WSCF Laboratory

PO Box 650 S3-30
Richland, WA 99352

RECEIVED JUNE 21, 2011

REVISION 2

1212328

June 16, 2011

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

Dear Michael Neely,

REVISED112193 - 480852 [Report ID: 112193]

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 WSCF112193

* 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

RECEIVED
MAR 07 2012
EDMC

Attachments 4

CC: w/Attachments

File/LB

ATTACHMENT 1

COVER SHEET

Consisting of 2 pages
Including cover page

WSCF SAF Number Cross Reference

Group # WSCF112193
Data Deliverable Date 05/17/11

SAF #	Sample ID	Sample #	Matrix	Sampled	Received
F11-110	B2D7C0	112193001	OTHERLIQ	05/04/11	05/04/11
F11-110	B2D7C2	112193002	OTHERLIQ	05/04/11	05/04/11

ATTACHMENT 2

NARRATIVE

Consisting of 7 pages
Including cover page

Attachment 2
Narrative
WSCF112193

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.

Sample Issue Resolution Form, SDR11-252 was generated for this work order. Hexavalent Chromium cannot be analyzed for Oil matrix.

Sample Issue Resolution Form, SDR11-285 was generated for this work order. TCLP 200.8 metals could not be analyzed due to emulsion formation during extraction. Total metals are still reported.

Sample Issue Resolution Form, SDR11-308 was generated for this work order. Lower detection limits were required for PAH analysis.

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.

Attachment 2
Narrative
WSCF112193

Inorganic Comments

ICP-AES 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):

- Lithium – The LCS was spiked with the oil standard, whose value is not in the computer, and digested. The actual recovery was 111%.
- All other applicable QC controls are within the established limits.

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):

- Silver – Exceeded spiking levels by a factor of 4. Spike recoveries and associated RPDs are not valid.
- All other applicable 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):

- The Matrix Spike did not meet the acceptance limits for surrogate Tetrachloro-m-xylene. Sample results were not flagged. The quality control report was flagged for surrogate recovery failure.
- All other applicable QC controls are within the established limits.

Semi-VOA – 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):

- Analysis performed by 8270-PAH SIM method.
- All applicable QC controls are within the established limits.

TPHD-WA – The hold time requirements for this analysis were met. A Blank and Laboratory Control Sample were analyzed with this delivery group. Analytical Note(s):

- Due to the co-elution of analytes for TPHD-WA (DRO) and kerosene analysis, samples are spiked and evaluated for TPHD only.
- All applicable QC controls are within the established limits.

Attachment 2
Narrative
WSCF112193

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
WSCF112193

SAMPLE ISSUE RESOLUTION

SIR NUM	SDR11-252
REV NUM	0
DATE INITIATED	5/4/2011

SAMPLE EVENT INFORMATION

SAF NUM(S)	F11-110
OPERABLE UNIT(S)	200-MG-1
PROJECT(S)	200-MG-1
SAMPLE EVENT TITLE(S)	200-MG-1 OU Waste Sites
LABORATORY	Waste Sampling & Characterization

SAMPLING INFORMATION

NUMBER OF SAMPLES	1
SAMPLE NUMBERS	B2D7C0
SAMPLE MATRIX	
COLLECTION DATE	-
SDG NUM	WSCF112193 SDC 5411

ISSUE BACKGROUND

CLASS	Laboratory Issue
TYPE	Incorrect Method Analysis Requested
DESCRIPTION	The COC requested analysis of Hexavalent Chromium on an oil matrix. WSCF is not able to perform this analysis. The hex chromium will breakdown during prep.

DISPOSITION

DESCRIPTION	CANCEL ANALYSIS
JUSTIFICATION	Submitted by: WSCF Date: 5/4/2011
	Accepted by: Roy Bauer Date: 5/4/2011

4

SAMPLE ISSUE RESOLUTION

SIR NUM	SDR11-285
REV NUM	0
DATE INITIATED	5/23/2011

SAMPLE EVENT INFORMATION

SAF NUM(S)	F11-110
OPERABLE UNIT(S)	200-MG-1
PROJECT(S)	200-MG-1
SAMPLE EVENT TITLE(S)	200-MG-1 OU Waste Sites
LABORATORY	Waste Sampling & Characterization

SAMPLING INFORMATION

NUMBER OF SAMPLES	1
SAMPLE NUMBERS	B2D7C2
SAMPLE MATRIX	OTHER LIQUID
COLLECTION DATE	5/4/2011 - 5/4/2011
SDG NUM	WSCF112193

ISSUE BACKGROUND

CLASS	Laboratory Issue
TYPE	Insufficient Sample Volume
DESCRIPTION	TCLP METALS WAS REQUESTED ON THE OIL; THE LEACH WAS PERFORMED HOWEVER, THE SAMPLE WAS AN EMULSION AFTER THE TUMBLE.

DISPOSITION

DESCRIPTION	DUE TO THE EMULSION AFTER THE TCLP TUMBLE, THERE ISN¿T ADEQUATE SAMPLE VOLUME TO PERFORM THE 200.8 ANALYSIS; CANCEL THE 200.8 TCLP RCRA METALS.
JUSTIFICATION	Submitted by: Heather Medley Date: 5/23/2011 Accepted by: Roy Bauer Date:5/23/2011

Attachment 2
Narrative
WSCF112193

SAMPLE ISSUE RESOLUTION

SIR NUM	SDR11-308
REV NUM	0
DATE	6/9/2011

SAMPLE EVENT INFORMATION

SAF NUM(S)	F11-110
OPERABLE UNIT(S)	200-MG-1
PROJECT(S)	200-MG-1
SAMPLE EVENT	200-MG-1 OU Waste Sites
LABORATORY	Waste Sampling & Characterization

SAMPLING INFORMATION

NUMBER OF SAMPLES	1
SAMPLE NUMBERS	B2D7C0
SAMPLE MATRIX	OTHER LIQUID
COLLECTION DATE	5/4/2011 - 5/4/2011
SDG NUM	WSCF112193

ISSUE BACKGROUND

CLASS	Laboratory Issue
TYPE	Required Detection Limit not Met
DESCRIPTION	WSCF recently analyzed some oil samples from 600-220 for waste disposition under SDG WSCF112193. Unfortunately, the preliminary results showed that the detection limits for some of the PAHs, diesel and kerosene failed to meet the waste profile action levels.

DISPOSITION

DESCRIPTION	Please re-run the samples to obtain lower detection limits.
JUSTIFICATION	Submitted by: Roy Bauer Date: 6/8/2011 WSCF will re-run the sample for 8270 to obtain lower detection limits. However, the TPHD (diesel and kerosene) analyses cannot be re-run at a lower detection limit because of the amount of motor oil in the sample (27031 mg/kg) would damage the instrument. Accepted by: Heather Medley Date:6/13/2011

6

ATTACHMENT 3

ANALYTICAL RESULTS

Consisting of 26 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 #	WSCF112193
Report Date	June 16, 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

Attention Michael Neely
Department Inorganic

Group # WSCF112193

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
181892	181895	1	BLANK	55428	BLANK		ICP-6010 - All possible metals
181892	181895	2	LCS	55429	LCS		ICP-6010 - All possible metals
181892	181895	3	MS	55430	B2D7C0(112193001MS)	112193001	ICP-6010 - All possible metals
181892	181895	4	MSD	55431	B2D7C0(112193001MSD)	112193001	ICP-6010 - All possible metals
181892	181895	5	SAMPLE	112193001	B2D7C0		ICP-6010 - All possible metals
181905	181906	4	BLANK	55492	BLANK		ICP-2008 MS All possible metal
181905	181906	5	LCS	55493	LCS		ICP-2008 MS All possible metal
181905	181906	6	LCS	57183	LCS		ICP-2008 MS All possible metal
181905	181906	7	MS	55494	B2D7C0(112193001MS)	112193001	ICP-2008 MS All possible metal
181905	181906	8	MSD	55495	B2D7C0(112193001MSD)	112193001	ICP-2008 MS All possible metal
181905	181906	9	SAMPLE	112193001	B2D7C0		ICP-2008 MS All possible metal

Batch QC List

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF112193

QC Batch	Analytical Batch	S#	Type	Sample #	Client Sample#	Original	Test
181722	181986	1	BLANK	55000	BLANK		Extractable Diesel and Petroleum
181722	181986	2	LCS	55001	LCS		Extractable Diesel and Petroleum
181722	181986	3	MS	55002	B2D7C0(112193001MS)	112193001	Extractable Diesel and Petroleum
181722	181986	4	MSD	55003	B2D7C0(112193001MSD)	112193001	Extractable Diesel and Petroleum
181722	181986	5	SAMPLE	112193001	B2D7C0		Extractable Diesel and Petroleum
181723	181941	1	BLANK	55004	BLANK		PCBs by EPA SW-846 Method 8082
181723	181941	2	LCS	55005	LCS		PCBs by EPA SW-846 Method 8082
181723	181941	3	MS	55006	B2D7C0(112193001MS)	112193001	PCBs by EPA SW-846 Method 8082
181723	181941	4	MSD	55007	B2D7C0(112193001MSD)	112193001	PCBs by EPA SW-846 Method 8082
181723	181941	5	SAMPLE	112193001	B2D7C0		PCBs by EPA SW-846 Method 8082
183678	183679	1	BLANK	55008	BLANK		SW-846 8270D Semivolatiles (PAHSIM)
183678	183679	2	LCS	55009	LCS		SW-846 8270D Semivolatiles (PAHSIM)
183678	183679	3	MS	55010	B2D7C0(112193001MS)	112193001	SW-846 8270D Semivolatiles (PAHSIM)
183678	183679	4	MSD	55011	B2D7C0(112193001MSD)	112193001	SW-846 8270D Semivolatiles (PAHSIM)
183678	183679	5	SAMPLE	112193001	B2D7C0		SW-846 8270D Semivolatiles (PAHSIM)

Method Reference

Attention Michael Neely
Department Inorganic

Group # WSCF112193

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-505-411	Elemental Analysis by ICP Atomic Emission Spectroscopy (ICP AES)		
	EPA SW-846	6010C	Inductively Coupled Plasma-Atomic Emmision Spectrometry
	HEIS	6010_METALS_ICP	Inductively Coupled Plasma-Atomic Emmision Spectrometry
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.
LA-544-441	WSCF Toxicity Characteristic Leaching Procedure (TCLP) Low Activity Samples		
	EPA SW-846	1311	Toxicity Characteristic Leaching Procedure
LA-505-412	Determination of Trace Elements in Waters & Wastes by ICP-Mass Spectrometry (RCRA Metals)		
	EPA-600/R-94-111	200.8	Determination of Trace Elements in Waters and Waste by Inductively Coupled Plasma
	HEIS	TCLP_200.8_MET_ICP	TCLP Metal by ICP-MS, 1311/200.8

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 # WSCF112193

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-523-456	Semivolatile Sample Analysis by SW-846 Method 8270D		
	EPA SW-846	8000B	Determinative Chromagraphic Separations
	EPA SW-846	3510C	Separatory Funnel Liquid-Liquid Extraction
	EPA SW-846	8270D	Semivolatile Organic Compounds by Gas
	EPA SW-846	3545	Pressurized Fluid Extraction (PFE)
			Chromatography/Mass Spectrometry (GC/MS)
	HEIS	8270_SVOA_GCMS	Semivolatile Organic Compounds by Gas
			Chromatography/Mass Spectrometry(GC/MS)
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
LA-523-493	NWTPH-Dx, Extractible Diesel and Petroleum Productions Analysis in Soil and Water		
	WDOE	WDOE	Total Petroleum Hydrocarbons in Diesel
	HEIS	WTPH_DIESEL	TPH Diesel

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 2

Attention Michael Neely
Department Inorganic

Group # WSCF112193

Sample # 112193001
SAF# F11-110
Sample ID B2D7C0

Matrix OTHERLIQ
Sampled 05/04/11
Received 05/04/11

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICP Prep										**05/13/11**
ICP-AES										
Lithium	7439-93-2	LA-505-411	U	<0.50		mg/kg	1	0.50	2.0	05/20/11
ICPMS Prep										**05/14/11**
ICP-MS										
Manganese	7439-96-5	LA-505-412	B	0.702		mg/kg	1	0.10	1.0	05/17/11
Nickel	7440-02-0	LA-505-412	B	0.359		mg/kg	1	0.20	2.0	05/17/11
Silver	7440-22-4	LA-505-412		14.4		mg/kg	1	0.10	1.0	05/17/11
Antimony	7440-36-0	LA-505-412	U	<0.30		mg/kg	1	0.30	3.0	05/17/11
Barium	7440-39-3	LA-505-412	U	<0.20		mg/kg	1	0.20	2.0	05/17/11
Beryllium	7440-41-7	LA-505-412	U	<0.10		mg/kg	1	0.10	0.50	05/17/11
Cadmium	7440-43-9	LA-505-412	U	<0.10		mg/kg	1	0.10	1.0	05/17/11
Chromium	7440-47-3	LA-505-412	U	<0.50		mg/kg	1	0.50	5.0	05/17/11
Cobalt	7440-48-4	LA-505-412	U	<0.10		mg/kg	1	0.10	0.50	05/17/11
Copper	7440-50-8	LA-505-412	U	<0.10		mg/kg	1	0.10	1.0	05/17/11
Vanadium	7440-62-2	LA-505-412	U	<0.20		mg/kg	1	0.20	2.0	05/17/11
Zinc	7440-66-6	LA-505-412		7.08		mg/kg	1	0.81	5.0	05/17/11
Lead	7439-92-1	LA-505-412	B	0.206		mg/kg	1	0.10	1.0	05/17/11
Mercury	7439-97-6	LA-505-412	U	<0.050		mg/kg	1	0.050	0.20	05/17/11

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

B - Analyte < the PQL(or EQL)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.
PQL is equivalent to Estimated Quantitation Limit (EQL)

REVISED112193 -

WSCF Analytical Results Report

REVISION 2

Attention Michael Neely
Department Inorganic

Group # WSCF112193

Sample # 112193001
SAF# F11-110
Sample ID B2D7C0

Matrix OTHERLIQ
Sampled 05/04/11
Received 05/04/11

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
Strontium	7440-24-6	LA-505-412	B	0.678		mg/kg	1	0.10	1.0	05/17/11
Thallium	7440-28-0	LA-505-412	U	<0.10		mg/kg	1	0.10	0.50	05/17/11
Tin	7440-31-5	LA-505-412	B	0.318		mg/kg	1	0.10	0.50	05/17/11
Uranium	7440-61-1	LA-505-412	U	<0.10		mg/kg	1	0.10	0.50	05/17/11
Arsenic	7440-38-2	LA-505-412	U	<0.40		mg/kg	1	0.40	4.0	05/17/11
Selenium	7782-49-2	LA-505-412	B	0.369		mg/kg	1	0.30	3.0	05/17/11
Boron	7440-42-8	LA-505-412	U	<0.50		mg/kg	1	0.50	5.0	05/17/11

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

B - Analyte < the PQL(or EQL)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.
PQL is equivalent to Estimated Quantitation Limit (EQL)

REVISED112193 -

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF112193

Sample # 112193001
SAF# F11-110
Sample ID B2D7C0

Matrix OTHERLIQ
Sampled 05/04/11
Received 05/04/11

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
8270 Prep										**06/09/11**
SW-846 8270D										
Naphthalene	91-20-3	LA-523-456	U	<3.E3		ug/kg	1	3.E3	1.E4	06/09/11
Acenaphthylene	208-96-8	LA-523-456	U	<3.E3		ug/kg	1	3.E3	1.E4	06/09/11
Acenaphthene	83-32-9	LA-523-456	U	<3.E3		ug/kg	1	3.E3	1.E4	06/09/11
Fluorene	86-73-7	LA-523-456	U	<3.E3		ug/kg	1	3.E3	1.E4	06/09/11
Phenanthrene	85-01-8	LA-523-456	J	3300		ug/kg	1	3.E3	1.E4	06/09/11
Anthracene	120-12-7	LA-523-456	U	<3.E3		ug/kg	1	3.E3	1.E4	06/09/11
Fluoranthene	206-44-0	LA-523-456	J	3600		ug/kg	1	3.E3	1.E4	06/09/11
Pyrene	129-00-0	LA-523-456	J	3200		ug/kg	1	3.E3	1.E4	06/09/11
Benzo(a)anthracene	56-55-3	LA-523-456		4.2E4		ug/kg	1	3.E3	1.E4	06/09/11
Chrysene	218-01-9	LA-523-456		4.3E4		ug/kg	1	3.E3	1.E4	06/09/11
Benzo(b)fluoranthene	205-99-2	LA-523-456	J	3200		ug/kg	1	3.E3	1.E4	06/09/11
Benzo(k)fluoranthene	207-08-9	LA-523-456	U	<3.E3		ug/kg	1	3.E3	1.E4	06/09/11
Benzo(a)pyrene	50-32-8	LA-523-456	J	7800		ug/kg	1	3.E3	1.E4	06/09/11
Indeno(1,2,3-cd)pyrene	193-39-5	LA-523-456	U	<3.E3		ug/kg	1	3.E3	1.E4	06/09/11
Dibenzo(a,h)anthracene	53-70-3	LA-523-456	U	<3.E3		ug/kg	1	3.E3	1.E4	06/09/11
Benzo(g,h,i)perylene	191-24-2	LA-523-456	U	<3.E3		ug/kg	1	3.E3	1.E4	06/09/11
PCB Prep Solids										**05/11/11**

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.
PQL is equivalent to Estimated Quantitation Limit (EQL)

REVISED112193 -

WSCF Analytical Results Report

REVISION 2

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF112193

Sample # 112193001
SAF# F11-110
Sample ID B2D7C0

Matrix OTHERLIQ
Sampled 05/04/11
Received 05/04/11

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
PCBs										
Aroclor-1016	12674-11-2	LA-523-427	U	<400		ug/kg	1	400	900	05/16/11
Aroclor-1221	11104-28-2	LA-523-427	U	<900		ug/kg	1	900	2.E3	05/16/11
Aroclor-1232	11141-16-5	LA-523-427	U	<400		ug/kg	1	400	900	05/16/11
Aroclor-1242	53469-21-9	LA-523-427	U	<400		ug/kg	1	400	900	05/16/11
Aroclor-1248	12672-29-6	LA-523-427	U	<400		ug/kg	1	400	900	05/16/11
Aroclor-1254	11097-69-1	LA-523-427	U	<400		ug/kg	1	400	900	05/16/11
Aroclor-1260	11096-82-5	LA-523-427	U	<400		ug/kg	1	400	900	05/16/11
TPHD Prep Solids										**05/17/11**
TPHDWA										
Diesel	TPHDIESEL	LA-523-493	UD	<8.E4		mg/kg	100	8.E4	1.E5	05/17/11
Kerosene	TPHKEROSEN	LA-523-493	UD	<8.E4		mg/kg	100	8.E4	1.E5	05/17/11

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.
PQL is equivalent to Estimated Quantitation Limit (EQL)

REVISED112193 -

Quality Control Report

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF112193

QC Batch 181722
Associated Samples 112193001

Test Extractable Diesel and Petroleum

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #55000**							
Diesel	TPHDIESEL		<1.E3	mg/kg					U	05/17/11
Kerosene	TPHKEROSE		<1.E3	mg/kg					U	05/17/11
LCS			**QC Sample #55001**							
Diesel	TPHDIESEL		26000	mg/kg	103.6	70 - 130				05/17/11
MS			**QC Sample #55002**							
			Original 112193001							
Diesel	TPHDIESEL	<8.E4	20000	mg/kg	101.4	70 - 130			UD	05/17/11
MSD			**QC Sample #55003**							
			Original 112193001					**Paired**	**55002**	
Diesel	TPHDIESEL	<8.E4	21000	mg/kg	104.4	70 - 130	2.90	30	UD	05/17/11

Quality Control Report

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF112193

QC Batch 181723
Associated Samples 112193001

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 #55004**							
Aroclor-1016	12674-11-2		<500	ug/kg					U	05/17/11
Aroclor-1221	11104-28-2		<1.E3	ug/kg					U	05/17/11
Aroclor-1232	11141-16-5		<500	ug/kg					U	05/17/11
Aroclor-1242	53469-21-9		<500	ug/kg					U	05/17/11
Aroclor-1248	12672-29-6		<500	ug/kg					U	05/17/11
Aroclor-1254	11097-69-1		<500	ug/kg					U	05/17/11
Aroclor-1260	11096-82-5		<500	ug/kg					U	05/17/11
LCS			**QC Sample #55005**							
Aroclor-1254	11097-69-1		9200	ug/kg	91.6	75 - 128				05/16/11
MS			**QC Sample #55006**							
			Original 112193001							
Aroclor-1254	11097-69-1	<400	7600	ug/kg	93	62 - 140				05/16/11
MSD			**QC Sample #55007**							
			Original 112193001					**Paired 55006**		
Aroclor-1254	11097-69-1	<400	8500	ug/kg	91.7	62 - 140	1.40	30		05/16/11

REVISED112193 -

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF112193

QC Batch 181892
Associated Samples 112193001

Test ICP-6010 - All possible metals

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #55428**							
Lithium	7439-93-2		<5.1	ug/L					U	05/20/11
LCS			**QC Sample #55429**							
Lithium	7439-93-2		152	mg/kg	1382.3	48 - 119			X	05/20/11
MS			**QC Sample #55430**							
			Original 112193001							
Lithium	7439-93-2	<0.50	120	mg/kg	101	75 - 125				05/20/11
MSD			**QC Sample #55431**							
			Original 112193001					**Paired**	**55430**	
Lithium	7439-93-2	<0.50	131	mg/kg	110	75 - 125	8.50	30		05/20/11

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF112193

QC Batch 181905
Associated Samples 112193001

Test ICP-2008 MS All possible metal

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
LCS			**QC Sample #55493**							
Manganese	7439-96-5		81.3	mg/kg	101.6	75 - 121				05/17/11
Nickel	7440-02-0		81.5	mg/kg	101.8	74 - 122				05/17/11
Silver	7440-22-4		111	mg/kg	139.3	83 - 127				05/17/11
Antimony	7440-36-0		72.2	mg/kg	90.2	62 - 205				05/17/11
Barium	7440-39-3		77.9	mg/kg	97.4	78 - 118				05/17/11
Beryllium	7440-41-7		74.9	mg/kg	93.7	77 - 120				05/17/11
Cadmium	7440-43-9		78.1	mg/kg	97.7	76 - 129				05/17/11
Chromium	7440-47-3		81.5	mg/kg	101.9	68 - 119				05/17/11
Cobalt	7440-48-4		80.9	mg/kg	101.1	77 - 122				05/17/11
Copper	7440-50-8		78.1	mg/kg	97.6	67 - 120				05/17/11
Vanadium	7440-62-2		81.5	mg/kg	101.9	67 - 122				05/17/11
Zinc	7440-66-6		78.4	mg/kg	98	73 - 131				05/17/11
Lead	7439-92-1		80.4	mg/kg	100.5	79 - 124				05/17/11
Tin	7440-31-5		72.5	mg/kg	90.7	84 - 130				05/17/11
Arsenic	7440-38-2		78.7	mg/kg	98.3	79 - 125				05/17/11
MS			**QC Sample #55494**							
			Original	**112193001**						
Manganese	7439-96-5	0.702	44.6	mg/kg	94.2	70 - 130				05/17/11
Nickel	7440-02-0	0.359	45.2	mg/kg	95.5	70 - 130				05/17/11

REVISED112193 -

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF112193

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit		RQ	Analyzed
Silver	7440-22-4	14.4	30.8	mg/kg	65	70 - 130				X	05/17/11
Antimony	7440-36-0	<0.30	44.7	mg/kg	94.4	70 - 130					05/17/11
Barium	7440-39-3	<0.20	45.2	mg/kg	95.5	70 - 130					05/17/11
Beryllium	7440-41-7	<0.10	41.2	mg/kg	87.1	70 - 130					05/17/11
Cadmium	7440-43-9	<0.10	45.4	mg/kg	95.8	70 - 130					05/17/11
Chromium	7440-47-3	<0.50	45.3	mg/kg	95.6	70 - 130					05/17/11
Cobalt	7440-48-4	<0.10	45.2	mg/kg	95.4	70 - 130					05/17/11
Copper	7440-50-8	<0.10	45.1	mg/kg	95.2	70 - 130					05/17/11
Vanadium	7440-62-2	<0.20	44.6	mg/kg	94.3	70 - 130					05/17/11
Zinc	7440-66-6	7.08	41.7	mg/kg	88.2	70 - 130					05/17/11
Lead	7439-92-1	0.206	46.2	mg/kg	97.5	70 - 130					05/17/11
Mercury	7439-97-6	<0.050	2.17	mg/kg	91.5	70 - 130					05/17/11
Strontium	7440-24-6	0.678	45.7	mg/kg	96.5	70 - 130					05/17/11
Thallium	7440-28-0	<0.10	46.1	mg/kg	97.4	70 - 130					05/17/11
Tin	7440-31-5	0.318	45.8	mg/kg	96.7	70 - 130					05/17/11
Uranium	7440-61-1	<0.10	46.3	mg/kg	97.8	70 - 130					05/17/11
Arsenic	7440-38-2	<0.40	44.8	mg/kg	94.6	70 - 130					05/17/11
Selenium	7782-49-2	0.369	44.2	mg/kg	93.4	70 - 130					05/17/11
MSD			**QC Sample #55495**								
			Original 112193001						**Paired**	**55494**	
Manganese	7439-96-5	0.702	48.4	mg/kg	102	70 - 130	8.00	30			05/17/11
Nickel	7440-02-0	0.359	49.7	mg/kg	104.7	70 - 130	9.20	30			05/17/11
Silver	7440-22-4	14.4	101	mg/kg	213	70 - 130	106.50	30	*	X	05/17/11
Antimony	7440-36-0	<0.30	46.8	mg/kg	98.6	70 - 130	4.40	30			05/17/11
Barium	7440-39-3	<0.20	47.2	mg/kg	99.4	70 - 130	4.00	30			05/17/11

REVISED112193 -

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF112193

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Beryllium	7440-41-7	<0.10	46.5	mg/kg	97.9	70 - 130	11.70	30		05/17/11
Cadmium	7440-43-9	<0.10	47.6	mg/kg	100.3	70 - 130	4.60	30		05/17/11
Chromium	7440-47-3	<0.50	49.2	mg/kg	103.7	70 - 130	8.10	30		05/17/11
Cobalt	7440-48-4	<0.10	49.1	mg/kg	103.3	70 - 130	8.00	30		05/17/11
Copper	7440-50-8	<0.10	48.8	mg/kg	102.7	70 - 130	7.60	30		05/17/11
Vanadium	7440-62-2	<0.20	48.8	mg/kg	102.7	70 - 130	8.50	30		05/17/11
Zinc	7440-66-6	7.08	47.1	mg/kg	99.2	70 - 130	11.70	30		05/17/11
Lead	7439-92-1	0.206	48.6	mg/kg	102.5	70 - 130	5.00	30		05/17/11
Mercury	7439-97-6	<0.050	2.48	mg/kg	104.5	70 - 130	13.30	30		05/17/11
Strontium	7440-24-6	0.678	47.7	mg/kg	100.6	70 - 130	4.20	30		05/17/11
Thallium	7440-28-0	<0.10	48.6	mg/kg	102.4	70 - 130	5.00	30		05/17/11
Tin	7440-31-5	0.318	47.7	mg/kg	100.4	70 - 130	3.80	30		05/17/11
Uranium	7440-61-1	<0.10	48.2	mg/kg	101.6	70 - 130	3.80	30		05/17/11
Arsenic	7440-38-2	<0.40	47.1	mg/kg	99.1	70 - 130	4.60	30		05/17/11
Selenium	7782-49-2	0.369	47.3	mg/kg	99.6	70 - 130	6.40	30		05/17/11
LCS			**QC Sample #57183**							
Mercury	7439-97-6		8.38	mg/kg	104.8	69 - 124				05/17/11
Strontium	7440-24-6		80.4	mg/kg	100.6	78 - 119				05/17/11
Thallium	7440-28-0		77.4	mg/kg	96.7	52 - 137				05/17/11
Selenium	7782-49-2		78.0	mg/kg	97.5	82 - 133				05/17/11

Quality Control Report

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF112193

QC Batch 183678
Associated Samples 112193001

Test SW-846 8270D Semivolatiles (PAHSIM)

Analyte	CAS #	Original Found	QC Found	Units	% Recov Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #55008**						
Naphthalene	91-20-3		<1.E4	ug/kg				U	06/09/11
Acenaphthylene	208-96-8		<1.E4	ug/kg				U	06/09/11
Acenaphthene	83-32-9		<1.E4	ug/kg				U	06/09/11
Fluorene	86-73-7		<1.E4	ug/kg				U	06/09/11
Phenanthrene	85-01-8		<1.E4	ug/kg				U	06/09/11
Anthracene	120-12-7		<1.E4	ug/kg				U	06/09/11
Fluoranthene	206-44-0		<1.E4	ug/kg				U	06/09/11
Pyrene	129-00-0		<1.E4	ug/kg				U	06/09/11
Benzo(a)anthracene	56-55-3		<1.E4	ug/kg				U	06/09/11
Chrysene	218-01-9		<1.E4	ug/kg				U	06/09/11
Benzo(b)fluoranthene	205-99-2		<1.E4	ug/kg				U	06/09/11
Benzo(k)fluoranthene	207-08-9		<1.E4	ug/kg				U	06/09/11
Benzo(a)pyrene	50-32-8		<1.E4	ug/kg				U	06/09/11
Indeno(1,2,3-cd)pyrene	193-39-5		<1.E4	ug/kg				U	06/09/11
Dibenzo(a,h)anthracene	53-70-3		<1.E4	ug/kg				U	06/09/11
Benzo(g,h,i)perylene	191-24-2		<1.E4	ug/kg				U	06/09/11
LCS			**QC Sample #55009**						

Quality Control Report

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF112193

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Naphthalene	91-20-3		300000	ug/kg	104.2	50 - 140				06/09/11
Acenaphthene	83-32-9		280000	ug/kg	98.2	75 - 121				06/09/11
Fluorene	86-73-7		330000	ug/kg	114.4	50 - 140				06/09/11
Anthracene	120-12-7		300000	ug/kg	103.5	50 - 140				06/09/11
Pyrene	129-00-0		270000	ug/kg	93.5	78 - 134				06/09/11
Benzo(a)pyrene	50-32-8		310000	ug/kg	108.4	50 - 140				06/09/11
MS			**QC Sample #55010**							
			Original 112193001							
Naphthalene	91-20-3	<3.E3	89000	ug/kg	102.5	50 - 140				06/09/11
Acenaphthene	83-32-9	<3.E3	86000	ug/kg	99.2	75 - 121				06/09/11
Fluorene	86-73-7	<3.E3	95000	ug/kg	109.6	50 - 140				06/09/11
Anthracene	120-12-7	<3.E3	98000	ug/kg	112.6	50 - 140				06/09/11
Pyrene	129-00-0	3200	94000	ug/kg	108.4	78 - 124				06/09/11
Benzo(a)pyrene	50-32-8	7800	83000	ug/kg	95.5	50 - 140				06/09/11
MSD			**QC Sample #55011**							
			Original 112193001					**Paired**	**55010**	
Naphthalene	91-20-3	<3.E3	88000	ug/kg	102.2	50 - 140	0.30	30		06/09/11
Acenaphthene	83-32-9	<3.E3	86000	ug/kg	99.9	75 - 121	0.70	30		06/09/11
Fluorene	86-73-7	<3.E3	94000	ug/kg	108.8	50 - 140	0.70	30		06/09/11
Anthracene	120-12-7	<3.E3	98000	ug/kg	113.7	50 - 140	1.00	30		06/09/11
Pyrene	129-00-0	3200	92000	ug/kg	107.1	78 - 124	1.20	30		06/09/11
Benzo(a)pyrene	50-32-8	7800	82000	ug/kg	95.3	50 - 140	0.20	30		06/09/11

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF112193

QC Batch 181905
Associated Samples 112193001

Test ICP-2008 MS All possible metal

Analyte	CAS #	Original Found	QC Found	Units	% Recov Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #55492**						
Manganese	7439-96-5		<0.10	ug/L				U	05/17/11
Nickel	7440-02-0		<0.20	ug/L				U	05/17/11
Silver	7440-22-4		85.8	ug/L					05/17/11
Antimony	7440-36-0		<0.30	ug/L				U	05/17/11
Barium	7440-39-3		<0.20	ug/L				U	05/17/11
Beryllium	7440-41-7		<0.10	ug/L				U	05/17/11
Cadmium	7440-43-9		<0.10	ug/L				U	05/17/11
Chromium	7440-47-3		<0.50	ug/L				U	05/17/11
Cobalt	7440-48-4		<0.050	ug/L				U	05/17/11
Copper	7440-50-8		<0.10	ug/L				U	05/17/11
Vanadium	7440-62-2		<0.20	ug/L				U	05/17/11
Zinc	7440-66-6		<0.80	ug/L				U	05/17/11
Lead	7439-92-1		<0.10	ug/L				U	05/17/11
Mercury	7439-97-6		<0.050	ug/L				U	05/17/11
Strontium	7440-24-6		<0.10	ug/L				U	05/17/11
Thallium	7440-28-0		<0.050	ug/L				U	05/17/11
Tin	7440-31-5		<0.050	ug/L				U	05/17/11
Uranium	7440-61-1		<0.050	ug/L				U	05/17/11
Arsenic	7440-38-2		<0.40	ug/L				U	05/17/11

REVISED112193 -

Quality Control Report

Attention Michael Neely
Department Inorganic

Group # WSCF112193

Analyte	CAS #	Original Found	QC Found	Units	% Recov Limits	RPD	RPD Limit	RQ	Analyzed
Selenium	7782-49-2		<0.30	ug/L				U	05/17/11

Quality Control Report

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF112193

QC Batch 181722
Associated Samples 112193001

Test Extractable Diesel and Petroleum

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
SAMPLE			**Sample #112193001**							
o-Terphenyl	84-15-1				105	70 - 130				05/17/11
BLANK			**QC Sample #55000**							
o-Terphenyl	84-15-1				97.3	70 - 130				05/17/11
LCS			**QC Sample #55001**							
o-Terphenyl	84-15-1				113.9	50 - 150				05/17/11
MS			**QC Sample #55002**							
			Original 112193001							
o-Terphenyl	84-15-1				112.5	50 - 150				05/17/11
MSD			**QC Sample #55003**							
			Original 112193001					**Paired**	**55002**	
o-Terphenyl	84-15-1				111	50 - 150	1.30	30		05/17/11

Quality Control Report

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF112193

QC Batch 181723
Associated Samples 112193001

Test PCBs by EPA SW-846 Method 8082

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
SAMPLE			**Sample #112193001**							
Tetrachloro-m-xylene	877-09-8				123.7	60 - 140				05/16/11
Decachlorobiphenyl	2051-24-3				95.3	60 - 140				05/16/11
BLANK			**QC Sample #55004**							
Tetrachloro-m-xylene	877-09-8				94.6	60 - 140				05/17/11
Decachlorobiphenyl	2051-24-3				103.5	60 - 140				05/17/11
LCS			**QC Sample #55005**							
Tetrachloro-m-xylene	877-09-8				91	60 - 124				05/16/11
Decachlorobiphenyl	2051-24-3				100.8	72 - 125				05/16/11
MS			**QC Sample #55006**							
			Original 112193001							
Tetrachloro-m-xylene	877-09-8				121.6	51 - 120			X	05/16/11
Decachlorobiphenyl	2051-24-3				92.5	66 - 126				05/16/11
MSD			**QC Sample #55007**							
			Original 112193001					**Paired 55006**		
Tetrachloro-m-xylene	877-09-8				118.5	51 - 120	2.60			05/16/11
Decachlorobiphenyl	2051-24-3				91.5	66 - 126	1.10			05/16/11

REVISED112193 -

Quality Control Report

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF112193

QC Batch 183678
Associated Samples 112193001

Test SW-846 8270D Semivolatiles (PAHSIM)

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
SAMPLE			**Sample #112193001**							
Nitrobenzene-d5	4165-60-0				104.7	53 - 129				06/09/11
2-Fluorobiphenyl	321-60-8				108.7	36 - 141				06/09/11
Terphenyl-d14	98904-43-9				89.4	61 - 142				06/09/11
BLANK			**QC Sample #55008**							
Nitrobenzene-d5	4165-60-0				101	53 - 129				06/09/11
2-Fluorobiphenyl	321-60-8				118	36 - 141				06/09/11
Terphenyl-d14	98904-43-9				91.9	61 - 142				06/09/11
LCS			**QC Sample #55009**							
Nitrobenzene-d5	4165-60-0				109.5	53 - 129				06/09/11
2-Fluorobiphenyl	321-60-8				118.6	36 - 141				06/09/11
Terphenyl-d14	98904-43-9				107.4	61 - 142				06/09/11
MS			**QC Sample #55010**							
			Original 112193001							
Nitrobenzene-d5	4165-60-0				110	53 - 129				06/09/11
2-Fluorobiphenyl	321-60-8				112.8	36 - 141				06/09/11
Terphenyl-d14	98904-43-9				116.3	61 - 142				06/09/11
MSD			**QC Sample #55011**							
			Original 112193001					**Paired 55010**		

REVISED112193 -

Quality Control Report

Attention Michael Neely
Department Organic, Semivolatiles

Group # WSCF112193

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Nitrobenzene-d5	4165-60-0				109.6	53 - 129	0.40			06/09/11
2-Fluorobiphenyl	321-60-8				112.4	36 - 141	0.40			06/09/11
Terphenyl-d14	98904-43-9				119.3	61 - 142	2.50			06/09/11

Attention: Michael Neely **Group #** WSCF112193

112193001	B2D7C0

PAHSIM: The extraction hold time of the sample was exceeded as a result of the re-analysis to achieve the reporting limits. The original extraction met the hold time.
PAHSIM: The sample has higher than normal reporting limits due to the smaller weight of sample analyzed to prevent undue contamination of the instrument from the oil and to improve the chromatographic results.

Quality Control Comments

Department Inorganic

55429 LCS for HBN 181892 [INOG/3557]

Analyte Lithium - ICP-6010 - All possible metals

[1] X: The LCS was analyzed using an oil std. This LCS reference is using a soil LCS. Lithium was spiked in the oil and digested. The correct lithium recovery is 111%.

55494 B2D7C0(112193001MS)

Analyte Silver - ICP-2008 MS All possible metal

[1] X5: Sample concentration exceed spiking level by a factor of 4. Spike recoveries are not valid.

55495 B2D7C0(112193001MSD)

Analyte Silver - ICP-2008 MS All possible metal

[1] X5: Sample concentration exceed spiking level by a factor of 4. Spike recoveries are not valid.

Attention: Michael Neely **Group #** WSCF112193

Quality Control Comments

Department Organic, Semivolatiles

55006 B2D7C0(112193001MS)

Analyte Tetrachloro-m-xylene - PCBs by EPA SW-846 Method 8082

[1] Surrogate recovery outside of established laboratory control limits.

ATTACHMENT4

SAMPLE RECEIPT

Consisting of 7 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 #: 402751/ES20
Work Order #: 112193
Profile #: F11-110-002
Proj. Mgr.:
Phone:

The following samples were received from you on 5/4/2011 12:00:00 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		
112193001	B2D7C0	OTHERLIQ	5/4/2011 10:55	5/4/2011 12:00
		2008-S; 6010-S; PAHSIM-S; PCB-SA; TPHDWA-S		
112193002	B2D7C2	OTHERLIQ	5/4/2011 10:55	5/4/2011 12:00
		RCRA-MS-S		

Test Acronym Description

Test Acronym	Description
2008-S	ICP-MS (S)
6010-S	ICP-AES (S)
PAHSIM-S	PAHSIM by 8270D SemiVOA (S)
PCB-SA	PCB (8082) (S) ASE
RCRA-MS-S	ICP-MS RCRA (S)
TPHDWA-S	TPHD-WA (S)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F11-110-002 PAGE 1 OF 2

COLLECTOR: [signature]	COMPANY CONTACT: BAUER, RG	TELEPHONE NO.: 373-3931	PROJECT COORDINATOR: BAUER, RG
SAMPLING LOCATION: 600-220 In-Process Container Contingency 2	PROJECT DESIGNATION: ARRA Verification Sampling of the 600-220 (H-51 Anti-Aircraft Gun Site) - O		SAF NO.: F11-110
ICE CHEST NO.	FIELD LOGBOOK NO.: NA HNI-N-507-11	ACTUAL SAMPLE DEPTH: NA	COA: 302703FS10
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A

PRICE CODE: C01

AIR QUALITY:

DATA TURNAROUND: 12 Days / 12 Days

METHOD OF SHIPMENT: GOVERNMENT VEHICLE

ORIGINAL

MATRIX*: A=Air, DL=Drum, Liquids, DS=Drum, Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, 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) JS 5-4-11

112193

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C	Cool~4C	Cool~4C	Cool~4C
HOLDING TIME	14/40 Days	14 Days	6 Months	30 Days	1 yr/1 yr
TYPE OF CONTAINER	aG	aG	G/P	G/P	aG
NO. OF CONTAINER(S)	1	1	1	1	1
VOLUME	125mL	125mL	125ml	125ml	125mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	Chromium Hex (7) % (Inorganic Chromium)	SEE ITEM (4) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B2D7C0	OTHER LIQUID	5-4-11	1055	X	X	X	X	X

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
[signature]	5-4-11 1200	M. Nelson Mnels	1200 5-4-11

SPECIAL INSTRUCTIONS: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

LABORATORY SECTION: RECEIVED BY — TITLE — DATE/TIME

FINAL SAMPLE DISPOSITION: DISPOSAL METHOD — DISPOSED BY — DATE/TIME

PRINTED ON 4/28/2011

A 6003-618 (REV 2)

Wednesday, May 04, 2011 3:32:57 PM

Page 2 of 6

CH2MHill Plateau Remediation Company — **CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST** — F11-116-002 — PAGE 2 OF 2

COLLECTOR	**COMPANY CONTACT**	**TELEPHONE NO.**	**PROJECT COORDINATOR**
	BAUER, RG	373-3931	BAUER, RG
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**
600-220 In-Process Container Contingency 2	ARRA Verification Sampling of the 600-220 (H-51 And Aircraft Gun Site) - O		F11-110
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**
N/A	HNF-N-507-11	N/A	302703E510
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**
Waste Sampling & Characterization	N/A		N/A

PRICE CODE C01 — **AIR QUALITY** ☐ — **DATA TURNAROUND** 12 Days / 12 Days — **METHOD OF SHIPMENT** GOVERNMENT VEHICLE — **ORIGINAL**

SPECIAL INSTRUCTIONS

** The CACN for all analytical work at WSCF laboratory is 402751ES20.
** 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 preliminary or final hardcopy data reports, or EDOs. QC results for non-requested constituents need not be reported, but samples chosen for matrix spike, and all spike compounds shall be identified in the final data report narrative. No TICs shall be reported.
(1) 8270_SVOA_GCMS: SIM {Acenaphthene, Acenaphthylene, Anthracene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(ghi)perylene, Benzo(k)fluoranthene, Chrysene, Dibenz[a,h]anthracene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene, Phenanthrene, Pyrene};
(2) TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range}; TPH-DieselKerosene Range - WTPH-D {Total petroleum hydrocarbons - kerosene range};
(3) ICP Metals - 6010 (Add-On) {Lithium}; ICP/MS - 200.8 (TAL) {Antimony, Barium, Cadmium, Chromium, Cobalt, Copper, Manganese, Nickel, Silver, Vanadium, Zinc}; ICP/MS 200.8 (Add-on) {Arsenic, Beryllium, Boron, Lead, Selenium, Strontium, Thallium, Tin, Uranium}; 200.8_HG - ICPMS {Mercury},
(4) PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260};

PRINTED ON 4/20/2011 — A-6003-418 (REV 2)

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F11-110-004

PAGE 1 OF 2

COLLECTOR: Schelez

SAMPLING LOCATION: 600-220 In-Process Container Contingency 2

ICE CHEST NO.: NA

SHIPPED TO: Waste Sampling & Characterization

COMPANY CONTACT: BAUER, RG

TELEPHONE NO.: 373-3931

PROJECT DESIGNATION: ARRA Verification Sampling of the 600-220 (H-51 Ant-Aircraft Gun Site) - O

FIELD LOGBOOK NO.: HNF-N-503-11

ACTUAL SAMPLE DEPTH: NA

OFFSITE PROPERTY NO.: N/A

PROJECT COORDINATOR: BAUER, RG

SAF NO.: F11-110

COA: 302703E510

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

PRICE CODE: C01

AIR QUALITY: ☐

METHOD OF SHIPMENT: GOVERNMENT VEHICLE

DATA TURNAROUND: 12 Days / 12 Days

ORIGINAL

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, 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) JS 5-4-11

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool-4C
HOLDING TIME	180/180 Days
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	~~500mL~~ DS 5-4-11 125 mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.		MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2D7C2	2	OTHER LIQUID	5-4-11	1055	X

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: Schelez	DATE/TIME 5-4-11 1200	RECEIVED BY/STORED IN: M. Nelson	DATE/TIME 5-4-11 1200
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: SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

PRINTED ON 4/28/2011

A 6003 618 (REV 2)

CH2MHill Plateau Remediation Company	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F11-110-004	PAGE 2 OF 2
COLLECTOR	COMPANY CONTACT BAUER, RG	TELEPHONE NO. 373-3931	PROJECT COORDINATOR BAUER, RG	PRICE CODE C01	DATA TURNAROUND 12 Days / 12 Days
SAMPLING LOCATION 600-220 In Process Container Contingency 7	PROJECT DESIGNATION ARRA Verification Sampling of the 600-220 (H-51 Anti-Aircraft Gun Site) O		SAF NO. F11-110	AIR QUALITY ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.	ACTUAL SAMPLE DEPTH	COA 302703ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

**TCLP is included in SAF as a contingency that is applied at the discretion of the Field PAI .

** The CACN for all analytical work at WSCF laboratory is 402751ES20.
** 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 preliminary or final hardcopy data reports, or EDDs. QC results for non-requested constituents need not be reported, but samples chosen for matrix spike, and all spike compounds shall be identified in the final data report narrative. No TICs shall be reported.
(1) Metals by ICP/MS (TCLP) - 1311/200.8 {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury (TCLP) - 1311/200.8 {Mercury};

PRINTED ON 4/28/2011

A-6003-618 (REV 2)

Chain of Custody

SAMPLE ISSUE RESOLUTION

SIR NUM	SDR11-252
REV NUM	0
DATE INITIATED	5/4/2011

SAMPLE EVENT INFORMATION

SAF NUM(S)	F11-110
OPERABLE UNIT(S)	200-MG-1
PROJECT(S)	200-MG-1
SAMPLE EVENT TITLE(S)	200-MG-1 OL Waste Sites
LABORATORY	Waste Sampling & Characterization

SAMPLING INFORMATION

NUMBER OF SAMPLES	1
SAMPLE NUMBERS	B2D7C0
SAMPLE MATRIX	
COLLECTION DATE	
SDG NUM	WSCF 112193 SJC 5-4-11

ISSUE BACKGROUND

CLASS	Laboratory Issue
TYPE	Incorrect Method Analysis Requested
DESCRIPTION	The COC requested analysis of Hexavalent Chromium on an oil matrix. WSCF is not able to perform this analysis. The hex chromium will breakdown during prep.

DISPOSITION

DESCRIPTION	CANCEL ANALYSIS
JUSTIFICATION	Submitted by: WSCF Date: 5/4/2011
	Accepted by: Roy Bauer Date: 5/4/2011

A-6003-640 (03/30) PAGE 1 of 1