry

Group # WSCF102488

QC Batch 161635
Associated Samples 102488001, 102488002

Test Strontium 89/90 (GPC/GEA)

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
SAMPLE			**Sample #102488001**							
Strontium-85	13967-73-2				91.5	25 - 105				09/27/10
SAMPLE			**Sample #102488002**							
Strontium-85	13967-73-2				84.1	25 - 105				09/27/10
BLANK			**QC Sample #38375**							
Strontium-85	13967-73-2				77.6	25 - 105				09/27/10
LCS			**QC Sample #38376**							
Strontium-85	13967-73-2				87.3	25 - 105				09/27/10
DUP			**QC Sample #38377**							
			Original 102479001							
Strontium-85	13967-73-2				92.4	25 - 105	3.50			09/27/10

Quality Control Report

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF102488

QC Batch 162838
Associated Samples 102488001, 102488002

Test PCBs by EPA SW-846 Method 8082

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
SAMPLE			**Sample #102488001**							
Tetrachloro-m-xylene	877-09-8				81.5	60 - 140				09/15/10
Decachlorobiphenyl	2051-24-3				80.2	60 - 140				09/15/10
SAMPLE			**Sample #102488002**							
Tetrachloro-m-xylene	877-09-8				83.2	60 - 140				09/15/10
Decachlorobiphenyl	2051-24-3				79.6	60 - 140				09/15/10
BLANK			**QC Sample #38528**							
Tetrachloro-m-xylene	877-09-8				90.4	60 - 140				09/15/10
Decachlorobiphenyl	2051-24-3				91.8	60 - 140				09/15/10
LCS			**QC Sample #38529**							
Tetrachloro-m-xylene	877-09-8				81.8	60 - 140				09/15/10
Decachlorobiphenyl	2051-24-3				76.8	60 - 140				09/15/10
MS			**QC Sample #38530**							
			Original 102388001							
Tetrachloro-m-xylene	877-09-8				66.2	60 - 140				09/15/10
Decachlorobiphenyl	2051-24-3				62	60 - 140				09/15/10
MSD			**QC Sample #38531**							
			Original 102388001					**Paired**	**38530**	

Quality Control Report

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF102488

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Tetrachloro-m-xylene	877-09-8				85.1	60 - 140	25.00			09/15/10
Decachlorobiphenyl	2051-24-3				80.1	60 - 140	25.50			09/15/10

Analytical Comment Report

Attention: Michael Neely **Group #** WSCF102488

Quality Control Comments

Department Radiochemistry

38172 BLANK for HBN 160133 [RADP/379

Analyte Americium-241 - Americium/Curium (AEA)

[1] The blank is less than 2X the MDC and is acceptable.

Analyte Uranium-235 - Uranium (AEA)

[1] The blank is less than 2X the MDC and is acceptable.

38174 B28153(102488001DUP)

Analyte Americium-241 - Americium/Curium (AEA)

[1] Duplicate RPD out-of-limits. RPD limit does not apply to results near the Minimum Detectable Concentration.

Analyte Uranium-234 - Uranium (AEA)

[1] Duplicate RPD out-of-limits. RPD limit does not apply to results near the Minimum Detectable Concentration.

ATTACHMENT4

SAMPLE RECEIPT

Consisting of 5 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 650 S3-30
Richland, WA 99352

ATTN: Michael Neely

Customer Code: CHPRC
PO #: 401352/ES20
Work Order #: 102488
Profile #: F10-275-001
Proj. Mgr.:
Phone:

The following samples were received from you on 9/10/2010 12:15:00 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		
102488001	B28153	WATER	9/10/2010 07:55	9/10/2010 12:15
		2008-W; AEA-AM-W; AEA-PU-W; AEA-U-W; CR6DA-W; GEA-W; H3-COL-W; PCB-W; SR89/90-W; TC99-W		
102488002	B28156	WATER	9/10/2010 09:10	9/10/2010 12:15
		2008-W; AEA-AM-W; AEA-PU-W; AEA-U-W; CR6DA-W; GEA-W; H3-COL-W; PCB-W; SR89/90-W; TC99-W		
102488003	B28155	WATER	9/10/2010 07:50	9/10/2010 12:15
		H3-COL-W		

Test Acronym Description

Test Acronym	Description
2008-W	ICP-MS (W)
AEA-AM-W	Americium (AEA) (W)
AEA-PU-W	Plutonium (AEA) (W)
AEA-U-W	Uranium Isotopic (AEA) (W)
CR6DA-W	Cr6 (W,Discrete analyzer)
GEA-W	Gamma Energy Analysis (W)
H3-COL-W	Tritium by EICHROM Column (W)
PCB-W	PCB (8082) (W)
SR89/90-W	Strontium 89/90 (GPC) (W)
TC99-W	Technetium-99 (W)

CH2MHILL Hanford Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F10-375-001 PAGE 1 OF 1

COLLECTOR: Chamberlain

COMPANY CONTACT: WIDRIG, CL

TELEPHONE NO.: 376-2858

PROJECT COORDINATOR: WIDRIG, CL

PRICE CODE: 7C

DATA TURNAROUND: 15 Days / 15 Days

SAMPLING LOCATION: 216-N-6 SB 1 DP 1

PROJECT DESIGNATION: ARUS 216-N-6 Sampling and Analysis - Verification - QC Sampling

SAF NO.: F10-275

AIR QUALITY: ☐

ICE CHEST NO.:

FIELD LOGBOOK NO.: HNF-N-507-144

ACTUAL SAMPLE DEPTH: N/A

COA: 302712E510

METHOD OF SHIPMENT: GOVERNMENT VEHICLE

SHIPPED TO: Waste Sampling & Characterization

DEPOSITE PROPERTY NO.: N/A

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

MATRIX*: A - Air; DS - Drum Solids; DL - Drum Liquids; O - Oil; SO - Soil; SE - Sediment; S - Solid; W - Water; WI - Well Water; 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 shipmable per DOE Order 5480.3 (1990/1993)

102488

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	HNO3 to pH <2	Cool-4C	Cool-4C	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HCl to pH <2	None
HOLDING TIME	28 Days	28 Hours	1 Year	6 Months	180 Days	180 Days	6 Months	6 Months	6 Months	6 Months
TYPE OF CONTAINER	G/P	AG	AG	G/P	G/P	G/P	G/P	G/P	G/P	G
NO. OF CONTAINER(S)	1	1	4	1	1	1	1	1	1	1
VOLUME	500ml	500ml	1000ml	500ml	500ml	500ml	500ml	1L	1L	250ml
SAMPLE ANALYSIS	See Plan in SESCM 3600-CP6001	Gamma Spec 235	Note 3080	Gamma Spectrometry	Gamma Spectrometry	Gamma Spectrometry	See Plan in SESCM 3600-CP6001	Gamma Spectrometry Pb-210 Total	Gamma Spectrometry	Gamma Ra

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
508153	COI WATER	9-10-10	0755	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Chamberlain	9-10-10 1215	Victor Jones	9/10/10 1215
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
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS

** The CACN for all analytical work at WSCF is 401352D520.☐** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.☐* The laboratory shall report only the requested constituents of concern in all final data re
(1) 200.8_HG - ICPMS (Mercury); ICP/MS - 200.8 (TAL) (Antimony, Barium, Cadmium, Chromium, Manganese, Zinc); ICP/MS - 200.8 (Add-on) (Arsenic, Lead, Thorium-232);
(2) Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238);

ORIGINAL

LABORATORY SECTION: RECEIVED BY

FINAL SAMPLE DISPOSITION: DISPOSAL METHOD

TITLE

DATE/TIME

DISPOSED BY

DATE/TIME

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

#10-275-004 PAGE 1 OF 1

COLLECTOR: FIELD CHPRC

COMPANY CONTACT: WIDRIG, DL

TELEPHONE NO.: 376-2818

PROJECT COORDINATOR: WIDRIG, DL

PRICE CODE: YC

DATA TURNAROUND: 15 Days / 15 Days

SAMPLING LOCATION: 200-W-6 FB

PROJECT DESIGNATION: ARRA 216-W-6 Sampling and Analysis - Verification - QC Sampling

SAF NO.: 10-275

AIR QUALITY:

ICE CHEST NO.:

FIELD LOGBOOK NO.: HNF-N-507-11.16

ACTUAL SAMPLE DEPTH: N/A

COA: 3022275S10

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, SS-Sludge, L-Liquid, SOL-Solid, S-Soil, SL-Sludge, F-Foam, V-Vegetation, W-Water, WI-Wipe, X-Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material or contaminants that may or may not be regulated for transportation per 49 CFR; IATA Dangerous Goods Regulations and are not restricted per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

SAMPLE NO.	MATRIX*	SAMPLE DATE - SAMPLE TIME										
PRESERVATION			HNO3 to pH <2	None-4C	None-4C	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	HNO3 to pH <2	4C to pH <2	None
HOLDING TIME			28 Days	24 Hours	14/1 yr	6 Months	180 Days	180 Days	6 Months	6 Months	6 Months	6 Months
TYPE OF CONTAINER			G/P	G	G	G/P	G/P	G/P	G/P	G/P	G/P	G
NO. OF CONTAINER(S)			1	1	4	1	1	1	1	1	1	1
VOLUME			500mL	500mL	1000mL	500mL	1000mL	1000mL	500mL	1L	1L	1000mL
SAMPLE ANALYSIS			200.8 (Hg) to SPECIAL INSTRUCTIONS	Chloride Per 7196	ICP/MS	Gross Alpha/Beta	Arsenic Tail.	Gross Alpha/Beta	200.8 (Add-on) to SPECIAL INSTRUCTIONS	Strontium-90 (Sr-90) - See SI	Technetium-99	Tritium (H3)
B28196	W-2	WATER 9-16-10 0910	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
FIELD CHPRC	SEP 10 2010 1215		SEP 10 2010 1215
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

SIGN/ PRINT NAMES

SPECIAL INSTRUCTIONS

** The CACN for all analytical work at WSCF is 401135(ESD0.1)** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis SKI applies to this SAF.(1)* The laboratory shall report only the requested constituents of concern in all final data is
(1) 200.8_HG - ICPMS (Mercury); ICP/MS - 200.8 (TAL) (Antimony, Barium, Cadmium, Chromium, Manganese, Zinc); ICP/MS - 200.8 (Add-on) (Arsenic, Lead, Thorium-232);
(2) Isotopic Uranium (Uranium-233/234, Uranium-235, Uranium-238);

ORIGINAL

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

Sample Receipt

Chain of Custody

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F10-275-003 PAGE 1 OF 1

COLLECTOR: Chamberlain	COMPANY CONTACT: WIERIG, DL	TELEPHONE NO.: 376-2859	PROJECT COORDINATOR: WIERIG, DL
PRICE CODE: 7C	DATA TURNAROUND: 15 Days / 15 Days	SAMPLING LOCATION: 216-N-6 NTR	PROJECT DESIGNATION: ARRA 216-N-6 Sampling and Analysis - Verification - QC Sampling
SAF NO.: F10-275	AIR QUALITY: ☐	ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-507-14
ACTUAL SAMPLE DEPTH: N/A	COA: 302221ES19	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	SHIPPED TO: Waste Sampling & Characterization
OFFSITE PROPERTY NO.: N/A	BILL OF LADING/AIR BILL NO.: N/A		

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	None
A - Air O - Oil LIQUID DS - Drum SOLID L - Liquid C - Oil S - Soil SE - Sediment T - Tissue WIPE - Wipe W - Water WL - Wipe SOIL - Soil	Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not reportable per DOE Order 5400.5 (2/90/1993)	HOLDING TIME	6 Months
		TYPE OF CONTAINER	G
		NO. OF CONTAINER(S)	1
		VOLUME	250ml
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	Tritium (H3)

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
D0B115 003	WATER	9-10-10	0750	✓

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Chamberlain	9-10-10 1215	Vilsof Bimm	9/10/10 1215
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
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SIGN/ PRINT NAMES

SPECIAL INSTRUCTIONS

** The CACN for all analytical work at WSCF is 401352E520.L** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.L** The laboratory shall report only the requested constituents of concern in all final data re

ORIGINAL

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