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Data Validation Report for CH2M Hill Plateau Remediation Company

VSR10-013
Project WMA C

Chemical & Radiochemical Validation - Level C

Validation Performed By: Carl Schlosser **Date:** 4-28-2010

Validation Reviewed By: Cheryl A. Schlosser **Date:** 4-28-2010

TABLE OF CONTENTS

Volatile Organics

Memorandum 1
Appendix 1 – Glossary of Data Reporting Qualifiers 5
Appendix 2 – Summary of Data Qualification 7
Appendix 3 – Annotated Laboratory Reports 9
Appendix 4 – Laboratory Narrative and Chain-of-Custody Documentation 22
Appendix 5 – Data Validation Supporting Documentation 68
Appendix 6 – Additional Documentation Requested By Client 73

Semivolatile Organics

Memorandum 118
Appendix 1 – Glossary of Data Reporting Qualifiers 123
Appendix 2 – Summary of Data Qualification 125
Appendix 3 – Annotated Laboratory Reports 128
Appendix 4 – Laboratory Narrative and Chain-of-Custody Documentation 139
Appendix 5 – Data Validation Supporting Documentation 185
Appendix 6 – Additional Documentation Requested By Client 191

Inorganics

Memorandum 227
Appendix 1 – Glossary of Data Reporting Qualifiers 232
Appendix 2 – Summary of Data Qualification 234
Appendix 3 – Annotated Laboratory Reports 237
Appendix 4 – Laboratory Narrative and Chain-of-Custody Documentation 258
Appendix 5 – Data Validation Supporting Documentation 304
Appendix 6 – Additional Documentation Requested By Client 310

General Chemistry

Memorandum 437
Appendix 1 – Glossary of Data Reporting Qualifiers 441
Appendix 2 – Summary of Data Qualification 443
Appendix 3 – Annotated Laboratory Reports 445
Appendix 4 – Laboratory Narrative and Chain-of-Custody Documentation 461
Appendix 5 – Data Validation Supporting Documentation 507
Appendix 6 – Additional Documentation Requested By Client 512

Radiochemical

Memorandum 569
Appendix 1 – Glossary of Data Reporting Qualifiers 573
Appendix 2 – Summary of Data Qualification 575
Appendix 3 – Annotated Laboratory Reports 577
Appendix 4 – Laboratory Narrative and Chain-of-Custody Documentation 593
Appendix 5 – Data Validation Supporting Documentation 639
Appendix 6 – Additional Documentation Requested By Client 646

Date: 28 April 2010
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: WMA C
Subject: Volatile Organics - Sample Data Groups (SDGs) 20090160 & 20090345

INTRODUCTION

This memorandum presents the results of data validation for SDGs 20090160 and 20090345 prepared by 222-S Laboratory. A list of samples validated along with the analytical methods is provided in the following table.

Sample ID	Sample Date	Media	Validation Level	Analytical Methods
B1YT69	4/14/2009	Soil	C	8260
B1YT72	4/21/2009	Soil	C	8260
B1YT75	4/22/2009	Soil	C	8260
B1YT78	4/30/2009	Soil	C	8260
B1YT81	4/30/2009	Soil	C	8260
B1YY23	5/18/2009	Water	C	8260

Data validation was conducted in accordance with the CHPRC validation statement of work and the Field Sampling and Analysis Plan for Sites P and L at Waste Management Area C, RPP-PLAN-40564, Rev. 0 (SAP). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Documentation Requested By Client

DATA QUALITY OBJECTIVES

- **Holding Times and Sample Preservation**

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The holding time requirements for volatile organics are analysis within 14 days of sample collection. Sample preservation for soil samples requires chilling to 4 degrees Celsius. Sample preservation for water samples requires chilling to 4 degrees Celsius and acid preservation with hydrochloric or sulfuric acid to pH <2.

The samples were analyzed within the prescribed holding time and properly preserved.

- **Blanks**

The blank data results are reviewed to assess the extent of contamination introduced through sampling, sample preparation, and analysis.

Laboratory Blanks

All laboratory blank results were acceptable.

Trip Blanks

All trip blank results were acceptable with the following exception. Methylene chloride was detected in trip blank B1YY23.

Field Blanks

No field blanks were submitted for analysis.

Equipment Blanks

No equipment blanks were submitted for analysis.

- **Accuracy**

Accuracy is evaluated by reviewing surrogate results, matrix spike sample results, and laboratory control sample results. According to the SAP, the matrix spike and laboratory control sample accuracy limits are 70% to 130%. The limits for reported analytes not listed in the SAP are specified by the DV procedure.

Surrogates

All surrogate recoveries were acceptable.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Samples

All MS/MSD recoveries were acceptable with the following exceptions. For both SDGs, the only 8260 MS/MSD analytes reported were 1,1-dichloroethene, benzene, chlorobenzene, toluene, trichloroethene, 1-butanol, 4-methyl-2-pentanone, acetone and 2-butanone. Reported analytes not represented in the MS/MSDs were trans-1,3-dichloropropene and carbon disulfide. These two analytes were non-detects in the samples and should be qualified as estimates and flagged "UJ."

Laboratory Control Samples (LCSs)

All LCS recoveries were acceptable with the following exceptions. For both SDGs, the only 8260 LCS analytes reported were 1,1-dichloroethene, benzene, chlorobenzene, toluene,

trichloroethene, 1-butanol, 4-methyl-2-pentanone, acetone and 2-butanone. Reported analytes not represented in the LCSs were trans-1,3-dichloropropene and carbon disulfide. These two analytes were non-detects in the samples and should be qualified as estimates and flagged "UJ."

- **Precision**

Precision is evaluated by reviewing MS/MSD results, field duplicate sample results, and field split sample results. These QC results provide information on the laboratory reproducibility and whether sampling activities are adequate to acquire consistent sample results. According to the SAP, the relative percent difference (RPD) limits are ±30%. The RPD limits for reported analytes not listed in the SAP are specified by the DV procedure. When duplicate RPDs for soils exceed the limits and have associated results <5X the SAP required detection limits with differences <2X the required detection limits no precision infraction occurred. When duplicate RPDs for waters exceed the limits and have associated results <5X the required SAP detection limits with differences <1X the required detection limits no precision infraction occurred.

MS/MSD Samples

All MS/MSD relative percent difference values were acceptable.

Field Duplicate Samples

No field duplicates were submitted for analysis.

Field Split Samples

No field splits were submitted for analysis.

- **Detection Limits**

Reported MDLs are compared against the contractually required detection limits (CRDLs) to ensure that laboratory detection limits meet the required criteria.

All reported sample MDLs were below the CRDLs (or Target Detection Limits when CRDLs were not provided in the SAP).

- **Completeness**

SDGs 20090160 and 20090345 were submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Minor deficiencies leading to qualification of trans-1,3-dichloropropene and carbon disulfide sample results as estimates were due non-represented QC data.

REFERENCES

HNF-20433, Rev. 0, *Data Validation Procedure for Chemical Analyses*, June 2004.

RPP-PLAN-40564, Rev. 0, *Field Sampling and Analysis Plan for Sites P and L at Waste Management Area C*, March 2009.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers that may be applied by data validators in compliance with the CHPRC statement of work are as follows:

- **U** — The constituent was analyzed for and was not detected. The data should be considered usable for decision-making purposes.

- **UJ** — The constituent was analyzed for and was not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the MDL. The data should be considered usable for decision-making purposes.

- **J** — Indicates the constituent was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **UR** — Indicates the constituent was analyzed for and not detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

- **R** — Indicates the constituent was analyzed for and detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

Appendix 2

Summary of Data Qualification

Volatile Organics Data Qualification Summary			
SDGs: 20090160 & 20090345	Reviewer: AQA	Project: WMA C	Page 1 of 1
Analyte(s)	**Qualifier**	**Samples Affected**	**Reason**
trans-1,3-Dichloropropene Carbon disulfide	UJ	B1YT69, B1YT72, B1YT75, B1YT78, B1YT81, B1YY23	Non-represented MS/MSD and LCS data

Comments: None

Appendix 3

Annotated Laboratory Reports

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT69
Sample Depth: 14-15

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4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000123			71-55-6	1,1,1-Trichloroethane	ug/kg	n/a	<0.200	<0.238	n/a	n/a	n/a	n/a	0.238	n/a	U
S09V000123			79-00-5	1,1,2-Trichloroethane	ug/kg	n/a	<0.380	<0.452	n/a	n/a	n/a	n/a	0.452	n/a	U
S09V000123			79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	n/a	<0.500	<0.595	n/a	n/a	n/a	n/a	0.595	n/a	U
S09V000123			75-35-4	1,1-Dichloroethene	ug/kg	118	<0.340	<0.405	n/a	n/a	n/a	110	0.405	n/a	U
S09V000123			107-06-2	1,2-Dichloroethane	ug/kg	n/a	<0.180	<0.214	n/a	n/a	n/a	n/a	0.214	n/a	U
S09V000123			71-36-3	1-Butanol	ug/kg	128	<15.5	<18.5	n/a	n/a	n/a	99.5	18.5	n/a	U
S09V000123			108-10-1	Hexone	ug/kg	129	<1.76	<2.10	n/a	n/a	n/a	115	2.10	n/a	U
S09V000123			67-64-1	Acetone	ug/kg	129	<4.38	9.39	n/a	n/a	n/a	99.5	5.21	n/a	J
S09V000123			71-43-2	Benzene	ug/kg	113	<0.320	<0.381	n/a	n/a	n/a	107	0.381	n/a	U
S09V000123			75-15-0	Carbon disulfide UJ	ug/kg	n/a	<0.300	<0.357	n/a	n/a	n/a	n/a	0.357	n/a	U
S09V000123			56-23-5	Carbon tetrachloride	ug/kg	n/a	<0.300	<0.357	n/a	n/a	n/a	n/a	0.357	n/a	U
S09V000123			67-66-3	Chloroform	ug/kg	n/a	<0.180	<0.214	n/a	n/a	n/a	n/a	0.214	n/a	U
S09V000123			108-90-7	Chlorobenzene	ug/kg	117	<0.220	<0.262	n/a	n/a	n/a	105	0.262	n/a	U
S09V000123			100-41-4	Ethylbenzene	ug/kg	n/a	<0.240	<0.286	n/a	n/a	n/a	n/a	0.286	n/a	U
S09V000123			1330-20-7	Xylenes (total)	ug/kg	n/a	<0.620	<0.738	n/a	n/a	n/a	n/a	0.738	n/a	U
S09V000123			78-93-3	2-Butanone	ug/kg	129	<2.66	<3.17	n/a	n/a	n/a	109	3.17	n/a	U
S09V000123			75-09-2	Methylenechloride	ug/kg	n/a	<0.340	<0.405	n/a	n/a	n/a	n/a	0.405	n/a	U
S09V000123			127-18-4	Tetrachloroethene	ug/kg	n/a	<0.400	<0.476	n/a	n/a	n/a	n/a	0.476	n/a	U
S09V000123			108-88-3	Toluene	ug/kg	117	<0.240	0.294	n/a	n/a	n/a	105	0.286	n/a	J
S09V000123			10061-02-6	trans-1,3-Dichloropropene UJ	ug/kg	n/a	<0.140	<0.167	n/a	n/a	n/a	n/a	0.167	n/a	U
S09V000123			79-01-6	Trichloroethene	ug/kg	116	<0.300	<0.357	n/a	n/a	n/a	104	0.357	n/a	U
S09V000123			75-01-4	Vinyl chloride	ug/kg	n/a	<0.640	<0.762	n/a	n/a	n/a	n/a	0.762	n/a	U
S09V000123			156-59-2	cis-Dichloroethylene	ug/kg	n/a	<0.260	<0.310	n/a	n/a	n/a	n/a	0.310	n/a	U
S09V000123			156-60-5	trans-Dichloroethylene	ug/kg	n/a	<0.360	<0.429	n/a	n/a	n/a	n/a	0.429	n/a	U
S09V000123			76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ug/kg	n/a	<0.500	<0.595	n/a	n/a	n/a	n/a	0.595	n/a	U
S09V000123			79-46-9	2-Nitropropane	ug/kg	n/a	<1.58	<1.88	n/a	n/a	n/a	n/a	1.88	n/a	U
S09V000123			141-78-6	Ethyl acetate	ug/kg	n/a	<0.972	<1.16	n/a	n/a	n/a	n/a	1.16	n/a	U
S09V000123			60-29-7	Diethyl ether	ug/kg	n/a	<0.885	<1.05	n/a	n/a	n/a	n/a	1.05	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated
B - Found in Blank
X - Comment
U - Less Than Detection Limit
a - LCS Outside Range
Y - Comment
c - RPD Outside Range
b - MS/MSD Outside Range
e - SERDIL Outside Range

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT69
Sample Depth: 14-15

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000123			75-69-4	Trichlorofluoromethane	ug/kg	n/a	<1.94	<2.31	n/a	n/a	n/a	n/a	2.31	n/a	U
S09V000123			95-47-6	o-Xylene	ug/kg	n/a	<0.200	<0.238	n/a	n/a	n/a	n/a	0.238	n/a	U
S09V000123			106-42-3	m,p-Xylene	ug/kg	n/a	<0.420	<0.500	n/a	n/a	n/a	n/a	0.500	n/a	U

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a - LCS Outside Range
Y - Comment
c - RPD Outside Range
b - MS/MSD Outside Range
e - SERDIL Outside Range

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT72
Sample Depth: 19.5-21.5

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4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000124			71-55-6	1,1,1-Trichloroethane	ug/kg	n/a	<0.200	<0.204	n/a	n/a	n/a	n/a	0.204	n/a	U
S09V000124			79-00-5	1,1,2-Trichloroethane	ug/kg	n/a	<0.380	<0.388	n/a	n/a	n/a	n/a	0.388	n/a	U
S09V000124			79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	n/a	<0.500	<0.510	n/a	n/a	n/a	n/a	0.510	n/a	U
S09V000124			75-35-4	1,1-Dichloroethene	ug/kg	109	<0.340	<0.347	n/a	n/a	n/a	109	0.347	n/a	U
S09V000124			107-06-2	1,2-Dichloroethane	ug/kg	n/a	<0.180	<0.184	n/a	n/a	n/a	n/a	0.184	n/a	U
S09V000124			71-36-3	1-Butanol	ug/kg	98.2	<15.5	<15.9	n/a	n/a	n/a	71.8	15.9	n/a	UY
S09V000124			108-10-1	Hexone	ug/kg	108	<1.76	<1.80	n/a	n/a	n/a	98.2	1.80	n/a	U
S09V000124			67-64-1	Acetone	ug/kg	106	<4.38	4.57	n/a	n/a	n/a	91.5	4.47	n/a	J
S09V000124			71-43-2	Benzene	ug/kg	109	<0.320	<0.327	n/a	n/a	n/a	106	0.327	n/a	U
S09V000124			75-15-0	Carbon disulfide UJ	ug/kg	n/a	<0.300	<0.306	n/a	n/a	n/a	n/a	0.306	n/a	U
S09V000124			56-23-5	Carbon tetrachloride	ug/kg	n/a	<0.300	<0.306	n/a	n/a	n/a	n/a	0.306	n/a	U
S09V000124			67-66-3	Chloroform	ug/kg	n/a	<0.180	<0.184	n/a	n/a	n/a	n/a	0.184	n/a	U
S09V000124			108-90-7	Chlorobenzene	ug/kg	108	<0.220	<0.224	n/a	n/a	n/a	108	0.224	n/a	U
S09V000124			100-41-4	Ethylbenzene	ug/kg	n/a	<0.240	<0.245	n/a	n/a	n/a	n/a	0.245	n/a	U
S09V000124			1330-20-7	Xylenes (total)	ug/kg	n/a	<0.620	<0.633	n/a	n/a	n/a	n/a	0.633	n/a	U
S09V000124			78-93-3	2-Butanone	ug/kg	108	<2.66	<2.71	n/a	n/a	n/a	94.5	2.71	n/a	U
S09V000124			75-09-2	Methylenechloride	ug/kg	n/a	<0.340	<0.347	n/a	n/a	n/a	n/a	0.347	n/a	U
S09V000124			127-18-4	Tetrachloroethene	ug/kg	n/a	<0.400	<0.408	n/a	n/a	n/a	n/a	0.408	n/a	U
S09V000124			108-88-3	Toluene	ug/kg	108	<0.240	1.36	n/a	n/a	n/a	106	0.245	n/a	J
S09V000124			10061-02-6	trans-1,3-Dichloropropene UJ	ug/kg	n/a	<0.140	<0.143	n/a	n/a	n/a	n/a	0.143	n/a	U
S09V000124			79-01-6	Trichloroethene	ug/kg	110	<0.300	<0.306	n/a	n/a	n/a	106	0.306	n/a	U
S09V000124			75-01-4	Vinyl chloride	ug/kg	n/a	<0.640	<0.653	n/a	n/a	n/a	n/a	0.653	n/a	U
S09V000124			156-59-2	cis-Dichloroethylene	ug/kg	n/a	<0.260	<0.265	n/a	n/a	n/a	n/a	0.265	n/a	U
S09V000124			156-60-5	trans-Dichloroethylene	ug/kg	n/a	<0.360	<0.367	n/a	n/a	n/a	n/a	0.367	n/a	U
S09V000124			76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ug/kg	n/a	<0.500	<0.510	n/a	n/a	n/a	n/a	0.510	n/a	U
S09V000124			79-46-9	2-Nitropropane	ug/kg	n/a	<1.58	<1.61	n/a	n/a	n/a	n/a	1.61	n/a	U
S09V000124			141-78-6	Ethyl acetate	ug/kg	n/a	<0.972	<0.992	n/a	n/a	n/a	n/a	0.992	n/a	U
S09V000124			60-29-7	Diethyl ether	ug/kg	n/a	<0.885	<0.903	n/a	n/a	n/a	n/a	0.903	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated
B - Found in Blank
X - Comment
U - Less Than Detection Limit
a - LCS Outside Range
Y - Comment
c - RPD Outside Range
b - MS/MSD Outside Range
e - SERDIL Outside Range

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT72
Sample Depth: 19.5-21.5

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000124			75-69-4	Trichlorofluoromethane	ug/kg	n/a	<1.94	<1.98	n/a	n/a	n/a	n/a	1.98	n/a	U
S09V000124			95-47-6	o-Xylene	ug/kg	n/a	<0.200	<0.204	n/a	n/a	n/a	n/a	0.204	n/a	U
S09V000124			106-42-3	m,p-Xylene	ug/kg	n/a	<0.420	<0.429	n/a	n/a	n/a	n/a	0.429	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated
B - Found in Blank
X - Comment
U - Less Than Detection Limit
a - LCS Outside Range
Y - Comment
c - RPD Outside Range
b - MS/MSD Outside Range
e - SERDIL Outside Range

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT75
Sample Depth: 25-27

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4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000125			71-55-6	1,1,1-Trichloroethane	ug/kg	n/a	<0.200	<0.159	n/a	n/a	n/a	n/a	0.159	n/a	U
S09V000125			79-00-5	1,1,2-Trichloroethane	ug/kg	n/a	<0.380	<0.302	n/a	n/a	n/a	n/a	0.302	n/a	U
S09V000125			79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	n/a	<0.500	<0.397	n/a	n/a	n/a	n/a	0.397	n/a	U
S09V000125			75-35-4	1,1-Dichloroethene	ug/kg	109	<0.340	<0.270	n/a	n/a	n/a	108	0.270	n/a	U
S09V000125			107-06-2	1,2-Dichloroethane	ug/kg	n/a	<0.180	<0.143	n/a	n/a	n/a	n/a	0.143	n/a	U
S09V000125			71-36-3	1-Butanol	ug/kg	98.2	<15.5	<12.3	n/a	n/a	n/a	88.6	12.3	n/a	UY
S09V000125			108-10-1	Hexone	ug/kg	108	<1.76	<1.40	n/a	n/a	n/a	113	1.40	n/a	U
S09V000125			67-64-1	Acetone	ug/kg	106	<4.38	<3.48	n/a	n/a	n/a	113	3.48	n/a	U
S09V000125			71-43-2	Benzene	ug/kg	109	<0.320	<0.254	n/a	n/a	n/a	113	0.254	n/a	U
S09V000125			75-15-0	Carbon disulfide UJ	ug/kg	n/a	<0.300	<0.238	n/a	n/a	n/a	n/a	0.238	n/a	U
S09V000125			56-23-5	Carbon tetrachloride	ug/kg	n/a	<0.300	<0.238	n/a	n/a	n/a	n/a	0.238	n/a	U
S09V000125			67-66-3	Chloroform	ug/kg	n/a	<0.180	<0.143	n/a	n/a	n/a	n/a	0.143	n/a	U
S09V000125			108-90-7	Chlorobenzene	ug/kg	108	<0.220	<0.175	n/a	n/a	n/a	112	0.175	n/a	U
S09V000125			100-41-4	Ethylbenzene	ug/kg	n/a	<0.240	<0.190	n/a	n/a	n/a	n/a	0.190	n/a	U
S09V000125			1330-20-7	Xylenes (total)	ug/kg	n/a	<0.620	<0.492	n/a	n/a	n/a	n/a	0.492	n/a	U
S09V000125			78-93-3	2-Butanone	ug/kg	108	<2.66	<2.11	n/a	n/a	n/a	110	2.11	n/a	U
S09V000125			75-09-2	Methylenechloride	ug/kg	n/a	<0.340	<0.270	n/a	n/a	n/a	n/a	0.270	n/a	U
S09V000125			127-18-4	Tetrachloroethene	ug/kg	n/a	<0.400	<0.317	n/a	n/a	n/a	n/a	0.317	n/a	U
S09V000125			108-88-3	Toluene	ug/kg	108	<0.240	<0.190	n/a	n/a	n/a	113	0.190	n/a	U
S09V000125			10061-02-6	trans-1,3-Dichloropropene UJ	ug/kg	n/a	<0.140	<0.111	n/a	n/a	n/a	n/a	0.111	n/a	U
S09V000125			79-01-6	Trichloroethene	ug/kg	110	<0.300	<0.238	n/a	n/a	n/a	111	0.238	n/a	U
S09V000125			75-01-4	Vinyl chloride	ug/kg	n/a	<0.640	<0.508	n/a	n/a	n/a	n/a	0.508	n/a	U
S09V000125			156-59-2	cis-Dichloroethylene	ug/kg	n/a	<0.260	<0.206	n/a	n/a	n/a	n/a	0.206	n/a	U
S09V000125			156-60-5	trans-Dichloroethylene	ug/kg	n/a	<0.360	<0.286	n/a	n/a	n/a	n/a	0.286	n/a	U
S09V000125			76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ug/kg	n/a	<0.500	<0.397	n/a	n/a	n/a	n/a	0.397	n/a	U
S09V000125			79-46-9	2-Nitropropane	ug/kg	n/a	<1.58	<1.25	n/a	n/a	n/a	n/a	1.25	n/a	U
S09V000125			141-78-6	Ethyl acetate	ug/kg	n/a	<0.972	<0.771	n/a	n/a	n/a	n/a	0.771	n/a	U
S09V000125			60-29-7	Diethyl ether	ug/kg	n/a	<0.885	<0.702	n/a	n/a	n/a	n/a	0.702	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated
B - Found in Blank
X - Comment
U - Less Than Detection Limit
a - LCS Outside Range
Y - Comment
c - RPD Outside Range
b - MS/MSD Outside Range
e - SERDIL Outside Range

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT75
Sample Depth: 25-27

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000125			75-69-4	Trichlorofluoromethane	ug/kg	n/a	<1.94	<1.54	n/a	n/a	n/a	n/a	1.54	n/a	U
S09V000125			95-47-6	o-Xylene	ug/kg	n/a	<0.200	<0.159	n/a	n/a	n/a	n/a	0.159	n/a	U
S09V000125			106-42-3	m,p-Xylene	ug/kg	n/a	<0.420	<0.333	n/a	n/a	n/a	n/a	0.333	n/a	U

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b - MS/MSD Outside Range
e - SERDIL Outside Range

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT78
Sample Depth: 42-44

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000126			71-55-6	1,1,1-Trichloroethane	ug/kg	n/a	<0.200	<0.156	n/a	n/a	n/a	n/a	0.156	n/a	U
S09V000126			79-00-5	1,1,2-Trichloroethane	ug/kg	n/a	<0.380	<0.297	n/a	n/a	n/a	n/a	0.297	n/a	U
S09V000126			79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	n/a	<0.500	<0.391	n/a	n/a	n/a	n/a	0.391	n/a	U
S09V000126			75-35-4	1,1-Dichloroethene	ug/kg	122	<0.340	<0.266	n/a	n/a	n/a	108	0.266	n/a	U
S09V000126			107-06-2	1,2-Dichloroethane	ug/kg	n/a	<0.180	<0.141	n/a	n/a	n/a	n/a	0.141	n/a	U
S09V000126			71-36-3	1-Butanol	ug/kg	105	<15.5	<12.1	n/a	n/a	n/a	97.9	12.1	n/a	U
S09V000126			108-10-1	Hexone	ug/kg	114	<1.76	<1.38	n/a	n/a	n/a	115	1.38	n/a	U
S09V000126			67-64-1	Acetone	ug/kg	114	<4.38	<3.42	n/a	n/a	n/a	122	3.42	n/a	U
S09V000126			71-43-2	Benzene	ug/kg	116	<0.320	<0.250	n/a	n/a	n/a	111	0.250	n/a	U
S09V000126			75-15-0	Carbon disulfide UJ	ug/kg	n/a	<0.300	<0.234	n/a	n/a	n/a	n/a	0.234	n/a	U
S09V000126			56-23-5	Carbon tetrachloride	ug/kg	n/a	<0.300	<0.234	n/a	n/a	n/a	n/a	0.234	n/a	U
S09V000126			67-66-3	Chloroform	ug/kg	n/a	<0.180	<0.141	n/a	n/a	n/a	n/a	0.141	n/a	U
S09V000126			108-90-7	Chlorobenzene	ug/kg	117	<0.220	<0.172	n/a	n/a	n/a	108	0.172	n/a	U
S09V000126			100-41-4	Ethylbenzene	ug/kg	n/a	<0.240	<0.188	n/a	n/a	n/a	n/a	0.188	n/a	U
S09V000126			1330-20-7	Xylenes (total)	ug/kg	n/a	<0.620	<0.484	n/a	n/a	n/a	n/a	0.484	n/a	U
S09V000126			78-93-3	2-Butanone	ug/kg	114	<2.66	<2.08	n/a	n/a	n/a	115	2.08	n/a	U
S09V000126			75-09-2	Methylenechloride	ug/kg	n/a	<0.340	<0.266	n/a	n/a	n/a	n/a	0.266	n/a	U
S09V000126			127-18-4	Tetrachloroethene	ug/kg	n/a	<0.400	<0.312	n/a	n/a	n/a	n/a	0.312	n/a	U
S09V000126			108-88-3	Toluene	ug/kg	116	<0.240	<0.188	n/a	n/a	n/a	106	0.188	n/a	U
S09V000126			10061-02-6	trans-1,3-Dichloropropene UJ	ug/kg	n/a	<0.140	<0.109	n/a	n/a	n/a	n/a	0.109	n/a	U
S09V000126			79-01-6	Trichloroethene	ug/kg	120	<0.300	<0.234	n/a	n/a	n/a	110	0.234	n/a	U
S09V000126			75-01-4	Vinyl chloride	ug/kg	n/a	<0.640	<0.500	n/a	n/a	n/a	n/a	0.500	n/a	U
S09V000126			156-59-2	cis-Dichloroethylene	ug/kg	n/a	<0.260	<0.203	n/a	n/a	n/a	n/a	0.203	n/a	U
S09V000126			156-60-5	trans-Dichloroethylene	ug/kg	n/a	<0.360	<0.281	n/a	n/a	n/a	n/a	0.281	n/a	U
S09V000126			76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ug/kg	n/a	<0.500	<0.391	n/a	n/a	n/a	n/a	0.391	n/a	U
S09V000126			79-46-9	2-Nitropropane	ug/kg	n/a	<1.58	<1.23	n/a	n/a	n/a	n/a	1.23	n/a	U
S09V000126			141-78-6	Ethyl acetate	ug/kg	n/a	<0.972	<0.759	n/a	n/a	n/a	n/a	0.759	n/a	U
S09V000126			60-29-7	Diethyl ether	ug/kg	n/a	<0.885	<0.691	n/a	n/a	n/a	n/a	0.691	n/a	U

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b - MS/MSD Outside Range
e - SERDIL Outside Range

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT78
Sample Depth: 42-44

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000126			75-69-4	Trichlorofluoromethane	ug/kg	n/a	<1.94	<1.52	n/a	n/a	n/a	n/a	1.52	n/a	U
S09V000126			95-47-6	o-Xylene	ug/kg	n/a	<0.200	<0.156	n/a	n/a	n/a	n/a	0.156	n/a	U
S09V000126			106-42-3	m,p-Xylene	ug/kg	n/a	<0.420	<0.328	n/a	n/a	n/a	n/a	0.328	n/a	U

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT81
Sample Depth: 56-58

LS
4-28-2010

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000127		71-55-6	1,1,1-Trichloroethane	ug/kg	n/a	<0.200	<0.227	n/a	n/a	n/a	n/a	0.227	n/a	U
S09V000127		79-00-5	1,1,2-Trichloroethane	ug/kg	n/a	<0.380	<0.432	n/a	n/a	n/a	n/a	0.432	n/a	U
S09V000127		79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	n/a	<0.500	<0.568	n/a	n/a	n/a	n/a	0.568	n/a	U
S09V000127		75-35-4	1,1-Dichloroethene	ug/kg	116	<0.340	<0.386	n/a	n/a	n/a	n/a	0.386	n/a	U
S09V000127		107-06-2	1,2-Dichloroethane	ug/kg	n/a	<0.180	<0.205	n/a	n/a	n/a	n/a	0.205	n/a	U
S09V000127		71-36-3	1-Butanol	ug/kg	85.4	<15.5	<17.7	n/a	n/a	n/a	n/a	17.7	n/a	UY
S09V000127		108-10-1	Hexone	ug/kg	98.5	<1.76	<2.00	n/a	n/a	n/a	n/a	2.00	n/a	U
S09V000127		67-64-1	Acetone	ug/kg	102	<4.38	<4.98	n/a	n/a	n/a	n/a	4.98	n/a	U
S09V000127		71-43-2	Benzene	ug/kg	109	<0.320	<0.364	n/a	n/a	n/a	n/a	0.364	n/a	U
S09V000127		75-15-0	Carbon disulfide UJ	ug/kg	n/a	<0.300	<0.341	n/a	n/a	n/a	n/a	0.341	n/a	U
S09V000127		56-23-5	Carbon tetrachloride	ug/kg	n/a	<0.300	<0.341	n/a	n/a	n/a	n/a	0.341	n/a	U
S09V000127		67-66-3	Chloroform	ug/kg	n/a	<0.180	<0.205	n/a	n/a	n/a	n/a	0.205	n/a	U
S09V000127		108-90-7	Chlorobenzene	ug/kg	109	<0.220	<0.250	n/a	n/a	n/a	n/a	0.250	n/a	U
S09V000127		100-41-4	Ethylbenzene	ug/kg	n/a	<0.240	<0.273	n/a	n/a	n/a	n/a	0.273	n/a	U
S09V000127		1330-20-7	Xylenes (total)	ug/kg	n/a	<0.620	<0.705	n/a	n/a	n/a	n/a	0.705	n/a	U
S09V000127		78-93-3	2-Butanone	ug/kg	96.9	<2.66	<3.02	n/a	n/a	n/a	n/a	3.02	n/a	U
S09V000127		75-09-2	Methylenechloride	ug/kg	n/a	<0.340	<0.386	n/a	n/a	n/a	n/a	0.386	n/a	U
S09V000127		127-18-4	Tetrachloroethene	ug/kg	n/a	<0.400	<0.455	n/a	n/a	n/a	n/a	0.455	n/a	U
S09V000127		108-88-3	Toluene	ug/kg	108	<0.240	<0.273	n/a	n/a	n/a	n/a	0.273	n/a	U
S09V000127		10061-02-6	trans-1,3-Dichloropropene UJ	ug/kg	n/a	<0.140	<0.159	n/a	n/a	n/a	n/a	0.159	n/a	U
S09V000127		79-01-6	Trichloroethene	ug/kg	111	<0.300	<0.341	n/a	n/a	n/a	n/a	0.341	n/a	U
S09V000127		75-01-4	Vinyl chloride	ug/kg	n/a	<0.640	<0.727	n/a	n/a	n/a	n/a	0.727	n/a	U
S09V000127		156-59-2	cis-Dichloroethylene	ug/kg	n/a	<0.260	<0.295	n/a	n/a	n/a	n/a	0.295	n/a	U
S09V000127		156-60-5	trans-Dichloroethylene	ug/kg	n/a	<0.360	<0.409	n/a	n/a	n/a	n/a	0.409	n/a	U
S09V000127		76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ug/kg	n/a	<0.500	<0.568	n/a	n/a	n/a	n/a	0.568	n/a	U
S09V000127		79-46-9	2-Nitropropane	ug/kg	n/a	<1.58	<1.79	n/a	n/a	n/a	n/a	1.79	n/a	U
S09V000127		141-78-6	Ethyl acetate	ug/kg	n/a	<0.972	<1.10	n/a	n/a	n/a	n/a	1.10	n/a	U
S09V000127		60-29-7	Diethyl ether	ug/kg	n/a	<0.885	<1.01	n/a	n/a	n/a	n/a	1.01	n/a	U

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c - RPD Outside Range
b - MS/MSD Outside Range
e - SERDIL Outside Range

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT81
Sample Depth: 56-58

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000127			75-69-4	Trichlorofluoromethane	ug/kg	n/a	<1.94	<2.20	n/a	n/a	n/a	n/a	2.20	n/a	U
S09V000127			95-47-6	o-Xylene	ug/kg	n/a	<0.200	<0.227	n/a	n/a	n/a	n/a	0.227	n/a	U
S09V000127			106-42-3	m,p-Xylene	ug/kg	n/a	<0.420	<0.477	n/a	n/a	n/a	n/a	0.477	n/a	U

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C Farm WMA C
Data Summary Report

Sample Group: 20090345
Core Number: C6404
Customer Sample ID: B1YY23
Sample Depth: Trip Blank

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000377			71-55-6	1,1,1-Trichloroethane	ug/L	n/a	<0.100	<0.111	n/a	n/a	n/a	n/a	0.111	n/a	U
S09V000377			79-00-5	1,1,2-Trichloroethane	ug/L	n/a	<0.190	<0.211	n/a	n/a	n/a	n/a	0.211	n/a	U
S09V000377			79-34-5	1,1,2,2-Tetrachloroethane	ug/L	n/a	<0.250	<0.278	n/a	n/a	n/a	n/a	0.278	n/a	U
S09V000377			75-35-4	1,1-Dichloroethene	ug/L	110	<0.170	<0.189	n/a	n/a	n/a	109	0.189	n/a	U
S09V000377			107-06-2	1,2-Dichloroethane	ug/L	n/a	<0.0900	<0.100	n/a	n/a	n/a	n/a	0.100	n/a	U
S09V000377			71-36-3	1-Butanol	ug/L	97.4	<7.77	<8.63	n/a	n/a	n/a	110	8.63	n/a	U
S09V000377			108-10-1	Hexone	ug/L	112	<0.880	<0.978	n/a	n/a	n/a	114	0.978	n/a	U
S09V000377			67-64-1	Acetone	ug/L	114	<2.19	<2.43	n/a	n/a	n/a	118	2.43	n/a	U
S09V000377			71-43-2	Benzene	ug/L	100	<0.160	<0.178	n/a	n/a	n/a	99.6	0.178	n/a	U
S09V000377			75-15-0	Carbon disulfide UJ	ug/L	n/a	<0.150	<0.167	n/a	n/a	n/a	n/a	0.167	n/a	U
S09V000377			56-23-5	Carbon tetrachloride	ug/L	n/a	<0.150	<0.167	n/a	n/a	n/a	n/a	0.167	n/a	U
S09V000377			67-66-3	Chloroform	ug/L	n/a	<0.0900	<0.100	n/a	n/a	n/a	n/a	0.100	n/a	U
S09V000377			108-90-7	Chlorobenzene	ug/L	101	<0.110	<0.122	n/a	n/a	n/a	98.8	0.122	n/a	U
S09V000377			100-41-4	Ethylbenzene	ug/L	n/a	<0.120	<0.133	n/a	n/a	n/a	n/a	0.133	n/a	U
S09V000377			1330-20-7	Xylenes (total)	ug/L	n/a	<0.310	<0.344	n/a	n/a	n/a	n/a	0.344	n/a	U
S09V000377			78-93-3	2-Butanone	ug/L	108	<1.33	<1.48	n/a	n/a	n/a	112	1.48	n/a	U
S09V000377			75-09-2	Methylenechloride	ug/L	n/a	<0.170	5.44	n/a	n/a	n/a	n/a	0.189	n/a	
S09V000377			127-18-4	Tetrachloroethene	ug/L	n/a	<0.200	<0.222	n/a	n/a	n/a	n/a	0.222	n/a	U
S09V000377			108-88-3	Toluene	ug/L	103	<0.120	<0.133	n/a	n/a	n/a	101	0.133	n/a	U
S09V000377			10061-02-6	trans-1,3-Dichloropropene UJ	ug/L	n/a	<0.0700	<0.0778	n/a	n/a	n/a	n/a	0.0778	n/a	U
S09V000377			79-01-6	Trichloroethene	ug/L	98.6	<0.150	<0.167	n/a	n/a	n/a	97.6	0.167	n/a	U
S09V000377			75-01-4	Vinyl chloride	ug/L	n/a	<0.320	<0.356	n/a	n/a	n/a	n/a	0.356	n/a	U
S09V000377			156-59-2	cis-Dichloroethylene	ug/L	n/a	<0.130	<0.144	n/a	n/a	n/a	n/a	0.144	n/a	U
S09V000377			156-60-5	trans-Dichloroethylene	ug/L	n/a	<0.180	<0.200	n/a	n/a	n/a	n/a	0.200	n/a	U
S09V000377			76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ug/L	n/a	<0.250	<0.278	n/a	n/a	n/a	n/a	0.278	n/a	U
S09V000377			79-46-9	2-Nitropropane	ug/L	n/a	<1.03	<1.14	n/a	n/a	n/a	n/a	1.14	n/a	U
S09V000377			141-78-6	Ethyl acetate	ug/L	n/a	<0.290	<0.322	n/a	n/a	n/a	n/a	0.322	n/a	U
S09V000377			60-29-7	Diethyl ether	ug/L	n/a	<0.390	<0.433	n/a	n/a	n/a	n/a	0.433	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated
B - Found in Blank
X - Comment
U - Less Than Detection Limit
a - LCS Outside Range
Y - Comment
c - RPD Outside Range
b - MS/MSD Outside Range
e - SERDIL Outside Range

C Farm WMA C
Data Summary Report

Sample Group: 20090345
Core Number: C6404
Customer Sample ID: B1YY23
Sample Depth: Trip Blank

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000377			75-69-4	Trichlorofluoromethane	ug/L	n/a	<0.970	<1.08	n/a	n/a	n/a	n/a	1.08	n/a	U
S09V000377			95-47-6	o-Xylene	ug/L	n/a	<0.100	<0.111	n/a	n/a	n/a	n/a	0.111	n/a	U
S09V000377			106-42-3	m,p-Xylene	ug/L	n/a	<0.210	<0.233	n/a	n/a	n/a	n/a	0.233	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated
B - Found in Blank
X - Comment
U - Less Than Detection Limit
a - LCS Outside Range
Y - Comment
c - RPD Outside Range
b - MS/MSD Outside Range
e - SERDIL Outside Range

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

222-S LABORATORY

FINAL ANALYTICAL REPORT FOR SAMPLES FROM WASTE MANAGEMENT AREA C FOR CORE HOLES: C6392, C6400, C6402 C6404, AND C6406 IN SUPPORT OF RCRA SOIL CHARATERICZATION

1.0 INTRODUCTION

This final report presents the results for the samples taken from Waste Management Area C between March 11th and June 15th, 2009. The samples were analyzed in accordance with RPP-PLAN-40564, *Field Sampling and Analysis Plan for Sites P and L at Waste Management Area C,* (FSAP); RPP-PLAN 3877, *Sampling and Analysis Plan for Phase 2 Characterization of Vadose Zone Soil in Waste Management Area C* (SAP); ATL-MP-1011, *ATL Quality Assurance Project Plan for 222-S Laboratory* (QAPP); *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* (SW-846); and the additional guidance given by the client's point of contact.

Because the 222-S Laboratory Facility was designed to analyze hazardous and complex tank waste samples, most SW-846 test methods performed at the 222-S Laboratory contain deviations that are listed in an appendix in the analytical procedures. All known deviations or variances from SW-846 are documented in this narrative. The following attachments are included in this report.

Attachment 1	Data Summary Report
Attachment 2	Sample Breakdown Diagrams
Attachment 3	Holding Time Report
Attachment 4	Tentatively Identified Compounds (TIC) for Organic Analyses
Attachment 5	Correspondence
Attachment 6	Receipt Paperwork

This report also contains the following appendices.

Appendix A	Geologic Report
Appendix B	Analytical Raw Data

2.0 SAMPLE RECEIPT AND BREAKDOWN

2.1.1 Sample Receipt

A total of 25 core intervals from five core holes along with two equipment blanks and three trip blanks were received by 222-S beginning March 11th and ending June 15th, 2009. The samples were delivered in a cooler with ice or, in the case of the volatile organic samples, in a freezer. The temperature of a randomly selected sample from each cooler or freezer was measured and recorded on the chain of custody. Laboratory sample receipt personnel failed to record the receipt temperature for four core intervals:

- C6404 - 6 ft. to 8 ft
- C6404 - 10 ft. to 12 ft.
- C6406 - 54.5 ft. to 56.5 ft.
- C6406 - 59 ft. to 61 ft.

This was caused partially by the confusion from the delivery of multiple core projects at the same time and failure of laboratory personnel to follow the sample receipt procedure. These issues have been addressed and corrective measures have been taken. Many of the samples received were outside the required temperature ranges. This was due to the fact that these samples had not been in the cooler or freezer long enough to reach equilibrium. This can be verified, in most cases, by comparing the receipt time with the sampling time. The cooler and freezer walls were sometimes measured and were within the required temperature range. This temperature was not generally recorded since this measurement is not called out in the procedure. For future projects, the temperature of a temperature blank or the side of the cooler or freezer will be measured and recorded as described in SW-846.

2.1.2 Sample Breakdown

The laboratory received each core interval as a set of volatile organic analysis (VOA) samples and three liner samples, when complete core recovery was obtained. Nine core intervals had less than full recovery (see Attachment 2 and Attachment 6). The liner samples from each core interval were extruded, described, and composited by the Washington River Protection Solutions, Inc. (WRPS) geologist. The geologist's report is included in Appendix A. Provided sufficient samples existed, the composite for each core interval was analyzed as described in the SAP and FSAP. WRPS shipped a subsample of each composite to an offsite laboratory, when sufficient sample was available. The results of these analyses are not discussed in this report.

The 10-ft. to 12-ft. interval from core hole C6404 consisted of only VOA vial samples. No core liners were received for this interval. A limited suite for radiochemical analyses was performed using the methanol-preserved VOA sample. No other analyses were performed.

3.0 ANALYTICAL RESULTS SUMMARY

The Data Summary Report (Attachment 1) presents the final analytical results for those analytes requested in the SAP and FSAP. Secondary analytes are only reported if detected. The TIC from gas chromatography-mass spectrometry (GC/MS) analysis of semivolatile organic compounds (SVOC) is presented in Attachment 4. In addition to the required isotopes, all isotopes with positive gamma energy analysis (GEA) results were reported.

The "Det Limit" column in Attachment 1 contains the method detection limit (MDL) for non-radionuclide analyses, or the minimum detectable activity for radionuclides.

In Attachment 1 the column labeled "A#" indicates the aliquot class or the method used for sample preparation before analysis. For solid samples, the aliquot classes are defined as follows:

"A" indicates samples that were prepared by SW846-3050B.

"E" indicates samples that were prepared by a strong acid digest.

"O" indicates samples that were extracted for organic analysis.

"S" indicates samples that were prepared by a distillation.

"W" indicates samples that were prepared by a water digest.

Samples without a letter identifier in the "A#" column were analyzed directly with no separate preparation or with sample preparation performed as a part of the procedure steps.

The "Qual Flags" column in Attachment 1 contains data qualifier flags that are defined as follows:

"B" is used to indicate that the analyte was detected in the method or preparation blank and in the sample, and the result for the blank was greater than 5% of the reported sample result.

"J" indicates that the reported result should be considered an estimate because it is below the quantitation limit. The "J" flag is applied to sample concentrations that are greater than the MDL but less than the quantitation limit or sample activity with a counting uncertainty greater than 30%.

"N" indicates a TIC which has been named.

"Q" indicates that the result is qualitative only.

"T" indicated a TIC.

"U" indicates that the reported result is less than the calculated detection limit.

"Y" indicates that the percent difference (%D) for the continuing calibration verification standard (CCV) was greater than -20%.

"X" indicates that the initial calibration verification (ICV) standard was outside the range specified in the QAPP.

"a" indicates that the laboratory control sample (LCS) was outside of the specified range in the QAPP or SAP.

"b" indicates that the matrix spike (MS) was outside of the specified range in the QAPP or SAP.

"c" indicates that the relative percent difference (RPD) between the sample and the duplicate is greater than 30%.

"e" indicates that the %D between the sample result and the serial dilution exceeded 10%.

"f" indicates that the MS failed and the serial dilution passed.

Manual calculations using rounded results from the Data Summary Report or result calculation forms may differ slightly from the actual results derived from the raw data.

3.1 SAMPLE DIGESTIONS

3.1.1 Radiochemistry Strong Acid Digestion

Strong acid digestions with a hot plate for the heat source were performed using a mixture of concentrated nitric and hydrochloric acids. For each digest, approximately 10 grams of sample were digested, filtered, and diluted to a final volume of 100 or 125 mL. This digestion was used for all radiochemical analyses except tritium, ^{14}C, and ^{129}I. This digestion is a leach of the acid soluble species only.

3.1.2 SW846-3050B - Acid Digestion-Heating Block

This acid digestion follows SW846-3050B using a heating block and nitric and hydrochloric acids. Approximately 0.25 g of sample was digested. All heating-block digestions were filtered and diluted to a final volume of 50 mL. In soil, this digestion is a leach of the acid soluble species only. This digestion was used for all inductively coupled plasma/mass spectrometry (ICP/MS) and inductively coupled plasma/atomic emission spectroscopy (ICP/AES) analyses except for ^{99}Tc and isotopic tin (^{117}Sn and ^{126}Sn) analysis. The digestion is modified for the ^{99}Tc analysis by using only nitric acid. This is done to eliminate the possibility of the formation a zinc-chlorine ion pair of mass 99. The laboratory believes this ion, when present, is responsible for low level false positives.

3.1.3 Water Digestion

A water digestion or leach was prepared for the anions by ion chromatography, ^{14}C, and tritium analyses using approximately 0.25 to 4 g of sample diluted to 25 mL. Sonification was used, and the leachate was then filtered. In soil, this digestion is a leach of the water soluble species only.

3.2 INORGANIC ANALYSES

3.2.1 Cyanide

The cyanide analysis was performed on direct subsamples of the liner composite samples. All analyses met the SW846 holding time of 14 days except for sample B1YT71 (S09V000171). The holding time was missed due to the need for reanalysis, which was caused by quality control (QC) failures during the first analysis. The sample was initially analyzed within the holding time, but the final analysis, which passed all QC requirements, was 1 day past the holding. The sample result was the same for both analyses. The laboratory believes there was no effect on the final result from this missed holding time. There was no required reporting limit in the SAP for cyanide. The target detection limit was 0.5 µg/g, which is at least an order of magnitude lower than the current laboratory method (lachet micro-distillation) can reach.

3.2.2 Sulfide

Sulfide analysis was performed on direct subsamples of the liner composite samples. All analysis met the SW846 holding time of 7 days except for samples B1YT92 (S09V000382), B1YTH1

(S09V000626), and B1YTH3 (S09V000642). The first holding time was missed due to the lack of analytical personnel resources. The other two missed holding times were caused by the inability of the analytical personnel to access the laboratory due the lack of facility support, which is beyond the control of analytical personnel and their management. There was no required reporting limit in the SAP for sulfide. The target detection limit was 5 µg/g. Three sample results had adjusted MDLs of 5 µg/g. The rest were between 6 µg/g and 8 µg/g.

Batches 13951, 13952, 14332, 14517, 14598, and 14778: There were no notable issues with these batches and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 14184: The RPD between the sample and duplicate exceeded the required 30% in the SAP at 36%. Since the sample result was below the quantitation limit, this criterion is not applicable. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

Batch 14354: The RPD between the sample and duplicate exceeded the required 30% in the SAP at 32%. Since the sample result was below the quantitation limit, this criterion is not applicable. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

3.2.3 pH Analysis

The pH analysis was performed on the liner composite samples. These analyses met all QC requirements in the FSAP, SAP, and QAPP. The FSAP lists a pH holding time requirement of "as soon as possible." All pH measurements were taken immediately after the water leach was performed, but the sampling to analysis date varied from 2 to 20 days (see Attachment 3). There is no correlation between pH results and days to analysis, and the results fall within an expected range for alkaline soils. This indicates that the large variation in time has no apparent effect on the results. However, the client's expectation was that analysis would be performed within 14 days. For future projects, the analysis will be performed in less time.

3.2.4 Mercury

Analysis for mercury was performed on digested subsamples of the liner composite samples. All results met the QC requirements in the FSAP, SAP, and QAPP. All analyses met the holding time of 28 days, except for samples B1YT80 (S09V000174), B1YT83 (S09V000175), and B1YT98 (S09V000392). This was apparently the result of an oversight error by the analytical staff. The laboratory is working on improvements in holding time expiration tracking.

This analysis met the required and target detection limits except for three samples: B1YT71 (S09V000171), B1YT74 (S09V000172), and B1YT77 (S09V000173). These sample results met the target detection limit of 0.2 mg/Kg but were twice the required detection limit of 0.01 mg/Kg.

3.2.5 Ion Chromatography - Ammonium

Analysis for NH_4^+ was performed using a distillation preparation of the liner composite samples. The SAP lists an administrative holding time of 7 days. The laboratory believes that after

distillation and preservation, the holding is 28 days based on EPA drinking water and waste water holding times for preserved samples. There is no regulatory holding time limit promulgated for ammonium in soil. Four samples were analyzed outside of the administrative 7-day holding time: B1YT71 (S09V000219), B1YT92 (S09V000425), B1YTH1 (S09V000632), and B1YTH3 (S09V000648). This was apparently the result of an oversight error by the analytical staff. The laboratory is working on improvements in holding time expiration tracking. These analyses met the target detection limit listed in the SAP. There was no required reporting limit in the SAP or FSAP for ammonium.

Batches 14073, 14226, 14237, and 14498: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 14301: The preparation blank had a result above the MDL but below the quantitation limit. Since the blank result was more than 5% of the sample, a "B" flag has been applied to the associated results. Since both the sample and the blank results were below the quantitation limit, reanalysis was not required. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

Batch 14710: Samples B1YTF4 (S09V000599) and B1YTF4 (S09V000615) were analyzed with an LCS and MS, which used a standard that was 2 days past the expiration date. Since the recoveries of the expired standards were within 95% to 100% of the expected value, and the analytical batch contained other valid standards with acceptable recoveries, it is the laboratory's opinion that the data quality was not affected. Therefore, no reanalysis was requested. One of the two preparation blanks contained in this analytical batch had an ammonium result slightly above the MDL. Since the associated samples were non-detect, there is no effect on the data. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

Batch 14840: The preparation blank had a result above the MDL but below the quantitation limit. Since the blank result was more than 5% of the sample results, a "B" flag has been applied to the associated results. Since the blank result was below the quantitation limit, reanalysis was not required. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

Batch 14659: The preparation blank had a result above the MDL but below the quantitation limit. Since the blank result was more than 5% of the sample results, a "B" flag has been applied to the associated results. Since both the sample and the blank results were below the quantitation limit, reanalysis was not required. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

3.2.6 Ion Chromatography – Anions and Small Organic Acids

Ion chromatography analysis was performed on a water digest of subsamples from all soil composite samples except for B20XV5. This was due to insufficient sample volume. This sample was the 6-ft. to 8-ft. interval from core hole C6402, which was a retake of the same interval in core hole C6404. The laboratory met all the required and target detection limits. All analyses were within the applicable holding time. All sample spikes used in this analysis are post digestion spikes. Current laboratory procedures and practice were developed for the analysis of concentrated waste, which typically does not include the use of predigestion spikes for this

analysis. The laboratory will change to predigestion spike for future projects. In general, these samples experienced multiple RPD failures in every batch. All samples were reanalyzed and little improvement was seen. Other analyses also experienced high RPDs. The exact cause of the IC failures is unknown at this time, but it is matrix related. The "c" has been applied to all samples in the batch, not just the sample used for the duplicate analysis.

Batch 16700: Nitrite and nitrate were present in the preparation blank at levels below the quantitation limit; therefore, reanalysis was not required. Sample results have been flagged with "B" when appropriate. The RPD for formate and oxalate exceeded the required 30%. However, since the results for these analytes were below the quantitation limit, the criterion does not apply. The RPD for fluoride, acetate, sulfate, nitrate, and phosphate exceeded the 30% requirement, and results were all above the quantitation limit. The sample results have been flagged with a "c."

Batch 16701: The preparation blank result for chloride was above the MDL but less than the quantitation limit. Therefore, the data quality was not affected and reanalysis was not required. The samples were "B" flagged as appropriate. The closing continuing calibration blank (CCB) result for formate was above the MDL but less than the quantitation limit. Therefore, the data quality was not affected and reanalysis was not required. The samples were "B" flagged as appropriate. The RPD for nitrite and oxalate exceeded the required 30%. However, since the results for these analytes were below the quantitation limit, the criterion does not apply. The RPD for sulfate, nitrate, and chloride exceeded the 30% requirement, and results were all above the quantitation limit. The sample results have been flagged with a "c."

Batch 16744: The RPD for acetate exceeded the required 30%. Since the result for this analyte was below the quantitation limit, the criterion does not apply. The RPD for nitrite exceeded the 30% requirement, and all results were above the quantitation limit. The sample results have been flagged with a "c."

Batch 17027: The RPD for oxalate and formate exceeded the required 30%. Since the result for these analytes were below the quantitation limit, the criterion does not apply. The RPD for acetate, nitrate, nitrite, and sulfate exceeded the 30% requirement, and results were all above the quantitation limit. The sample results have been flagged with a "c."

3.2.7 Inductively Coupled Plasma/Atomic Emission Spectroscopy

The ICP/AES analysis was performed on an acid-digest (SW846-3050B) of all liner composite samples. In general, the ICP/AES analysis experienced repeated failures for the duplicate RPDs, serial dilutions, and matrix spike recoveries. The laboratory believes these failures are due to interferences from high levels of iron and aluminum, and sample inhomogeneity. This is supported by the fact that there were no post digestion spike failures. The interference from the iron and aluminum appeared to cause signal suppression in most cases. The impact of this interference could be reduced by reanalyzing the samples using smaller aliquots or greater dilution, but this would cause some primary elements to be reported as estimated or non-detected above the required detection limits. This was discussed with the client, who agreed that reanalysis would not improve the overall analytical results (see Attachment 5). Additionally, it was noted that some of the secondary analytes experienced LCS failures and that reanalysis was not required for secondary elements. In particular, the digestion method used, which was an acid

leach, does not produce consistent results for silicon. The amount of silicon leached from a highly siliceous material, like soil, is not consistent when using an acid leach. Also, the LCS recoveries are somewhat variable and may be related to the concentration and types of acid used. Silicon is not listed with other elements in SW846-3050B, section 1.1, under "Scope and Application" for the method.

The ICP/AES analysis was unable to obtain the required detection limit for antimony, arsenic, cadmium, lead, nickel, selenium, silver, thallium, and vanadium. These elements have been reported from separate ICP/MS analyses. Additionally, some chromium and cobalt results were from these same ICP/MS analyses. Total uranium has been reported by the ICP/AES analysis but did not meet the required detection limits in the FSAP. Since the isotopic uranium analysis by ICP/MS met the required detection limit for ^{238}U, the overall data usability was not affected. For all other metals reported by ICP/AES, all target and required detection limits were met or the results were above the quantitation limit, with the exception of one sample. Sample B1YT71 from core C6392 failed to meet the required detection limit for molybdenum and the target detection limits for beryllium, copper, and molybdenum.

Batch 15041: The low level standard (LLS) for potassium failed low at 69%. This indicates that results near the LLS could be biased low. Since all potassium results were near the mid-range of the calibration, the data was not affected by the low LLS recovery. The MS recoveries for aluminum, calcium, and iron failed to meet the FSAP criterion. Since the sample concentrations of these analytes exceeded four times the spike level, the MS recovery criterion does not apply. The MS recovery for silicon exceeded the ±25% criterion in the SAP and FSAP at 311%. The laboratory believes that the failure is due to the inconsistent leaching of silicon discussed previously. The associated sample results have been flagged with a "b."

Batch 16002: The MS recoveries for aluminum, calcium, iron, and magnesium failed to meet the FSAP criterion. Since the sample concentrations of these analytes exceeded four times the spike level, the MS recovery criterion does not apply. The MS recovery for sodium, tantalum, titanium, and potassium exceeded the ±25% criterion in the SAP and FSAP, and the results have been flagged with a "b." The laboratory believes this is a result of matrix interference due to the high levels of other elements in these samples and sample inhomogeneity. This was discussed with the client (see Attachment 5), and reanalysis was deemed unnecessary. The MS recovery for tantalum was less than 1%. The laboratory believes this was due to an issue with the standard. Since tantalum is not a required analyte, reanalysis was not required. Zinc was detected in the preparation blank above the MDL but less than the quantitation limit. Since the result was less than 5% of the sample result, the data quality was not affected.

Batch 16229: Calcium was present in the preparation blank but was less than 5% of the lowest sample result. The MS recoveries for aluminum, calcium, iron, silicon, titanium, and magnesium failed to meet the FSAP criterion. Since the sample concentrations of these analytes exceeded four times the spike level, the MS recovery criterion does not apply. The serial dilution for manganese and sodium failed the 10% requirement at 19% and 12%, respectively. The results have been flagged with an "e." This could indicate that the parent sample result is biased low due to matrix interference.

Batch 16778: The ICV standard recovery for rubidium was outside the 90% to 110% criterion at 112%. The sample results have been flagged with an "X." Reanalysis was not required since rubidium is a secondary analyte. The results for palladium and rubidium in the CCBs and initial calibration standard (ICB) were above MDL but below the quantitation limits. A "B" flag was applied since the blank result was greater than 5% of the sample results. Reanalysis was not required because all results (blank and samples) were below the quantitation limit. The LLS for rubidium, potassium, and palladium exceeded the 130% recovery criterion at 237%, 134%, and 137%, respectively. The palladium and rubidium results should be considered biased high. Since these are secondary analytes, reanalysis is not required. All potassium results are above the ICV and CCV level. Therefore, the slightly high recovery of the LLS does not impact the data quality. The LCS for silicon failed low at 52%. Silicon results should be considered biased low and are flagged with an "a." The preparation blank results for calcium and zinc were above the MDL but below the quantitation limit and less than 5% of the sample result. Therefore, the sample results were not affected. The duplicate RPD for praseodymium exceeded the 30% requirement in the SAP and FSAP. Since the sample result was below the quantitation limit, this criterion does not apply. The MS recoveries for aluminum, calcium, iron, and magnesium were outside the ±25% requirement in the SAPs. However, since the sample results for these elements were more than four times the spike level, the criterion does not apply. The MS recoveries for sodium, potassium, rubidium, silicon, and titanium were outside the 75% to 125% requirement, so all associated sample results have been flagged with a "b." The laboratory believes this is a result of matrix interference due to the high levels of other elements in these samples. The %D for the serial dilutions exceeded 10% for magnesium, phosphorous, silicon, and titanium. The laboratory believes this is a result of matrix interference due to the high levels of other elements in these samples. An "e" flag has been applied to these results. Since the post digestion spike passed, the serial dilution was not required, nor was reanalysis. However, these results do indicate matrix interference.

Batch 16822: The mid batch CCB result for praseodymium was above the MDL but below the quantitation limit. All associated sample results were less than 20 times the CCB result and were flagged with a "B." Since the blank and sample results were below the quantitation limit, reanalysis was not required. The initial calibration blank result for iron was above the MDL but less than the quantitation limit and much less than 5% of the sample results; therefore, the data quality was not affected. The LCS failed low for silicon and tungsten; since these were secondary analytes, reanalysis was not required. The affected sample results have been flagged with an "a." The duplicate RPD for cerium, cobalt, europium, sulfur, and praseodymium exceeded the required 30%. Since the results were below the quantitation limit, this criterion does apply. The duplicate RPD for aluminum, calcium, copper, iron, magnesium, manganese, sodium, neodymium, phosphorous, strontium, titanium, yttrium, and zinc exceeded the 30% criterion, and the associated samples have been flagged with "c." The laboratory believes that this particular failure is due to sample inhomogeneity. The serial dilution for silicon, magnesium, calcium, iron, and manganese exceeded the required 10% criterion. Since the post digestion spike passed, the serial dilution was not required, nor was reanalysis. However, these results do indicate matrix interference. The MS recovery for aluminum, calcium, iron, and magnesium exceeded the 30% requirement in the SAP and FSAP. Since the sample results were more than four times the spike concentration, this criterion does not apply. The MS recovery for phosphorous, potassium, sodium, and tungsten exceeded the 30% requirement in the SAP and FSAP. The laboratory believes this is a result of matrix interference due to the high levels of

other elements in these samples and sample inhomogeneity. This was discussed with the client (see Attachment 5), and reanalysis was deemed unnecessary. The MS recovery for cerium was less than 1%. The laboratory believes this was due to an issue with the standard. Since cerium is not a required analyte, reanalysis was not required.

3.2.8 Inductively Coupled Plasma/Mass Spectroscopy

The ICP/MS actinide analysis was performed on the SW846-3050 acid digestion of all liner composite samples. The ICP/MS ^{126}Sn and ^{99}Tc analysis was performed on the same digest, without the addition of the hydrochloric acid. Hydrochloric acid is not used for ^{99}Tc analysis because of the potential formation of a ZnCl ion pair with mass 99.

Direct calibration, where a standard containing the isotope and element of interest is used to calibrate the response of the isotope, is the most accurate type of calibration. Standard material is not available for all the isotopes of interest. Those isotopes without available standards are calibrated using the instrument's mass-response curve that is generated by using the intensity/concentration relationship for the available isotope standards. While the isotope results calibrated in this manner are designated "semi-quantitative" in the procedure, the differences in instrument response along the curve are generally small enough across the actinide mass range such that the results generated might be expected to be within similar uncertainties associated with quantitative results (i.e., those obtained directly against an isotope-specific standard).

A similar approach is used to evaluate the recoveries of calibration checks, standards, and spikes. Just as all of the elemental isotopes of interest are not available for calibration, they are also not available for the various QC samples. Because the chemical properties of an element are the same for all of its isotopes, one elemental isotope can be used as a measure for other isotopes of interest. For example, by measuring the recovery of ^{238}U in the various QC samples, the accuracy of the other uranium isotopes also can be evaluated. Table 1 lists the isotopes used for standards and spike samples for ICP-MS analyses. A response curve is derived using the slopes of the calibration lines of the available isotope standards. Slopes for the isotopes without available standards are then derived from the response curve, and results are calculated using the derived slopes.

Table 1. Inductively Coupled Plasma-Mass Spectroscopy Standards and Spikes.

Standard Type	Analytes Analyzed
Initial calibration verification (nondigested)	^{232}Th, ^{235}U, ^{238}U, ^{237}Np, ^{99}Tc, ^{117}Sn
Acid digest standard (laboratory control standard)	^{232}Th, ^{235}U, ^{238}U, ^{237}Np, ^{99}Tc, ^{117}Sn
Predigest spike (MS)	^{232}Th, ^{235}U, ^{238}U, ^{237}Np, ^{99}Tc, ^{117}Sn
Post-digest spike	^{232}Th, ^{235}U, ^{238}U, ^{237}Np, ^{99}Tc, ^{117}Sn
No standard or spike of either type	^{126}Sn, ^{230}Th, ^{233}U, ^{234}U, ^{236}U,

3.2.8.1 Technetium-99 and Tin-126

The required detection limit listed in the SAP for ^{99}Tc was met. The target detection limit for ^{99}Tc was not met. There were no required or target detection limits for ^{126}Sn listed in the SAP. The FSAP lists a holding time of isotopic analytes as 6 months. All samples were initially

analyzed within the holding time. However, due to a required reanalysis, nine samples exceeded the holding time. The reanalysis was delayed by instrument repair, failure of the chemist review to recognize the need for reanalysis, and delayed third level review by the project manager. Additionally, Washington River Projection System's management set the analytical priority of C Farm analysis behind other projects. Since the analytical results did not significantly change from the initial to the final analysis, the laboratory does not believe these exceedances affected the final results.

Batches 16639, 16734, and 16982: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 16341: The preparation blank contained ^{117}Sn below the quantitation limit. However, all samples in the batch were nondetect for ^{117}Sn, so the data was not affected. The LCS for ^{117}Sn exceeded the required 120% at 141% and the associated results have been flagged with an "a." This could indicate a high bias for these results. However, since the results for all samples were below the MDL, the data was not affected. The MS for ^{117}Sn met the recovery requirements, demonstrating preparation batch accuracy to some degree.

Batch 16865: The mid-run CCB contained ^{99}Tc below the quantitation limit. All field samples in this batch demonstrated results below the MDL; therefore, the data was not affected.

Batch 16970: All blanks contained a low level of ^{126}Sn, and the preparation blank contained a low level of ^{126}Sn and ^{99}Tc. Since neither ^{126}Sn or ^{99}Tc were detected in the samples, the data quality was not affected and reanalysis was not required.

3.2.8.2 Actinides

The required and target detection limits were met for all isotopes and in all samples. The FSAP lists the holding time for isotopic analytes as 6 months. All samples were initially analyzed within the holding time. However, due to a required reanalysis, 11 samples exceeded the holding time. The reanalysis was delayed by instrument repair, failure of the chemist review to recognize the need for reanalysis, and a delayed third level review by the project manager. Additionally, Washington River Projection System's management set the analytical priority of C Farm analysis behind other projects. Since the analytical results did not significantly change from the initial to the final analysis, the laboratory does not believe these exceedances affected the final results.

Batch 15672: Neptunium-237 was detected in the mid-run CCB below the quantitation level. All affected samples have a similar result and have been flagged with a "B." Since all ^{237}Np results were below the quantitation level, reanalysis is not required. All blanks (CCB and preparation blanks) contained ^{232}Th below the quantitation level and were less than 5% of the sample results. Therefore, the results were not affected and reanalysis was not required. The LLS for ^{235}U was recovered above the 130% requirement at 131%. Since the lowest sample result was more than 10 times the LLS level, the results were not affected. The RPD for ^{237}Np exceeded the 30% requirement at 47%. Since the results were below the quantitation limit, this criterion does not apply. The closing CCB result for ^{238}U was above the MDL but below the quantitation limit and less than 5% of the sample results; therefore, reanalysis was not required.

Batch 16171: The preparation blank result for ^{235}U was below the quantitation limit but less than 5% of the lowest sample result. Therefore, no reanalysis was required and the data quality was

not affected. The preparation blank result for ^{232}Th was above the quantitation limit but less than 5% for the sample result; therefore, reanalysis was not required and the data quality was not affected. The preparation blank contained ^{238}U above the quantitation level and was greater than 5% of three of the sample results. However, since the sample results were below the TDL and above the quantitation limit, the client gave permission to report the data with a "B" qualifier (see Attachment 5). The ending LLS for ^{235}U exceeded the 130% requirement at 133%. This could indicate a high bias for ^{235}U results near the LLS level. However, the lowest sample result for ^{235}U was approximately 80 times the LLS level and the data quality was not affected.

Batch 16595: The preparation blank contained ^{238}U and ^{235}U above the quantitation level and was greater than 5% of all of the sample results in this batch. Since the sample results were above the quantitation level but below the TDL, the client gave permission to report the data with a "B" qualifier and narration of the issue (see Attachment 5). The preparation blank result for ^{233}U was below the quantitation limit and greater than 5% of the sample results. Since both the sample results and the blank result were below the quantitation level, reanalysis was not required. The associated results have been flagged with a "B." The preparation blank result for ^{232}Th was above the quantitation limit but less than 5% of the sample results; therefore, reanalysis was not required and the data quality was not affected. The ICB and CCBs contained ^{232}Th below the quantitation limit, which had no effect on the data quality. The RPD for ^{234}U exceeded the 30% requirement at 38%; since the sample result was below the quantitation limit, this criterion does not apply.

Batch 17023: The closing LLS exceeded the 130% criterion for ^{232}Th at 164%. However, all results were near the CCV level, which is 200 times the LLS. Therefore, the data quality was not affected. The RPD for ^{234}U and ^{238}U exceeded the 30% requirement; since the sample result was below the quantitation limit, this criterion does not apply.

Batch 17024: The first CCB contained ^{235}U at a level equal to the MDL; since it was below the quantitation limit, the data quality was not affected. The initial LLS exceeded the 130% for ^{232}Th criterion at 164%. However, all results were near the CCV, which is 200 times the LLS, and therefore, there was no effect on the data quality. The RPD for ^{234}U exceeded the 30% requirement; since the sample result was below the quantitation limit, this criterion does not apply.

3.2.8.3 Trace Metals

Antimony, arsenic, cadmium, lead, nickel, selenium, silver, thallium, and vanadium were analyzed by ICP/MS to obtain the required detection limits in the SAP. Additionally, some chromium and cobalt results were used from the ICP/MS analyses. Except for the required detection limit for selenium, all target and required detection limits were met or the sample results were above the quantitation limit and the sample detection limit criteria do not apply. The target detection limit for selenium was approximately an order of magnitude below the detection limit obtained by using ICP/MS. The laboratory does not anticipate reaching this detection limit for future projects. The FSAP lists the holding time of isotopic analytes as 6 months. All samples were initially analyzed within the holding time using ICP/AES. However, due to a required reanalysis, 23 samples exceeded this holding time. The reanalysis was delayed by instrument repair, failure of the chemist review to recognize the need for reanalysis, and a delayed third level review by the project manager. Additionally, Washington River Projection System's management set the analytical priority of C Farm analysis behind other projects. Since the

analytes with results that could be compared (chromium, cobalt, nickel, and vanadium) did not significantly change from the initial ICP/AES to the final ICP/MS analysis, the laboratory does not believe these exceedances affected the final results.

SW846-6020A requires that an interference check standard be used to determine possible isobaric or polyatomic ion interferences. The current laboratory procedure does not require the use of this standard, and it was not included in these analyses. However, interferences were mitigated by the use of the collision cell, or gas mode, of the instrument. This was used for arsenic and vanadium to mitigate chloride interference. Since the blank result for these elements were below the MDL, the mitigation appears to have been successful. The laboratory plans to use the required interference check standard for future projects.

Batch 16927: The initial LLS recovered Cr at 152%. Since all chromium results were above the ICV/CCV level, the high recovery of the LLS does not affect data quality for chromium. The selenium recoveries for the LLS were outside the 70% to 130% requirement in SW846 at 167% for the initial LLS and 36% for the final LLS. The selenium concentration selected for the LLS was only slightly above the MDL and was determined to be too low. Some of the subsequent analyses used a more appropriate LLS level of selenium. The preparation blank contained silver, cadmium, thallium, and nickel above their MDLs but below the quantitation limits. All sample results, except for nickel, have been flagged with a “B” because the blank result was greater than 5% of the sample results. Reanalysis was not required because the blank results were below the quantitation limits.

Batch 16990: The preparation blank and mid-run CCB results for thallium were above the MDL but less than the quantitation limit. Since the blank result was greater than 5% of all sample results, a “B” flag has been applied. Reanalysis was not required since the blank result was below the quantitation limit.

Batch 17021: The closing LLS for selenium was recovered at 202%. Since all sample results for selenium were below the MDL, the data quality was not affected. The selenium concentration selected for the LLS was at the MDL and was determined to be too low. Some of the subsequent batches used a more appropriate LLS concentration of selenium. The preparation blank result for selenium was above the MDL. However, since all sample results were below the MDL, the data quality was not affected. The closing CCV for silver was below the required 90% at 89.3%. This CCV bracketed only QC samples, all of which met requirements. Therefore, reanalysis was deemed unnecessary. The duplicate RPD for nickel exceeded the 30% requirement at 45%, and the associated results have been flagged with a “c.” The laboratory believes this is due to sample inhomogeneity, and with client agreement, reanalysis was not performed (see Attachment 5).

Batch 17062: The LLS recoveries for selenium were 213% and 220%. Since all sample results for selenium were below the MDL, the data quality was not affected. The selenium concentration selected for this LLS, though higher than previously used, was determined to be too low. Subsequent analyses used a more appropriate LLS concentration of selenium. The preparation blank and closing CCB results for selenium were above the MDL. However, since all sample results were below the MDL, the data quality was not affected. The duplicate RPD for cadmium exceeded the 30% requirement at 33%. Since the sample result was below the quantitation level, this criterion does not apply. The duplicate RPD for lead, thallium, and vanadium exceeded the 30% requirement at 47%, 59%, and 44%, respectively, and the associated results have been flagged with a “c.” Based on ICP/AES and other analyses, the laboratory believes this is due to

sample inhomogeneity and, with client agreement, no reanalysis was performed (see Attachment 5).

Batch 17063: The preparation blank result for thallium was above the MDL but less than the quantitation limit. Since the blank result was greater than 5% of all sample results, a "B" flag has been applied. Reanalysis was not required since the blank result was below the quantitation limit. The duplicate RPD for thallium exceeded the 30% requirement at 32%. Since the sample result was below the quantitation level, this criterion does not apply.

Batch 17222: The preparation blank result for selenium was above the MDL. However, since all sample results were below the MDL, the data quality was not affected.

Batch 17230: The post digestion spike failed low at 42% for selenium. However, since the MS met the required recovery criteria at 102%, a post digestion spike is not required (per SW846). It should be noted that the raw sample result was negative, indicating a matrix interference. This may be the cause of the low post digestion spike recovery. The spike level for the MS is higher than the post digestion spike and possibly negated the interference.

Batch 17234: There were no notable issues with this batch; all QC requirements in the FSAP, SAP, and the QAPP were met.

3.3 RADIOCHEMICAL ANALYSIS

The holding time listed in the FSAP for radioactive isotopes is 6 months. SW846 does not address holding times for these analytes. All radiochemical analyses met the 6-month holding time. Holding time tables for these analytes have not been included in Attachment 2.

3.3.1 Gamma Energy Analysis

Gamma energy analysis was performed directly on approximately 60 mL of soil from all liner composite samples. Sample B1YT98 was inadvertently analyzed twice. The sample with the highest ^{137}Cs result (S09V000473) has been reported in Attachment 1. The other analysis results and raw data are contained in Appendix 2. The GEA analysis met all the required detection limits in the SAP. The laboratory was unable to meet any of the target detection limits.

Batches 13909, 15005, 15098, 15100, and 15511: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batches 15099: This batch did not contain a field sample duplicate as required in the QAPP. However, the client indicated (see Attachment 5) the FSAP and SAP only requires one field duplicate per core hole. Since the client QC requirement was met, reanalysis was not required.

3.3.2 Strontium-90/89

Strontium-90/89 analysis was performed on a strong acid digest of all liner composite samples. Fifteen of the sample analyses met the required detection limit of 2.3 pCi/g listed in the FSAP or had results above the quantitation limit. Of the remaining ten samples, all but one achieved a detection limit between 2.3 pCi/g and 4.2 pCi/g. No detection limit exceeded the lowest action limit of 23 pCi/g in Table 5.2 of the SAP.

Batches 16420, 16466, and 16485: There were no notable QC issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 16482: The preparation blank had a positive result slightly above the minimum detectable activity with a counting error of 117%. All samples, except one, had results below the MDA. The sample result above the MDA was below the quantitation limit and has been flagged with a "B." Because the result of the blank and the sample were below the quantitation limit, reanalysis was not performed.

Batch 16610: The RPD between the sample and duplicate was 116%. The original digestates were reanalyzed with similar results. There was insufficient sample to perform a second preparation of the sample. A "c" flag has been applied to all samples in the batch.

Batch 16776: The blank result displayed in Attachment 1 for sample S09V000509 (<2.7E-6 μCi/g), is different from that in the batch report (<1.95E-6 μCi/g). This resulted from the sample being rejected and reanalyzed in a new batch (16776) while the remaining samples in the original batch were reported from the original batch. Both batches share the same preparation blank, which has now been analyzed twice. Currently, the Data Summary Report (Attachment 1) reports only one blank result; it is from the original batch. Additional programming is required to change this. The two blank results are essentially the same.

3.3.3 Tritium

The tritium analysis was performed on a water leach of all liner composite samples. This method only measured the tritium in the samples which can be dissolved in water. This analysis achieved the required detection limit in the FSAP but could not meet the target detection limit. There were no notable issues with any of the tritium batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

3.3.4 Selenium-79

The ^{79}Se analysis was performed on a strong acid digest of all liner composite samples. The analysis achieved the target detection limit in the FSAP. No required detection limit was listed. No standard is currently available for ^{79}Se. A cold carrier is used to monitor recovery and is measured gravimetrically.

Batches 16105 and 16145: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batches 16188, 16194, and 16259: The preparation blanks for these batches demonstrated positive results below the quantitation limit, as did many of the samples. All results had very large counting errors and were below the target detection limit. Because of these factors, reanalysis was not required. The associated results have been flagged with a "B."

Batch 16409: The blank results displayed in Attachment 1 for sample S09V000509 (<1.51E-6 μCi/g) and S09V000666 (5.23E-6 μCi/g) are different from that in the batch report (<2.2E-6 μCi/g). This resulted from these samples being rejected and reanalyzed in a new batch

(16409), while the remaining samples in the original batch were reported from the original batch. Both batches share the same preparation blank, which has now been analyzed twice. The current Data Summary Report (Attachment 1) reports only one blank result; it is from the original batch. Additional programming is required to change this. The two blank results are essentially the same. Even though the original blank result for sample S09V000666 was positive, it had a counting uncertainty of 185%.

3.3.5 Carbon-14

The ^{14}C analysis was performed on a water leach of all liner composite samples. The 10-ft. to 12-ft. interval from core hole C6404 did not retrieve sufficient liner material to produce a sample for this analysis. The analysis achieved the required detection limit in the FSAP but exceeded the target detection limit. This analysis will only detect water soluble forms of ^{14}C. There were no notable issues with the batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

3.3.6 Nickel-63

The ^{63}Ni analysis was performed on a strong acid digest of all liner composite samples. The analysis achieved the required detection limit in the FSAP but exceeded the target detection limit of 30 pCi/g. Most samples had detection limits of between 50 pCi/g and 100 pCi/g.

Batches 15697, 16267, 16282, and 16392: There were no notable issues with these ^{63}Ni batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 16240: The preparation blank had a positive result slightly above the MDA with a counting error of 412%. All samples, except one, had results below the MDA. The sample result above the MDA was below the quantitation limit and has been flagged with a “B.” Because the results for the blank and the sample were below the quantitation limit, reanalysis was not performed.

Batch 16551: The blank result displayed in Attachment 1 for sample S09V000509 (<5.65E-5 μCi/g) is different from that in the batch report (<4.98E-6 μCi/g). This resulted from the sample being rejected and reanalyzed in a new batch (16551), while the remaining samples in the original batch were reported from the original batch. Both batches share the same preparation blank, which was analyzed twice. The current Data Summary Report (Attachment 1) reports only one blank result; it is from the original batch. Additional programming is required to change this. The two blank results are essentially the same.

3.3.7 Iodine-129

Analysis for ^{129}I was performed on an iodine specific fusion digest of all liner composite samples. The required and target detection limits in the SAP were met.

Batches 16203, 16246, and 16307: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 16468: The preparation blank result was above the quantitation limit but below the target detection limit. The customer contact agreed (see Attachment 5) that since the result was below the target detection limit, reanalysis was unnecessary. One of the samples in this batch had a result above the quantitation limit but below the target detection limit. This result has been flagged with a "B." The remaining sample results were nondetect.

Batch 16496: The preparation blank result was above the quantitation limit but below the target detection. Since the sample results were all nondetect, reanalysis was not required.

3.3.8 Americium-241, Curium-243/244, and Curium-242

Analysis for ^{241}Am, $^{243/244}$Cm, and ^{242}Cm was performed on a strong acid digest of all liner composite samples. For this analysis, there were no notable issues with any batches and all QC requirements in the FSAP, SAP, and the QAPP were met. The required detection limit in the SAP was met, and all but three samples met the target detection limit.

3.3.9 Plutonium-238 and Plutonium-239/240

Plutonium isotopic (^{238}Pu and $^{239/240}$Pu) analysis was performed on a strong acid digest of all liner composite samples. For this analysis, there were no notable issues with any batches and all QC requirements in the FSAP, SAP, and the QAPP were met. The required and target detection limits in the SAP were met

3.4 ORGANIC ANALYSES

3.4.1 Volatile Organic Analysis

The VOA was performed on all field samples by purge and trap. Field sampling, sample containers, and preservation followed SW846-5035. The soil samples were delivered in a freezer, in pre-weighed VOA vials with magnetic stir bars and approximately 5 g of sample. After receipt, the VOA samples were stored in a freezer. For each sample interval, an additional high level sample preserved in methanol was also received. These were not used because none of the results for the frozen samples were above the calibration range. The exact weight of the sample and the tare weight of the VOA vials were recorded by sampling personnel and delivered with the samples. Four liquid trip blank samples were also received and analyzed. The samples were preserved with either HCl or H_2SO_4 to a pH < 2.

The holding time for all samples is 14 days. All samples but two meet the required holding time. Sample B1YTB2 (S09V000410), a soil sample, exceeded the holding time requirement by 2 days. This was caused by a lack of facility resources (radiological control technicians), which was beyond the control of the analytical staff contractor at 222-S. The facility operator is addressing the issue by hiring additional facility support staff. Sample B1YY24 (S09V000493), a trip blank, was analyzed 1 day beyond the required holding time. This was due to an oversight by 222-S analytical personnel. The laboratory believes that the affect of the holding time exceedance on sample results is minimal. A study by the Department of Energy and others have

shown that exceedances of less than 2 weeks produce no statistical difference and only a few compounds are affected for up to 6 weeks (see Reference Section).

The VOA analysis met the target and required detection limits in the SAP with the following exceptions: for 2-nitropropane, one sample was slightly above the target detection limit; for cis-1,2-dichloroethene, trans-1,2-dichloroethene, m,p-xylene, o-xylene, and TCE, two samples were slightly above the target detection limits. These detection limit exceedances were caused by a less than 5 g aliquot in the VOA vial. The laboratory cannot adjust the amount of sample when following SW846-5035 and must analyze them as received.

Loss of Internal Standards, Spike Compounds, and Surrogates: During the VOA analysis of the C Farm soil samples, low recoveries of the internal standard and surrogates were frequently experienced. At times, the instrument produced no response at all for these monitoring compounds. The issue was extensively investigated and was isolated to only the C Farm soil samples. Liquid samples and laboratory prepared soil standards (using laboratory VOA vials and stir bars) were not affected. The C Farm soil samples were analyzed on different instruments, which eliminated instrumentation as the problem. The laboratory believes that this problem is related to the sample matrix and/or the oversized stir bars used by the client. Additionally, it was determined that some of the VOA vials provided by the client leaked around the cap during purging. The problem was determined to be some type of blockage that impeded purge flow. The laboratory eventually developed a technique that provided improved results. This technique consisted of lightly shaking the VOA vial while monitoring purge flow with an in-line flow meter. The laboratory has requested that the client discontinue the use of the large stir bar and use different VOA vials.

The purpose of the internal standard is to compensate for fluctuation and drift in instrument response. The instrument responses for spikes, surrogates, or compounds found in the sample are adjusted base on their closest internal standard. A complete loss of internal standard undoubtedly invalidates the sample results. However, low internal standard recoveries do not necessarily mean that the data is unusable. SW846 only specifies minimum internal standard recovery requirements for the CCV, not the samples. While there are no regulatory limits for internal standard recoveries in a sample, there are practical limitations to the amount of fluctuation that can be tolerated before quantitation is affected. Typically that value is around the limits specified for the CCV (-50 to +100% drift). The further that the sample internal standards are from the established CCV limit, the more likely the quantitation is adversely affected. When internal standard recoveries fall outside these limits, surrogate recoveries may be used to evaluate any adverse effects on quantitation. On all samples exhibiting low internal standard responses, associated surrogate recoveries were evaluated to determine if the loss had significant effect on the reported results. Based on this evaluation, the laboratory believes that the VOA results contained in this report are useable.

Samples and their associated MS and matrix spike duplicate (MSD) were initially analyzed together in a single analytical run. However, because of the frequent internal standard failures, many reanalyses were required. Due to the limited number of extra sample vials (five per sample), the reanalysis did not typically contain the original sample, MS, and MSD. Consequently, the analytical batches contained in this report have sample and associated QC results for different analytical runs, which were often on different days. The construction of

batches in this manner was necessary for the laboratory information management system to associate a sample and its MS/MSD pair. All information and data concerning the analysis and reanalysis are contained in the VOA section of Appendix B.

The discussion below of the individual batches will not contain additional information concerning the low recoveries of internal standards. Detailed information for each sample is contained Appendix B.

Batch 14157: The method blank contained 1,2-dichloroethane and acetone below the estimated quantitation limit. Since the sample results were below the MDL for these compounds, reanalysis is not required. The LCS demonstrated a high recovery for acetone, 1-butanol, 2-butanone, and methyl isobutyl ketone (MIBK). Since these compounds were non-detect in the sample, reanalysis is not required. Sample results have been flagged with an "a."

Batch 14180: Other than the previously discussed internal standard issue, there were no notable issues with this batch and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 15471: The RPD between the MS and MSD failed to meet the 30% requirement for acetone, 1-butanol, 2-butanone, and MIBK. Since the sample did not contain quantifiable amounts of these compounds, reanalysis was not necessary. However, the sample results were flagged with a "c" indicating a batch precision failure. The MS failed slightly high at 131% for 2-butanone. Since this compound was not detected above the quantitation level, reanalysis was not required. The sample was flagged with a "b."

Batch 15472: The second method blank contained acetone below the estimated quantitation limit. Since the associated sample did not contain acetone above the estimated quantitation limit, reanalysis is not required. A "B" flag has been applied to the sample result. Toluene was present in the second method blank below the estimated quantitation limit. Since the associated sample results were below the MDL, the data was not affected. The first LCS demonstrated a high recovery for 1,1-dichloroethene, MIBK, acetone, and 2-butanone. Since these compounds were not detected in the samples above the estimated quantitation limit, reanalysis is not required. Sample results have been flagged with an "a." The MS recovery for 1-butanol was above the 30% requirement and a "b" flag has been added to the associated results. Since this compound was not detected in the associated samples, reanalysis was not required. The CCV %D exceeded the ±20% requirement for trichlorofluoromethane, 1,1-dichloroethene, carbon disulfide, acetone, and 2-butanone. All were above the expected value. Since all compounds were either not detected or below the estimated quantitation limit, the results were not affected and reanalysis not required. The CCV met the 15% average %D requirement.

Batch 15474: The method blank contained acetone below the estimated quantitation limit. Since the associated sample did not contain acetone, reanalysis is not required. The CCV for acetone exceeded the 20% %D requirement. Since the CCV was above the calibration amount and the sample was nondetect, reanalysis was not required.

Batch 15476: The method blank contained acetone below the estimated quantitation limit. Since the associated sample did not contain acetone, reanalysis is not required.

Batch 15477: The method blank contained acetone below the estimated quantitation limit. Since the associated samples did not contain acetone above the estimated quantitation limit, reanalysis is not required. All acetone results were slightly above the MDL and have been flagged with a "B." The RPD between the MS and MSD exceeded the 30% requirement at 31% for 1-butanol. Since the samples were nondetect for this compound, reanalysis was not required. A "c" flag was added to the associated sample results. The CCV for acetone exceeded the 20% %D requirement. Since the CCV was above the calibration amount and the samples were below the estimated quantitation limit, reanalysis was not required.

Batch 15479: There were no notable issues with this liquid sample batch, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 15491: Other than the previously discussed internal standard issue, there were no notable issues with this batch and all QC requirements in the FSAP, SAP, and the QAPP were met. Since the client only required an MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6406 is in batch 15477.

Batch 15492: Other than the previously discussed internal standard issue, there were no notable issues with this batch and all QC requirements in the FSAP, SAP, and the QAPP were met. Since the client only required an MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6406 is in batch 15477, and the MS/MSD for core hole C6402 is in batch 15471.

Batch 15493: There were no notable issues with this liquid sample batch, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 15503: The method blank contained acetone below the estimated quantitation limit. Since associated samples did not contain acetone above the estimated quantitation limit, reanalysis is not required. Two samples contained acetone at slightly above the MDL and have been flagged with a "B." The method blank contained toluene below the estimated quantitation limit. Since associated samples did not contain toluene above the MDL, reanalysis was not required.

Batch 15525: The CCV %D for 1-butanol was slightly high at 20.6%. Since the sample did not contain 1-butanol above the MDL, the result was not adversely affected. Since the client only required an MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6404 is in batch 15674.

Batch 15671: The CCV associated with the field samples and the MSD for sample B1TY75 (S09V000125) had a %D of -23% for 1-butanol. This could indicate that positive results for 1-butanol could be biased low. A laboratory-defined "Y" flag has been applied to these results. 1-butanol was not detected in these samples. Additionally, the MSD was recovered at 90%, indicating that the low CCV had minimal affect on the results. The CCV associated with the MS/MSD for sample B1YT72 (S09V000124) and MS for sample B1YT75 (S09V000125) had a %D of -30% for 1-butanol. The recoveries for the field quality control samples were within the required 70% to 130%, indicating that the low CCV had minimal effect on the analysis results. The average %D was less than 15%, which meets the SW-846 requirement.

Batch 15673: The CCV %D exceeded the 20% limit for acetone. Acetone was recovered above the expected calibration value. This could indicate a high bias for acetone sample results. Since the sample result for acetone was below the estimated quantitation limit, reanalysis was not required and the data was not affected. The method blank contained acetone and toluene below the estimated quantitation limit. The sample contained acetone below the estimated quantitation limit and was nondetect for toluene. Since all results (blank and sample) were below the estimated quantitation limit, reanalysis was not required. Since the client only required an MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6400 is in batch 15503.

Batch 15674: The CCV had a %D at -21% for 1-butanol. This could indicate that positive results for 1-butanol could be biased low. A laboratory defined "Y" flag has been applied to these results. 1-butanol was not detected in these samples. The LCS and MS/MSD recoveries were within the required limits, indicating that the low CCV had minimal effect on the analysis results. The average %D was less than 15%, which meets the SW-846 requirement.

Batch15785: The LCS recoveries for 1-butanol, 2-butanone, MIBK, and acetone were above the required 130%. The sample did not contain these compounds above the MDL, so the results were not affected. The method blank contained toluene below the estimated quantitation limit. Since the associated sample did not contain toluene above the MDL, reanalysis was not required. The CCV %D for 1-butanol was slightly high at 20.1%. Since the sample did not contain 1-butanol above the MDL, the result was not adversely affected. Since the client only required and MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6404 is in batch 15674. The average %D was less than 15%, which meets the SW-846 requirement.

3.4.2 Semivolatile Organic Analysis

The semivolatile organic analysis (SVOA) was performed on methylene chloride extractions of all liner composite samples except B20XV5 and B20XW3. These samples were not analyzed based on the client's instructions. Each extract was analyzed twice using two separate calibration curves to provide calibrated results for all compounds listed in the FSAP and SAP. All holding times were met except for the extraction of sample B20XV9 (S09V000742). This was caused by failure to assign the test during log-in.

Ten of the twenty-two samples contained a low level of bis (2-ethylhexyl) phthalate, which was not detected above the MDL in the method blanks. Additionally, low levels of di-n-butylphthalate were detected in four samples and was present in the method blank associated with two of the samples. Low levels of phthalates may represent contamination of the samples during sampling and/or analysis, but environmental contamination could also be the source. If laboratory contamination is present, it will usually appear in the method blank. Due to the prevalence of low level phthalate contamination in the environment, it can be hard to determine the source of low level results. Equipment blanks can help isolate the source of phthalates, but no equipment blanks were analyzed with these samples. One possible source of phthalate could be the red plastic end caps used with the liners. It is the laboratory's opinion that the use of these end caps should be discontinued.

The SVOA analysis met the required and target detection limits with two exceptions:

- The adjusted MDLs for cyclohexanone were above the 0.5mg/kg target detection limit for most samples. This compound obtained detection limits between 0.5 mg/kg an 0.7 mg/kg. The adjusted MDLs for di-n-butyl-phthalate were above the target detection limit of 0.33 mg/kg. The analysis achieved a detection limit of between 0.5 mg/kg and 0.7 mg/kg for this compound.
- LCS, MS, and MSD recoveries were compared against the laboratory's statistical process control (SPC) limits, as required by SW-846. The use of SPC limits is allowed in the FSAP, SAP, and QAPP.

Batches 14181, 14528, 14529, and 15811: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 14169: The surrogate terphenyl-d14 was recovered below the laboratories SPC limits of 75% to 175% at 62%. It is the laboratory's opinion that this is not a particularly low recovery and the usability of the associated results was not affected. The SPC limits appear to be biased high. SPC limits are currently under review and will be updated. This bias is expected to be corrected. All other QC requirements were met.

Batch 14527: Di-n-butylphthalate was detected in the method blank below the quantitation limit. However, the blank result exceeded 5% of the associated sample results. These results have been flagged with a "B." Since the blank and sample results were below the quantitation limit, reanalysis was not required. No MS or MSD was analyzed with this batch. Since the client only required that an MS and MSD be analyzed once per core hole (see Attachment 5), this requirement was met in batch 14529. All other QC requirements were met.

Batch 14580: For two samples, the surrogate terphenyl-d14 was recovered below the laboratory's SPC limits of 75% to 175% at 64% and 58%. It is the laboratory's opinion that this is not a particularly low recovery and the usability of the associated results was not affected. The SPC limits appear to be biased high. SPC limits are currently under review and will be updated. This bias is expected to be corrected. All other QC requirements were met.

Batch 15509: All QC requirements were met. However, a large cyclohexene peak was detected during the second analysis of the samples. Since the TICs were reported from the 1st analysis only, this peak has not been reported. The laboratory believes that the cyclohexene was present in the methylene chloride used for the extraction.

3.4.3 Tentatively Identified Compounds

Unassigned peaks or TICs were treated as follows. Standards were obtained and analyzed for each secondary analyte identified in the SAP. This data was accumulated in the Hanford library. Following analysis, the largest TICs with instrument responses greater than 10% of the response of the nearest internal standard were evaluated and compared to the Hanford library. The estimated concentration of these TICs was calculated using measured response factors from the Hanford library compound list.

After comparison to the Hanford library, remaining unknowns were compared to the National Institute of Standards and Technology (NIST) 02, *HP Mass Spectral (compound) Libraries*. The estimated concentration of compounds identified from the NIST library was calculated based on an arbitrary response factor of 1.0. If the compounds were not identified as a result of this comparison, they were reported as "unknown." Summaries of the SVOA and VOA TICs from the field samples and method blanks are provided in Attachment 4. TICs found in the field samples and which were present in the associated batch method blank have been flagged with "B."

4.0 PROCEDURES

Table 2 lists the analytical procedures used for analysis of the C-Farm samples.

Table 2. Analytical Procedures.

Analysis	Preparation Method	Analysis Procedure
Inorganic Analyses		
Cyanide	LA-695-103, Rev. I-0, J-0 (SW-846 9010C)	LA-695-103, Rev. I-0, J-0 (SW-846 9014)
Sulfide	LA-361-101, Rev. D-0 (SW-846 9030B)	LA-361-101, Rev. D-0 (SW-846 9215)
pH	Direct	LA-212-105, Rev. G-0 (SW-846 9045D)
Mercury – Cold Vapor Atomic Absorption	LA-325-106, Rev. G-0 (SW-846 7470A, 7471A)	LA-325-106, Rev. G-0 (SW-846, 7470A, 7471A)
Ammonia – IC	LA-544-112, Rev. D-0	LA-533-101, Rev. O-0
Anions & Organic Acids – IC	LA-504-101, Rev. L-0	LA-533-115, Rev. J-0
Metals – ICP /AES	LA-505-163, Rev. F-0 (SW-846 3050B)	LA-505-161, Rev. I-0, J-0a (SW-846 6010C)
^{99}Tc, ^{126}Sn – ICP/MS	LA-505-163, Rev. F-0 (SW-846 3050B)	LA-506-102, Rev. E-0
Metals – ICP/MS	LA-505-163, Rev. F-0 (SW-846 3050B)	LA-506-103, Rev. A-0 (SW-846 6020A)
Actinides – ICP/MS	LA-505-163, Rev. F-0 (SW-846 3050B)	LA-506-102, Rev. E-0
Radiochemical Analyses		
GEA	Direct	LA-548-121, Rev. I-0
^{90}Sr – Separation/Beta counting	LA-544-101, Rev. F-0	LA-220-101, Rev. I-0
Tritium – LSC	LA-504-101, Rev. L-0	LA-218-114, Rev. F-0
^{14}C – LSC	LA-504-101, Rev. L-0	LA-348-104, Rev. H-0
^{79}Se – Separation/LSC	LA-544-101, Rev. F-0	LA-365-102, Rev. I-0
^{63}Ni – Separation/LSC	LA-544-101, Rev. F-0	LA-285-102, Rev. D-0
^{129}I – Separation/GEA	LA-544-101, Rev. F-0	LA-378-105, Rev. C-0
^{241}Am, $^{243/244, 242}$Cm – Separation/AEA	LA-544-101, Rev. F-0	LA-953-104, Rev. H-1
$^{239/240, 238}$Pu – Separation/AEA	LA-544-101 Rev. F-0	LA-953-104, Rev. H-1
Organic Analyses		
VOC – GC-MS	Direct	LA-523-118, Rev. G-0

Table 2. Analytical Procedures.

Analysis	Preparation Method	Analysis Procedure
SVOC – GC/MS	LA-523-138, Rev. F-0 (SW846-3540C)	LA-523-135, Rev. C-0

5.0 REFERENCES

ATL-MP-1011, 2008, *ATL Quality Assurance Project Plan for 222-S Laboratory*, Rev. 8 and Rev. 9, Advanced Technologies and Laboratories International, Inc., Richland, Washington.

NIST 02, 2002, *HP Mass Spectral Libraries*, July 2002 Release, Hewlett-Packard Company, Palo Alto, California.

SW-846, 1986, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods,* Third Edition, as amended, U.S. Environmental Protection Agency, Washington, D.C.

DASTM STP 1057, 1991, *Waste Testing and Quality Assurance: Third Volume, Holding Times of Volatile Organics in Water*, American Society for Testing and Materials, Philadelphia, Pennsylvania.

CONF-96071123-5, 1996, *A Confirmatory Holding Time Study for purgeable VOCs in Water Samples,* Oak Ridge National Laboratory, Tennessee.

RPP-PLAN-40564, 2009, *Field Sampling and Analysis Plan for Sites P and L at Waste Management Area,* Rev. 0, Washington River Protection Solutions, Inc.

RPP-PLAN-38777, 2008, *Sampling and Analysis Plan for Phase 2 Characterization of Vadose Zone Soil in Waste Management Area C*, Rev. 0, Washington River Protection Solutions, Inc.

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-013	PAGE 1 OF 2
COLLECTOR: Rosane, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND
SAMPLING LOCATION: C6392, I-003	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 pg 56	ACTUAL SAMPLE DEPTH: 14'-15"	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S20090160

SPECIAL HANDLING AND/OR STORAGE
7°C / 45°F

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C	
TYPE OF CONTAINER	aGs*	aGs*	
NO. OF CONTAINER(S)	5	3	
VOLUME	40mL	40mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B1YT69 / S09V000123	SOIL	4-14-09	1300	✓	✓	
~~+S09V000124~~	Called					
S09V000131						

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane, Larry Rosane	4-14-09/1515	T W Collock, T W Collock	4-14-09 1515

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

CRCL 20090160
ZB, Ref 1 Rta

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-015	PAGE 2 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C6392, I-003	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg56	ACTUAL SAMPLE DEPTH 14'-15'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-015	PAGE 1 OF 2
COLLECTOR: Rosanne Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C6392, I-003	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 pg 56	ACTUAL SAMPLE DEPTH: 14'-15'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

7°C/45°F

SPECIAL HANDLING AND/OR STORAGE
22252009 0160

PRESERVATION	Cool~6C												
TYPE OF CONTAINER	Liner												
NO. OF CONTAINER(S)	~~1~~ 2 4-14-09												
VOLUME	160g												
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS												

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME											
B1YT71/20090160	SOIL	4-14-09	1300	✓										
S09V000148 → ZB														
S09V000149														

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: Larry Rosanne Larry Rosanne	DATE/TIME: 4-14-09/1515	RECEIVED BY/STORED IN: Tw Gllock	DATE/TIME: 4-14-09 1515
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

only two liners were filled due to material

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-013	PAGE 2 OF 2
COLLECTOR Rosanne, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-003	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg56	ACTUAL SAMPLE DEPTH 14'-15'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-016	PAGE 1 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-004	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 57	ACTUAL SAMPLE DEPTH 19.5'-21.5'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S20090160

SPECIAL HANDLING AND/OR STORAGE
28°F/46°F
-2°C/8°C

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C	
TYPE OF CONTAINER	aGs*	aGs*	
NO. OF CONTAINER(S)	5	3	
VOLUME	40mL	40mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B1YT72	SOIL	4-21-09	1041	✓	✓								
S09V000124 (Low)													
S09V000132 (High)													

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne - Larry Rosanne	4-21-09/1330	R Steele R/Steele	4-21-09 1330
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-016	PAGE 2 OF 2
COLLECTOR Rosane, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P **AIR QUALITY** ☐	**DATA TURNAROUND** 75 Days / 75 Days
SAMPLING LOCATION C6392, I-004	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-W-576-3 pg 57	**ACTUAL SAMPLE DEPTH** 19.5', 21.5'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-018	PAGE 1 OF 2
COLLECTOR Rosanne, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-004	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 57	ACTUAL SAMPLE DEPTH 19.5'-21.5'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S20090160

SPECIAL HANDLING AND/OR STORAGE
8°C/46°F

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B1YT74	SOIL	4-21-09	1041
S09V000152 (a)			
153 (b)			
154 (c)			

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne, Larry Rosanne	4-21-09/1330	R Steele	4.21.09 1330
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-018	PAGE 2 OF 2
COLLECTOR Rosane, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P	**DATA TURNAROUND**
SAMPLING LOCATION C6392, I-004	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002	**AIR QUALITY** ☐	**75 Days / 75 Days**
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 pg 57	**ACTUAL SAMPLE DEPTH** 19.5'-21.5'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-019	PAGE 1 OF 2
COLLECTOR: Rosawe, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND
SAMPLING LOCATION: C6392, I-005	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO.: HUF-W-576-3 pg 59	ACTUAL SAMPLE DEPTH: 25'-27'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

22252009 0160

SPECIAL HANDLING AND/OR STORAGE
54°F / 34°F
12°C / 1°C

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C	
TYPE OF CONTAINER	aGs*	aGs*	
NO. OF CONTAINER(S)	5	3	
VOLUME	40mL	40mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B1YT75 GV pPR 4-22-09	SOIL	4-22-09	1000	✓	✓	
SOV9000125 (Lo)						
SOV9000133 (Hi) GV						
Lot #				814110	B907501V3	

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosawe Larry Rosawe	4-22-09 / 1313	TM Collock	4-22-09 1313

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-019	PAGE 2 OF 2
COLLECTOR Rosane, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-005	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 59	ACTUAL SAMPLE DEPTH 25'-27'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V09-002-021	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8P	DATA TURNAROUND
Rosanne, Rust	SYDNOR, HA	373-3967	WIDRIG, DL		
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**	**AIR QUALITY** ☐	75 Days / 75 Days
C6392, I-005	WMA C Sampling for CMS		V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
	HNF-N-576-3 pg 59	25'-27'	301483ES10	GOVERNMENT VEHICLE	
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
222-S Lab Operations					

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S2009016 0

SPECIAL HANDLING AND/OR STORAGE
12°C/54°F

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B1YT77	SOIL	4-22-09	1000
S09V000156			
S09V000158			
S09V000157			
LOT #			

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne Larry Rosanne	4-22-09 1313	TM Collick	4-22-09 1313

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-021	PAGE 2 OF 2
COLLECTOR Rosane, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-005	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 59	ACTUAL SAMPLE DEPTH 25'-27'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V09-002-022	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8P	DATA TURNAROUND
Rosawe, Rust	SYDNOR, HA	373-3967	WIDRIG, DL	AIR QUALITY ☐	75 Days / 75 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**		
C6392, I-006	WMA C Sampling for CMS		V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
	HNF-2572-3 pg 61	~~HNF 10 57~~ 42-44' SAR 4-30-09	301483ES10	GOVERNMENT VEHICLE	
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
222-S Lab Operations					

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

2226 2009 0160

SPECIAL HANDLING AND/OR STORAGE
-1°C/22°C
30°F/72°F
SPR 9/28/09 ~~2009 0160~~

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C									
TYPE OF CONTAINER	aGs*	aGs*									
NO. OF CONTAINER(S)	5	3									
VOLUME	40mL	40mL									
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS									

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B1YT78	SOIL	4-30-09	1015	✓	✓								
509V000126	(Li)												
509V000134	(Hi)												

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosawe, Larry Rosawe	4-30-09/ 1510	Todd McGlock/	4/30/09 1510
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-022	PAGE 2 OF 2
COLLECTOR Rosane, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P **AIR QUALITY** ☐	**DATA TURNAROUND** 75 Days / 75 Days
SAMPLING LOCATION C6392, I-006	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-526-3 pg61	**ACTUAL SAMPLE DEPTH** 42'-44'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-024	PAGE 1 OF 2
COLLECTOR Roanne, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C6392, I-006	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg61	ACTUAL SAMPLE DEPTH 42'-44'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

SPECIAL HANDLING AND/OR STORAGE
222S20090160 22°C/72°F

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1YT80	SOIL	4-30-09	1015 ~~1015~~ 4-30-09	✓
S09V000160				
S09V000161				
S09V000162				

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane, Larry Rosane	4-30-09/ 1510	Tim Gollock Tim Gollock	4/30/09 1510
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-024	PAGE 2 OF 2
COLLECTOR Rosine, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P **AIR QUALITY** ☐	**DATA TURNAROUND** 75 Days / 75 Days
SAMPLING LOCATION C6392, I-006	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 pg 61	**ACTUAL SAMPLE DEPTH** 42'-44'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-025	PAGE 1 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-007	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 61	ACTUAL SAMPLE DEPTH 56'-58'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

SPECIAL HANDLING AND/OR STORAGE
222S20090160 -1°C/22°C 30°C/72°F

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C	
TYPE OF CONTAINER	aGs*	aGs*	
NO. OF CONTAINER(S)	5	3	
VOLUME	40mL	40mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B1YT81	SOIL	4-30-09	1415	✓	✓	
S09V000127	(L.)					
S09U000135	(H.)					
Lot #				B1F0110	B9075011V13	

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne Larry Rosanne	4-30-09/ 1510	Tim Mock Tim Mock	4/30/09 1510
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-025	PAGE 2 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-007	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg61	ACTUAL SAMPLE DEPTH 56'-58'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-027	PAGE 1 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-007	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-5 pg 61	ACTUAL SAMPLE DEPTH 56-58'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

SPECIAL HANDLING AND/OR STORAGE
222S20090160 22°C/72°F

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1YT83 164	SOIL	4-30-09	1415	✓
S09V000175				
S09V000165				
S09V000166				

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne, Larry Rosanne	4-30-09/1500	Tim Tech Tim Tech	4/30/09 1510
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-027	PAGE 2 OF 2
COLLECTOR Rosane Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C6392, I-007	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-526-3 p61	ACTUAL SAMPLE DEPTH 56'-58'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-003-009	PAGE 1 OF 1
COLLECTOR Karen White	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 7P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6404, I-005TB	PROJECT DESIGNATION WMA C Sampling for CMS - QC Sampling		SAF NO. V09-003		
ICE CHEST NO.	FIELD LOGBOOK NO. 576-3 HNF-N-576-3 pg 66	ACTUAL SAMPLE DEPTH N/A	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S2009C345

SPECIAL HANDLING AND/OR STORAGE
13°C/55°F

PRESERVATION	HCl or H2SO4 to pH <2/Cool~4C
TYPE OF CONTAINER	aGs*
NO. OF CONTAINER(S)	3
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1YY23	WATER	5-18-09	07:30	✓
509V000377				

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM Karen White / [illegible] 5-18-09	DATE/TIME 1455	RECEIVED BY/STORED IN TM Gilliland / [illegible] 5-18-09	DATE/TIME 1455
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
(1)VOA - 8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

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

A-6003-618(01/06)

Appendix 5

Data Validation Supporting Documentation

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: WMA C			DATA PACKAGE: VSR10-013		
VALIDATOR: Carl Schloesslin		LAB: 222-S Laboratory		DATE: 4-28-2010	
			SDG: 20090160 & 20090345		
ANALYSES PERFORMED					
SW-846 8260 X		SW-846 8260 (TCLP)	SW-846 8270		SW-846 8270 (TCLP)

SAMPLES/MATRIX

SDG 20090160 (soil samples): B1YT69, B1YT72, B1YT75, B1YT78, B1YT81

SDG 20090345 (water sample): B1YY23 (trip blank)

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? ..... Yes (No) N/A

Comments: None

2. INSTRUMENT TUNING AND CALIBRATION (Levels D and E)

GC/MS tuning/performance check acceptable? ..... Yes No (N/A)

Initial calibrations acceptable? ..... Yes No (N/A)

Continuing calibrations acceptable? ..... Yes No (N/A)

Standards traceable? ..... Yes No (N/A)

Standards expired? ..... Yes No (N/A)

Calculation check acceptable? ..... Yes No (N/A)

Comments:

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. BLANKS (Levels B, C, D, and E)

Calibration blanks analyzed? (Levels D, E) ..... Yes No N/A

Calibration blank results acceptable? (Levels D, E) ..... Yes No N/A

Laboratory blanks analyzed? ..... Yes No N/A

Laboratory blank results acceptable? ..... Yes No N/A

Field/trip blanks analyzed? (Levels C, D, E) ..... Yes No N/A

Field/trip blank results acceptable? (Levels C, D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments:

Trip blank B1YY23 detect: methylene chloride, 5.44 ug/L

4. ACCURACY (Levels C, D, and E)

Surrogates/system monitoring compounds analyzed? ..... Yes No N/A

Surrogate/system monitoring compound recoveries acceptable? ..... Yes No N/A

Surrogates traceable? (Levels D, E) ..... Yes No N/A

Surrogates expired? (Levels D, E) ..... Yes No N/A

MS/MSD samples analyzed? ..... Yes No N/A

MS/MSD results acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards? (Levels D, E) ..... Yes No N/A

LCS/BSS samples analyzed? ..... Yes No N/A

LCS/BSS results acceptable? ..... Yes No N/A

Standards traceable? (Levels D, E) ..... Yes No N/A

Standards expired? (Levels D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Performance audit sample(s) analyzed? ..... Yes No N/A

Performance audit sample results acceptable? ..... Yes No N/A

Comments:

LCS & MS/MSD: Five common analytes spiked plus four additional analytes. Trans-1,3-dichloropropene and carbon disulfide not represented in LCS and MS/MSD

GC/MS ORGANIC DATA VALIDATION CHECKLIST

5. PRECISION (Levels C, D, and E)

MS/MSD samples analyzed? ..... Yes No N/A

MS/MSD RPD values acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards expired? (Levels D, E) ..... Yes No N/A

Field duplicate RPD values acceptable? ..... Yes No N/A

Field split RPD values acceptable? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: None

6. SYSTEM PERFORMANCE (Levels D and E)

Internal standards analyzed? ..... Yes No N/A

Iinternal standard areas acceptable? ..... Yes No N/A

Internal standard retention times acceptable? ..... Yes No N/A

Standards traceable? ..... Yes No N/A

Standards expired? ..... Yes No N/A

Transcription/calculation errors? ..... Yes No N/A

Comments:

7. HOLDING TIMES (all levels)

Samples properly preserved? ..... Yes No N/A

Sample holding times acceptable? ..... Yes No N/A

Comments: None

GC/MS ORGANIC DATA VALIDATION CHECKLIST

8. COMPOUND IDENTIFICATION, QUANTITATION, AND DETECTION LIMITS (all levels)

Compound identification acceptable? (Levels D, E) ..... Yes No N/A

Compound quantitation acceptable? (Levels D, E) ..... Yes No N/A

Results reported for all requested analyses? ..... Yes No N/A

Results supported in the raw data? (Levels D, E) ..... Yes No N/A

Samples properly prepared? (Levels D, E) ..... Yes No N/A

Laboratory properly identified and coded all TIC? (Levels D, E) ..... Yes No N/A

Detection limits meet RDL? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: None

9. SAMPLE CLEANUP (Levels D and E)

GPC cleanup performed? ..... Yes No N/A

GPC check performed? ..... Yes No N/A

GPC check recoveries acceptable? ..... Yes No N/A

GPC calibration performed? ..... Yes No N/A

GPC calibration check performed? ..... Yes No N/A

GPC calibration check retention times acceptable? ..... Yes No N/A

Check/calibration materials traceable? ..... Yes No N/A

Check/calibration materials Expired? ..... Yes No N/A

Analytical batch QC given similar cleanup? ..... Yes No N/A

Transcription/Calculation Errors? ..... Yes No N/A

Comments:

Appendix 6

Additional Documentation Requested By Client

LABCORE Completed Batch Report for Batch# 00014180

Analyst: Massie, Valerie

Book#: SEE BENCHSHEET

Instrument: GCMSD2 (NELIX) for VOA

Method: VOA 222S #2, LA-523-118 Rev/Mod G-0

Specification: C Farm WMA C

Prep Batch: N/A

Batch Comment: C-Farm WMA C, VOA, Solid, Group 20090160

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1																
1	BLNK	S0908140061		0	0	1,1,1-Trichloroethane	SOLID		<2.0000E-01			0.2	ug/Kg			U
1	BLNK	S0908140061		0	0	1,1,2-Trichloroethane	SOLID		<3.8000E-01			0.38	ug/Kg			U
1	BLNK	S0908140061		0	0	1,1,2,2-Tetrachloroethane	SOLID		<5.0000E-01			0.5	ug/Kg			U
1	BLNK	S0908140061		0	0	1,1-Dichloroethene	SOLID		<3.4000E-01			0.34	ug/Kg			U
1	BLNK	S0908140061		0	0	1,2-Dichloroethane	SOLID		<1.8000E-01			0.18	ug/Kg			U
1	BLNK	S0908140061		0	0	1-Butanol	SOLID		<1.5540E+01			15.54	ug/Kg			U
1	BLNK	S0908140061		0	0	4-Methyl-2-pentanone	SOLID		<1.7600E+00			1.76	ug/Kg			U
1	BLNK	S0908140061		0	0	Acetone	SOLID		<4.3800E+00			4.38	ug/Kg			U
1	BLNK	S0908140061		0	0	Benzene	SOLID		<3.2000E-01			0.32	ug/Kg			U
1	BLNK	S0908140061		0	0	Carbon Disulfide	SOLID		<3.0000E-01			0.3	ug/Kg			U
1	BLNK	S0908140061		0	0	Carbon Tetrachloride	SOLID		<3.0000E-01			0.3	ug/Kg			U
1	BLNK	S0908140061		0	0	Chloroform	SOLID		<1.8000E-01			0.18	ug/Kg			U
1	BLNK	S0908140061		0	0	Chlorobenzene	SOLID		<2.2000E-01			0.22	ug/Kg			U
1	BLNK	S0908140061		0	0	Ethylbenzene	SOLID		<2.4000E-01			0.24	ug/Kg			U
1	BLNK	S0908140061		0	0	Xylenes (total)	SOLID		<6.2000E-01			0.62	ug/Kg			U
1	BLNK	S0908140061		0	0	2-Butanone	SOLID		<2.6600E+00			2.66	ug/Kg			U
1	BLNK	S0908140061		0	0	Methylene Chloride	SOLID		<3.4000E-01			0.34	ug/Kg			U
1	BLNK	S0908140061		0	0	Tetrachloroethene	SOLID		<4.0000E-01			0.4	ug/Kg			U
1	BLNK	S0908140061		0	0	Toluene	SOLID		<2.4000E-01			0.24	ug/Kg			U
1	BLNK	S0908140061		0	0	trans-1,3-Dichloropropene	SOLID		<1.4000E-01			0.14	ug/Kg			U
1	BLNK	S0908140061		0	0	Trichloroethene	SOLID		<3.0000E-01			0.3	ug/Kg			U
1	BLNK	S0908140061		0	0	Vinyl Chloride	SOLID		<6.4000E-01			0.64	ug/Kg			U
1	BLNK	S0908140061		0	0	cis-Dichloroethylene	SOLID		<2.6000E-01			0.26	ug/Kg			U
1	BLNK	S0908140061		0	0	trans-Dichloroethylene	SOLID		<3.6000E-01			0.36	ug/Kg			U
1	BLNK	S0908140061		0	0	112Trichloro-122Trifluoroethan	SOLID		<5.0000E-01			0.5	ug/Kg			U
1	BLNK	S0908140061		0	0	2-Nitropropane	SOLID		<1.5770E+00			1.577	ug/Kg			U
1	BLNK	S0908140061		0	0	Ethyl acetate	SOLID		<9.7200E-01			0.972	ug/Kg			U
1	BLNK	S0908140061		0	0	Diethyl ether	SOLID		<8.8500E-01			0.885	ug/Kg			U
1	BLNK	S0908140061		0	0	Trichlorofluoromethane	SOLID		<1.9400E+00			1.94	ug/Kg			U

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014180

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
1	BLNK	S0908140061		0	0	o-Xylene	SOLID		<2.0000E-01			0.2	ug/Kg			U
1	BLNK	S0908140061		0	0	m,p-Xylene	SOLID		<4.2000E-01			0.42	ug/Kg			U
1	BLNK	S0908140061		0	0	4-Bromofluorobenzene	SOLID	20	1.9836E+01			0.24	ug/Kg	99.18	% Recovery	
1	BLNK	S0908140061		0	0	Dibromofluoromethane	SOLID	20	2.1053E+01			0.24	ug/Kg	105.26	% Recovery	
1	BLNK	S0908140061		0	0	1,2-Dichloroethane-d4	SOLID	20	2.0722E+01			0.4	ug/Kg	103.61	% Recovery	
1	BLNK	S0908140061		0	0	Toluene-d8	SOLID	20	1.9956E+01			0.26	ug/Kg	99.78	% Recovery	
1	BLNK	S0908140061		0	0	System Artifact #1	SOLID		2.8924271				ug/Kg			JT
1	BLNK	S0908140061		0	0	System Artifact #2	SOLID		5.4921831				ug/Kg			JT
1	BLNK	S0908140061		0	0	System Artifact #3	SOLID		3.5622049				ug/Kg			JT
Sample Sequence 2																
2	LCS	S0908140062		0	0	1,1-Dichloroethene	SOLID	18.86792	2.1636E+01			0.32075	ug/Kg	114.67	% Recovery	
2	LCS	S0908140062		0	0	1-Butanol	SOLID	188.6792	2.1938E+02			14.66	ug/Kg	116.27	% Recovery	
2	LCS	S0908140062		0	0	4-Methyl-2-pentanone	SOLID	94.33962	1.1634E+02			1.6604	ug/Kg	123.32	% Recovery	
2	LCS	S0908140062		0	0	Acetone	SOLID	94.33962	1.1494E+02			4.1321	ug/Kg	121.84	% Recovery	
2	LCS	S0908140062		0	0	Benzene	SOLID	18.86792	2.0875E+01			0.30189	ug/Kg	110.64	% Recovery	
2	LCS	S0908140062		0	0	Chlorobenzene	SOLID	18.86792	2.1002E+01			0.20755	ug/Kg	111.31	% Recovery	
2	LCS	S0908140062		0	0	2-Butanone	SOLID	94.33962	1.1378E+02			2.5094	ug/Kg	120.61	% Recovery	
2	LCS	S0908140062		0	0	Toluene	SOLID	18.86792	2.1062E+01			0.22642	ug/Kg	111.63	% Recovery	
2	LCS	S0908140062		0	0	Trichloroethene	SOLID	18.86792	2.0931E+01			0.28302	ug/Kg	110.93	% Recovery	
2	LCS	S0908140062		0	0	4-Bromofluorobenzene	SOLID	18.86792	2.0247E+01			0.22642	ug/Kg	107.31	% Recovery	
2	LCS	S0908140062		0	0	Dibromofluoromethane	SOLID	18.86792	2.1365E+01			0.22642	ug/Kg	113.23	% Recovery	
2	LCS	S0908140062		0	0	1,2-Dichloroethane-d4	SOLID	18.86792	2.1552E+01			0.37736	ug/Kg	114.23	% Recovery	
2	LCS	S0908140062		0	0	Toluene-d8	SOLID	18.86792	1.9869E+01			0.24528	ug/Kg	105.31	% Recovery	
Sample Sequence 3																
3	BLNK	S0908170003		0	0	1,1,1-Trichloroethane	SOLID		<2.0000E-01			0.2	ug/Kg			U
3	BLNK	S0908170003		0	0	1,1,2-Trichloroethane	SOLID		<3.8000E-01			0.38	ug/Kg			U
3	BLNK	S0908170003		0	0	1,1,2,2-Tetrachloroethane	SOLID		<5.0000E-01			0.5	ug/Kg			U
3	BLNK	S0908170003		0	0	1,1-Dichloroethene	SOLID		<3.4000E-01			0.34	ug/Kg			U
3	BLNK	S0908170003		0	0	1,2-Dichloroethane	SOLID		<1.8000E-01			0.18	ug/Kg			U
3	BLNK	S0908170003		0	0	1-Butanol	SOLID		<1.5540E+01			15.54	ug/Kg			U
3	BLNK	S0908170003		0	0	4-Methyl-2-pentanone	SOLID		<1.7600E+00			1.76	ug/Kg			U
3	BLNK	S0908170003		0	0	Acetone	SOLID		<4.3800E+00			4.38	ug/Kg			U
3	BLNK	S0908170003		0	0	Benzene	SOLID		<3.2000E-01			0.32	ug/Kg			U
3	BLNK	S0908170003		0	0	Carbon Disulfide	SOLID		<3.0000E-01			0.3	ug/Kg			U
3	BLNK	S0908170003		0	0	Carbon Tetrachloride	SOLID		<3.0000E-01			0.3	ug/Kg			U
3	BLNK	S0908170003		0	0	Chloroform	SOLID		<1.8000E-01			0.18	ug/Kg			U
3	BLNK	S0908170003		0	0	Chlorobenzene	SOLID		<2.2000E-01			0.22	ug/Kg			U
3	BLNK	S0908170003		0	0	Ethylbenzene	SOLID		<2.4000E-01			0.24	ug/Kg			U
3	BLNK	S0908170003		0	0	Xylenes (total)	SOLID		<6.2000E-01			0.62	ug/Kg			U
3	BLNK	S0908170003		0	0	2-Butanone	SOLID		<2.6600E+00			2.66	ug/Kg			U
3	BLNK	S0908170003		0	0	Methylene Chloride	SOLID		<3.4000E-01			0.34	ug/Kg			U

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014180

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
3	BLNK	S0908170003		0	0	Tetrachloroethene	SOLID		<4.0000E-01			0.4	ug/Kg			U
3	BLNK	S0908170003		0	0	Toluene	SOLID		<2.4000E-01			0.24	ug/Kg			U
3	BLNK	S0908170003		0	0	trans-1,3-Dichloropropene	SOLID		<1.4000E-01			0.14	ug/Kg			U
3	BLNK	S0908170003		0	0	Trichloroethene	SOLID		<3.0000E-01			0.3	ug/Kg			U
3	BLNK	S0908170003		0	0	Vinyl Chloride	SOLID		<6.4000E-01			0.64	ug/Kg			U
3	BLNK	S0908170003		0	0	cis-Dichloroethylene	SOLID		<2.6000E-01			0.26	ug/Kg			U
3	BLNK	S0908170003		0	0	trans-Dichloroethylene	SOLID		<3.6000E-01			0.36	ug/Kg			U
3	BLNK	S0908170003		0	0	112Trichloro-122Trifluoroethan	SOLID		<5.0000E-01			0.5	ug/Kg			U
3	BLNK	S0908170003		0	0	2-Nitropropane	SOLID		<1.5770E+00			1.577	ug/Kg			U
3	BLNK	S0908170003		0	0	Ethyl acetate	SOLID		<9.7200E-01			0.972	ug/Kg			U
3	BLNK	S0908170003		0	0	Diethyl ether	SOLID		<8.8500E-01			0.885	ug/Kg			U
3	BLNK	S0908170003		0	0	Trichlorofluoromethane	SOLID		<1.9400E+00			1.94	ug/Kg			U
3	BLNK	S0908170003		0	0	o-Xylene	SOLID		<2.0000E-01			0.2	ug/Kg			U
3	BLNK	S0908170003		0	0	m,p-Xylene	SOLID		<4.2000E-01			0.42	ug/Kg			U
3	BLNK	S0908170003		0	0	4-Bromofluorobenzene	SOLID	20	2.2992E+01			0.24	ug/Kg	114.96	% Recovery	
3	BLNK	S0908170003		0	0	Dibromofluoromethane	SOLID	20	2.4584E+01			0.24	ug/Kg	122.92	% Recovery	
3	BLNK	S0908170003		0	0	1,2-Dichloroethane-d4	SOLID	20	2.4698E+01			0.4	ug/Kg	123.49	% Recovery	
3	BLNK	S0908170003		0	0	Toluene-d8	SOLID	20	2.2955E+01			0.26	ug/Kg	114.78	% Recovery	
3	BLNK	S0908170003		0	0	1-Propene, 2-methyl-	SOLID		2.2182272				ug/Kg			JNT
3	BLNK	S0908170003		0	0	Nonanal	SOLID		2.4980937				ug/Kg			JNT
3	BLNK	S0908170003		0	0	Unknown-1	SOLID		4.3576682				ug/Kg			JT
3	BLNK	S0908170003		0	0	Unknown-2	SOLID		2.5552595				ug/Kg			JT
Sample Sequence 4																
4	LCS	S0908170004		0	0	1,1-Dichloroethene	SOLID	20	2.3681E+01			0.34	ug/Kg	118.4	% Recovery	
4	LCS	S0908170004		0	0	1-Butanol	SOLID	200	2.5541E+02			15.54	ug/Kg	127.7	% Recovery	
4	LCS	S0908170004		0	0	4-Methyl-2-pentanone	SOLID	100	1.2901E+02			1.76	ug/Kg	129.01	% Recovery	
4	LCS	S0908170004		0	0	Acetone	SOLID	100	1.2912E+02			4.38	ug/Kg	129.12	% Recovery	
4	LCS	S0908170004		0	0	Benzene	SOLID	20	2.2595E+01			0.32	ug/Kg	112.98	% Recovery	
4	LCS	S0908170004		0	0	Chlorobenzene	SOLID	20	2.3343E+01			0.22	ug/Kg	116.72	% Recovery	
4	LCS	S0908170004		0	0	2-Butanone	SOLID	100	1.2933E+02			2.66	ug/Kg	129.33	% Recovery	
4	LCS	S0908170004		0	0	Toluene	SOLID	20	2.3322E+01			0.24	ug/Kg	116.61	% Recovery	
4	LCS	S0908170004		0	0	Trichloroethene	SOLID	20	2.3194E+01			0.3	ug/Kg	115.97	% Recovery	
4	LCS	S0908170004		0	0	4-Bromofluorobenzene	SOLID	20	2.1752E+01			0.24	ug/Kg	108.76	% Recovery	
4	LCS	S0908170004		0	0	Dibromofluoromethane	SOLID	20	2.2908E+01			0.24	ug/Kg	114.54	% Recovery	
4	LCS	S0908170004		0	0	1,2-Dichloroethane-d4	SOLID	20	2.2446E+01			0.4	ug/Kg	112.23	% Recovery	
4	LCS	S0908170004		0	0	Toluene-d8	SOLID	20	2.1753E+01			0.26	ug/Kg	108.76	% Recovery	
Sample Sequence 5																
5	SAMPLE	S09V000123		0	0	1,1,1-Trichloroethane	SOLID	N/A	<2.3810E-01			0.2381	ug/Kg			U
5	SAMPLE	S09V000123		0	0	1,1,2-Trichloroethane	SOLID	N/A	<4.5238E-01			0.45238	ug/Kg			U
5	SAMPLE	S09V000123		0	0	1,1,2,2-Tetrachloroethane	SOLID	N/A	<5.9524E-01			0.59524	ug/Kg			U

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014180

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
5	SAMPLE	S09V000123		0	0	1,1-Dichloroethene	SOLID	N/A	<4.0476E-01			0.40476	ug/Kg			U
5	SAMPLE	S09V000123		0	0	1,2-Dichloroethane	SOLID	N/A	<2.1428E-01			0.21428	ug/Kg			U
5	SAMPLE	S09V000123		0	0	1-Butanol	SOLID	N/A	<1.8500E+01			18.5	ug/Kg			U
5	SAMPLE	S09V000123		0	0	4-Methyl-2-pentanone	SOLID	N/A	<2.0952E+00			2.0952	ug/Kg			U
5	SAMPLE	S09V000123		0	0	Acetone	SOLID	N/A	9.3940E+00			5.2143	ug/Kg			J
5	SAMPLE	S09V000123		0	0	Benzene	SOLID	N/A	<3.8095E-01			0.38095	ug/Kg			U
5	SAMPLE	S09V000123		0	0	Carbon Disulfide	SOLID	N/A	<3.5714E-01			0.35714	ug/Kg			U
5	SAMPLE	S09V000123		0	0	Carbon Tetrachloride	SOLID	N/A	<3.5714E-01			0.35714	ug/Kg			U
5	SAMPLE	S09V000123		0	0	Chloroform	SOLID	N/A	<2.1428E-01			0.21428	ug/Kg			U
5	SAMPLE	S09V000123		0	0	Chlorobenzene	SOLID	N/A	<2.6190E-01			0.2619	ug/Kg			U
5	SAMPLE	S09V000123		0	0	Ethylbenzene	SOLID	N/A	<2.8571E-01			0.28571	ug/Kg			U
5	SAMPLE	S09V000123		0	0	Xylenes (total)	SOLID	N/A	<7.3810E-01			0.7381	ug/Kg			U
5	SAMPLE	S09V000123		0	0	2-Butanone	SOLID	N/A	<3.1667E+00			3.1667	ug/Kg			U
5	SAMPLE	S09V000123		0	0	Methylene Chloride	SOLID	N/A	<4.0476E-01			0.40476	ug/Kg			U
5	SAMPLE	S09V000123		0	0	Tetrachloroethene	SOLID	N/A	<4.7619E-01			0.47619	ug/Kg			U
5	SAMPLE	S09V000123		0	0	Toluene	SOLID	N/A	2.9370E-01			0.28571	ug/Kg			J
5	SAMPLE	S09V000123		0	0	trans-1,3-Dichloroprop ene	SOLID	N/A	<1.6667E-01			0.16667	ug/Kg			U
5	SAMPLE	S09V000123		0	0	Trichloroethene	SOLID	N/A	<3.5714E-01			0.35714	ug/Kg			U
5	SAMPLE	S09V000123		0	0	Vinyl Chloride	SOLID	N/A	<7.6190E-01			0.7619	ug/Kg			U
5	SAMPLE	S09V000123		0	0	cis-Dichloroethylene	SOLID	N/A	<3.0952E-01			0.30952	ug/Kg			U
5	SAMPLE	S09V000123		0	0	trans-Dichloroethylene	SOLID	N/A	<4.2857E-01			0.42857	ug/Kg			U
5	SAMPLE	S09V000123		0	0	112Trichloro-122Triflu oroethan	SOLID	N/A	<5.9524E-01			0.59524	ug/Kg			U
5	SAMPLE	S09V000123		0	0	2-Nitropropane	SOLID	N/A	<1.8774E+00			1.8774	ug/Kg			U
5	SAMPLE	S09V000123		0	0	Ethyl acetate	SOLID	N/A	<1.1571E+00			1.1571	ug/Kg			U
5	SAMPLE	S09V000123		0	0	Diethyl ether	SOLID	N/A	<1.0536E+00			1.0536	ug/Kg			U
5	SAMPLE	S09V000123		0	0	Trichlorofluoromethane	SOLID	N/A	<2.3095E+00			2.3095	ug/Kg			U
5	SAMPLE	S09V000123		0	0	o-Xylene	SOLID	N/A	<2.3810E-01			0.2381	ug/Kg			U
5	SAMPLE	S09V000123		0	0	m,p-Xylene	SOLID	N/A	<5.0000E-01			0.5	ug/Kg			U
5	SAMPLE	S09V000123		0	0	4-Bromofluorobenzene	SOLID	23.80952	2.4420E+01			0.28571	ug/Kg	102.56	% Recovery	
5	SAMPLE	S09V000123		0	0	Dibromofluoromethane	SOLID	23.80952	2.4613E+01			0.28571	ug/Kg	103.37	% Recovery	
5	SAMPLE	S09V000123		0	0	1,2-Dichloroethane-d4	SOLID	23.80952	2.4979E+01			0.47619	ug/Kg	104.91	% Recovery	
5	SAMPLE	S09V000123		0	0	Toluene-d8	SOLID	23.80952	2.2534E+01			0.30952	ug/Kg	94.643	% Recovery	
Sample Sequence 6																
6	MS	S0908140064	S09V000123	0	0	1,1-Dichloroethene	SOLID	15.625	1.7174E+01			0.26562	ug/Kg	109.91	% Recovery	
6	MS	S0908140064	S09V000123	0	0	1-Butanol	SOLID	156.25	1.5547E+02			12.141	ug/Kg	99.501	% Recovery	
6	MS	S0908140064	S09V000123	0	0	4-Methyl-2-pentanone	SOLID	78.125	8.9911E+01			1.375	ug/Kg	115.09	% Recovery	
6	MS	S0908140064	S09V000123	0	0	Acetone	SOLID	78.125	8.7120E+01			3.4219	ug/Kg	99.489	% Recovery	
6	MS	S0908140064	S09V000123	0	0	Benzene	SOLID	15.625	1.6710E+01			0.25	ug/Kg	106.94	% Recovery	
6	MS	S0908140064	S09V000123	0	0	Chlorobenzene	SOLID	15.625	1.6351E+01			0.17188	ug/Kg	104.65	% Recovery	
6	MS	S0908140064	S09V000123	0	0	2-Butanone	SOLID	78.125	8.5326E+01			2.0781	ug/Kg	109.22	% Recovery	
6	MS	S0908140064	S09V000123	0	0	Toluene	SOLID	15.625	1.6654E+01			0.1875	ug/Kg	104.71	% Recovery	

Units shown for QC (BLK/BKG) may not reflect the actual units.

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014180

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
6	MS	S0908140064	S09V000123	0 0		Trichloroethene	SOLID	15.625	1.6269E+01			0.23438	ug/Kg	104.12	% Recovery	
6	MS	S0908140064	S09V000123	0 0		4-Bromofluorobenzene	SOLID	15.625	1.6206E+01			0.1875	ug/Kg	103.72	% Recovery	
6	MS	S0908140064	S09V000123	0 0		Dibromofluoromethane	SOLID	15.625	1.4774E+01			0.1875	ug/Kg	94.554	% Recovery	
6	MS	S0908140064	S09V000123	0 0		1,2-Dichloroethane-d4	SOLID	15.625	1.7199E+01			0.3125	ug/Kg	110.07	% Recovery	
6	MS	S0908140064	S09V000123	0 0		Toluene-d8	SOLID	15.625	1.5873E+01			0.20312	ug/Kg	101.59	% Recovery	
Sample Sequence 7																
7	MSD	S0908140065	S09V000123	0 0		1,1-Dichloroethene	SOLID	21.73913	2.4812E+01			0.36956	ug/Kg	114.14	% Recovery	
														3.7759	% RPD	
7	MSD	S0908140065	S09V000123	0 0		1-Butanol	SOLID	217.3913	2.0267E+02			16.891	ug/Kg	93.228	% Recovery	
														6.5097	% RPD	
7	MSD	S0908140065	S09V000123	0 0		4-Methyl-2-pentanone	SOLID	108.6956	1.2025E+02			1.913	ug/Kg	110.63	% Recovery	
														3.9518	% RPD	
7	MSD	S0908140065	S09V000123	0 0		Acetone	SOLID	108.6956	1.1984E+02			4.7609	ug/Kg	101.61	% Recovery	
														2.1094	% RPD	
7	MSD	S0908140065	S09V000123	0 0		Benzene	SOLID	21.73913	2.4185E+01			0.34783	ug/Kg	111.25	% Recovery	
														3.9507	% RPD	
7	MSD	S0908140065	S09V000123	0 0		Chlorobenzene	SOLID	21.73913	2.3976E+01			0.23913	ug/Kg	110.29	% Recovery	
														5.2480	% RPD	
7	MSD	S0908140065	S09V000123	0 0		2-Butanone	SOLID	108.6956	1.1729E+02			2.8913	ug/Kg	107.91	% Recovery	
														1.2067	% RPD	
7	MSD	S0908140065	S09V000123	0 0		Toluene	SOLID	21.73913	2.4256E+01			0.26087	ug/Kg	110.23	% Recovery	
														5.1363	% RPD	
7	MSD	S0908140065	S09V000123	0 0		Trichloroethene	SOLID	21.73913	2.4253E+01			0.32609	ug/Kg	111.56	% Recovery	
														6.8991	% RPD	
7	MSD	S0908140065	S09V000123	0 0		4-Bromofluorobenzene	SOLID	21.73913	2.2104E+01			0.26087	ug/Kg	101.68	% Recovery	
														1.9864	% RPD	
7	MSD	S0908140065	S09V000123	0 0		Dibromofluoromethane	SOLID	21.73913	2.3217E+01			0.26087	ug/Kg	106.8	% Recovery	
														12.164	% RPD	
7	MSD	S0908140065	S09V000123	0 0		1,2-Dichloroethane-d4	SOLID	21.73913	2.4053E+01			0.43478	ug/Kg	110.64	% Recovery	
														0.51651	% RPD	
7	MSD	S0908140065	S09V000123	0 0		Toluene-d8	SOLID	21.73913	2.2772E+01			0.28261	ug/Kg	104.75	% Recovery	
														3.0629	% RPD	

Comments Section:

Data Flagger Status:
Flagging Completed

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014180

Final Page for Batch# 00014180

Valerie L Massie 8-20-09
Analyst Signature Date

JP Murphy 8-17-09
Data Entry Signature Date

K Kelly 8/19/09
Reviewer Signature Date

PM Reviewer: Gerald P Ritenour 10-13-09

Units shown for QC (BLK/BKG) may not reflect the actual units.

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LABCORE Completed Batch Report for Batch# 00014180

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0908140061	BLNK				
2	S0908140062	LCS				
3	S0908170003	BLNK				
4	S0908170004	LCS				
5	S09V000123	SAMPLE		20090160	B1YT69	C Farm WMA C
6	S0908140064	MS	S09V000123			
7	S0908140065	MSD	S09V000123			

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

Date 4-19-09 Project 090419 C Farm/PFP glove box Room Procedure LA-523-118 6-0 Initials VLM

1 of 2

VOA BENCH SHEET

Concentration of compounds in secondary				Source "A"						Source "B"	
Internal Std	(µg/mL)	10.0									
Surrogate	(µg/mL)		10.0	1.0	3.0	10.0	30.0	50.0	75.0	10.0	10.0
Megmix	(µg/mL)			1.0	3.0	10.0	30.0	50.0	75.0	10.0	
Hexane	(µg/mL)			1.0	3.0	10.0	30.0	50.0	75.0	10.0	
THF	(µg/mL)			3.0	9.0	30.0	90.0	150.0	225.0	20.0	
Ketones	(µg/mL)			10.0	20.0	50.0	100.0	125.0	150.0	50.0	50.0
2-Pentanone	(µg/mL)			10.0	20.0	50.0	100.0	125.0	150.0	50.0	
n-butanol	(µg/mL)			20.0	40.0	100.0	200.0	250.0	300.0	100.0	100.0
Gases	(µg/mL)			1.0	3.0	10.0	30.0	50.0	75.0	10.0	
MS/LCS Mix	(µg/mL)										10.0

NEELIX		Internal Standard HNF-N-362-4-3.3 Expires: 5-9-09	Surrogate HNF-N-362-4-3.3 Expires: 5-9-09	CAL 1 Secondary (Includes Surrogate) Expires:	CAL 2 Secondary (Includes Surrogate) Expires:	CAL 3 Secondary (Includes Surrogate) HNF-N-362-4-16.3 Expires: 4/21/09 5-14-09	CAL 4 Secondary (Includes Surrogate) Expires:	CAL 4b Secondary (Includes Surrogate) Expires:	CAL 5 Secondary (Includes Surrogate) Expires:	ICVS Secondary (Includes Surrogate) Expires:	LCS/MS Secondary (Includes Surrogate) HNF-N-362-4-3.4 Expires: 5-9-09	BFB HNF-N-362-3-146.3 Expires: 9/11/09	H_2O	SAND Ottawa Lot 905987	S09V000123	S09V000123 MS	CCB (n-H)	LCS (n-H)	S09M000031	S09M000031 MS
Data File ID	TYPE	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(mL)	g	g	g	(ul)	(ul)	(ul)	(ul)
9041901 .d	PRERUN																			
9041902 .d	BFB											2.0	10.0							
9041903 .d	CCV	10.0				10.0							10.0							
9041904 .d	CCB	10.0	10.0										10.0	5.3002						
9041905 .d	LCS	10.0									10.0		10.0	5.1788						
9041906 .d	LCS	10.0									10.0		10.0	5.2811						
9041907 .d	SMP	10.0	10.0										10.0		4.2					
9041908 .d	MS	10.0									10.0		10.0			4.6				
9041909 .d	CCB	10.0	10.0										10.0				1.0			
9041910 .d	LCS	10.0									10.0		10.0					1.0		
9041911 .d	SMP	10.0	10.0										10.0						1.0	
9041912 .d	MS	10.0									10.0		10.0							1.0

Balance ID: LE-BAL-078 Calibration expires 9/22/09

noted on sample dilution S09M000031 VLM 4-19-09 ~~film~~ flim adhering to sides of vial, sampled from supernate VLM 4-19-09

Date 4-19-09 Project 090419 CFarm / PFP Procedure LA-523-118 G-0 Initials VLM

Glovebox Reruns

Concentration of compounds in secondary				Source "A"						Source "B"	
Internal Std	(µg/mL)	10.0									
Surrogate	(µg/mL)		10.0	1.0	3.0	10.0	30.0	75.0	n/a	10.0	10.0
Megmix	(µg/mL)			1.0	3.0	10.0	30.0	75.0	n/a	10.0	
Hexane	(µg/mL)			1.0	3.0	10.0	30.0	75.0	n/a	11.1	
THF	(µg/mL)			3.0	9.0	30.0	90.0	225.0	n/a	30.0	
Ketones	(µg/mL)			10.0	20.0	50.0	100.0	150.0	n/a	50.0	50.0
2-Pentanone	(µg/mL)			10.0	20.0	50.0	100.0	150.0	n/a	50.0	
n-butanol	(µg/mL)			20.0	40.0	100.0	200.0	300.0	n/a	100.0	100.0
Gases	(µg/mL)			1.0	3.0	10.0	30.0	75.0	n/a	10.0	
MS/LCS Mix	(µg/mL)										10.0

2 of 2

VOA BENCH SHEET

		Internal Standard HNF-N-362-4-3.2 Expires: 5-9-09	Surrogate HNF-N-362-4-3.3 Expires: 5-9-09	CAL 1 Secondary (Includes Surrogate) Expires:	CAL 2 Secondary (Includes Surrogate) Expires:	CAL 3 Secondary (Includes Surrogate) Expires:	CAL 4 Secondary (Includes Surrogate) Expires:	CAL 5 Secondary (Includes Surrogate) Expires:	CAL 6 Secondary (Includes Surrogate) Expires:	ICVS Secondary (Includes Surrogate) Expires:	LCS/MS Secondary (Includes Surrogate) HNF-N-362-4-3.4 Expires: 5-9-09	H2O	S09M00031 MSD	S09M00032	S09M00032 MS	S09M00032 MSD				
Data File ID	TYPE	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(ML)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)
9041913 .d	MSD	10.0									10.0	10.0	1.0							
9041914 .d	SMP	10.0	10.0									10.0		1.0						
9041915 .d	MS	10.0									10.0	10.0			1.0					
9041916 .d	MSD	10.0									10.0	10.0				1.0				
															pH:					

NOTES Balance ID: see pg #1

LABCORE Completed Batch Report for Batch# 00015493

Analyst: Duchsherer, Mark **Book#:**

Instrument: GCMSD2 (NELIX) for VOA

Method: VOA 222S #2, LA-523-118 Rev/Mod G-0

Specification: C Farm WMA C

Prep Batch:

Batch Comment: C Farm WMA C, VOA 222S #2, Sol

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1																
1	BLNK	S0908140066	0	0		1,1,1-Trichloroethane	SOLID		<2.0000E-01			0.2	ug/Kg			U
1	BLNK	S0908140066	0	0		1,1,2-Trichloroethane	SOLID		<3.8000E-01			0.38	ug/Kg			U
1	BLNK	S0908140066	0	0		1,1,2,2-Tetrachloroethane	SOLID		<5.0000E-01			0.5	ug/Kg			U
1	BLNK	S0908140066	0	0		1,1-Dichloroethene	SOLID		<3.4000E-01			0.34	ug/Kg			U
1	BLNK	S0908140066	0	0		1,2-Dichloroethane	SOLID		<1.8000E-01			0.18	ug/Kg			U
1	BLNK	S0908140066	0	0		1-Butanol	SOLID		<1.5540E+01			15.54	ug/Kg			U
1	BLNK	S0908140066	0	0		4-Methyl-2-pentanone	SOLID		<1.7600E+00			1.76	ug/Kg			U
1	BLNK	S0908140066	0	0		Acetone	SOLID		<4.3800E+00			4.38	ug/Kg			U
1	BLNK	S0908140066	0	0		Benzene	SOLID		<3.2000E-01			0.32	ug/Kg			U
1	BLNK	S0908140066	0	0		Carbon Disulfide	SOLID		<3.0000E-01			0.3	ug/Kg			U
1	BLNK	S0908140066	0	0		Carbon Tetrachloride	SOLID		<3.0000E-01			0.3	ug/Kg			U
1	BLNK	S0908140066	0	0		Chloroform	SOLID		<1.8000E-01			0.18	ug/Kg			U
1	BLNK	S0908140066	0	0		Chlorobenzene	SOLID		<2.2000E-01			0.22	ug/Kg			U
1	BLNK	S0908140066	0	0		Ethylbenzene	SOLID		<2.4000E-01			0.24	ug/Kg			U
1	BLNK	S0908140066	0	0		Xylenes (total)	SOLID		<6.2000E-01			0.62	ug/Kg			U
1	BLNK	S0908140066	0	0		2-Butanone	SOLID		<2.6600E+00			2.66	ug/Kg			U
1	BLNK	S0908140066	0	0		Methylene Chloride	SOLID		<3.4000E-01			0.34	ug/Kg			U
1	BLNK	S0908140066	0	0		Tetrachloroethene	SOLID		<4.0000E-01			0.4	ug/Kg			U
1	BLNK	S0908140066	0	0		Toluene	SOLID		<2.4000E-01			0.24	ug/Kg			U
1	BLNK	S0908140066	0	0		trans-1,3-Dichloropropene	SOLID		<1.4000E-01			0.14	ug/Kg			U
1	BLNK	S0908140066	0	0		Trichloroethene	SOLID		<3.0000E-01			0.3	ug/Kg			U
1	BLNK	S0908140066	0	0		Vinyl Chloride	SOLID		<6.4000E-01			0.64	ug/Kg			U
1	BLNK	S0908140066	0	0		cis-Dichloroethylene	SOLID		<2.6000E-01			0.26	ug/Kg			U
1	BLNK	S0908140066	0	0		trans-Dichloroethylene	SOLID		<3.6000E-01			0.36	ug/Kg			U
1	BLNK	S0908140066	0	0		112Trichloro-122Trifluoroethan	SOLID		<5.0000E-01			0.5	ug/Kg			U
1	BLNK	S0908140066	0	0		2-Nitropropane	SOLID		<1.5770E+00			1.577	ug/Kg			U
1	BLNK	S0908140066	0	0		Ethyl acetate	SOLID		<9.7200E-01			0.972	ug/Kg			U
1	BLNK	S0908140066	0	0		Diethyl ether	SOLID		<8.8500E-01			0.885	ug/Kg			U
1	BLNK	S0908140066	0	0		Trichlorofluoromethane	SOLID		<1.9400E+00			1.94	ug/Kg			U

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00015493

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
1	BLNK	S0908140066		0 0		o-Xylene	SOLID		<2.0000E-01			0.2	ug/Kg			U
1	BLNK	S0908140066		0 0		m,p-Xylene	SOLID		<4.2000E-01			0.42	ug/Kg			U
1	BLNK	S0908140066		0 0		4-Bromofluorobenzene	SOLID	20	2.2403E+01			0.24	ug/Kg	112.02	% Recovery	
1	BLNK	S0908140066		0 0		Dibromofluoromethane	SOLID	20	2.4196E+01			0.24	ug/Kg	120.98	% Recovery	
1	BLNK	S0908140066		0 0		1,2-Dichloroethane-d4	SOLID	20	2.3531E+01			0.4	ug/Kg	117.66	% Recovery	
1	BLNK	S0908140066		0 0		Toluene-d8	SOLID	20	2.2276E+01			0.26	ug/Kg	111.38	% Recovery	
1	BLNK	S0908140066		0 0		Nonanal	SOLID		2.9419538				ug/Kg			JNT
Sample Sequence 2																
2	LCS	S0908140067		0 0		1,1-Dichloroethene	SOLID	20	2.4413E+01			0.34	ug/Kg	122.06	% Recovery	
2	LCS	S0908140067		0 0		1-Butanol	SOLID	200	2.1055E+02			15.54	ug/Kg	105.28	% Recovery	
2	LCS	S0908140067		0 0		4-Methyl-2-pentanone	SOLID	100	1.1432E+02			1.76	ug/Kg	114.32	% Recovery	
2	LCS	S0908140067		0 0		Acetone	SOLID	100	1.1396E+02			4.38	ug/Kg	113.96	% Recovery	
2	LCS	S0908140067		0 0		Benzene	SOLID	20	2.3178E+01			0.32	ug/Kg	115.89	% Recovery	
2	LCS	S0908140067		0 0		Chlorobenzene	SOLID	20	2.3481E+01			0.22	ug/Kg	117.4	% Recovery	
2	LCS	S0908140067		0 0		2-Butanone	SOLID	100	1.1372E+02			2.66	ug/Kg	113.72	% Recovery	
2	LCS	S0908140067		0 0		Toluene	SOLID	20	2.3229E+01			0.24	ug/Kg	116.14	% Recovery	
2	LCS	S0908140067		0 0		Trichloroethene	SOLID	20	2.3924E+01			0.3	ug/Kg	119.62	% Recovery	
2	LCS	S0908140067		0 0		4-Bromofluorobenzene	SOLID	20	2.2138E+01			0.24	ug/Kg	110.69	% Recovery	
2	LCS	S0908140067		0 0		Dibromofluoromethane	SOLID	20	2.3887E+01			0.24	ug/Kg	119.44	% Recovery	
2	LCS	S0908140067		0 0		1,2-Dichloroethane-d4	SOLID	20	2.2441E+01			0.4	ug/Kg	112.2	% Recovery	
2	LCS	S0908140067		0 0		Toluene-d8	SOLID	20	2.1804E+01			0.26	ug/Kg	109.02	% Recovery	
Sample Sequence 3																
3	SAMPLE	S09V000126		0 0		1,1,1-Trichloroethane	SOLID	N/A	<1.5625E-01			0.15625	ug/Kg			U
3	SAMPLE	S09V000126		0 0		1,1,2-Trichloroethane	SOLID	N/A	<2.9687E-01			0.29687	ug/Kg			U
3	SAMPLE	S09V000126		0 0		1,1,2,2-Tetrachloroethane	SOLID	N/A	<3.9062E-01			0.39062	ug/Kg			U
3	SAMPLE	S09V000126		0 0		1,1-Dichloroethene	SOLID	N/A	<2.6562E-01			0.26562	ug/Kg			U
3	SAMPLE	S09V000126		0 0		1,2-Dichloroethane	SOLID	N/A	<1.4062E-01			0.14062	ug/Kg			U
3	SAMPLE	S09V000126		0 0		1-Butanol	SOLID	N/A	<1.2141E+01			12.141	ug/Kg			U
3	SAMPLE	S09V000126		0 0		4-Methyl-2-pentanone	SOLID	N/A	<1.3750E+00			1.375	ug/Kg			U
3	SAMPLE	S09V000126		0 0		Acetone	SOLID	N/A	<3.4219E+00			3.4219	ug/Kg			U
3	SAMPLE	S09V000126		0 0		Benzene	SOLID	N/A	<2.5000E-01			0.25	ug/Kg			U
3	SAMPLE	S09V000126		0 0		Carbon Disulfide	SOLID	N/A	<2.3438E-01			0.23438	ug/Kg			U
3	SAMPLE	S09V000126		0 0		Carbon Tetrachloride	SOLID	N/A	<2.3438E-01			0.23438	ug/Kg			U
3	SAMPLE	S09V000126		0 0		Chloroform	SOLID	N/A	<1.4062E-01			0.14062	ug/Kg			U
3	SAMPLE	S09V000126		0 0		Chlorobenzene	SOLID	N/A	<1.7188E-01			0.17188	ug/Kg			U
3	SAMPLE	S09V000126		0 0		Ethylbenzene	SOLID	N/A	<1.8750E-01			0.1875	ug/Kg			U
3	SAMPLE	S09V000126		0 0		Xylenes (total)	SOLID	N/A	<4.8437E-01			0.48437	ug/Kg			U
3	SAMPLE	S09V000126		0 0		2-Butanone	SOLID	N/A	<2.0781E+00			2.0781	ug/Kg			U
3	SAMPLE	S09V000126		0 0		Methylene Chloride	SOLID	N/A	<2.6562E-01			0.26562	ug/Kg			U
3	SAMPLE	S09V000126		0 0		Tetrachloroethene	SOLID	N/A	<3.1250E-01			0.3125	ug/Kg			U
3	SAMPLE	S09V000126		0 0		Toluene	SOLID	N/A	<1.8750E-01			0.1875	ug/Kg			U

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00015493

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
3	SAMPLE	S09V000126		0 0		trans-1,3-Dichloropropene	SOLID	N/A	<1.0937E-01			0.10937	ug/Kg			U
3	SAMPLE	S09V000126		0 0		Trichloroethene	SOLID	N/A	<2.3438E-01			0.23438	ug/Kg			U
3	SAMPLE	S09V000126		0 0		Vinyl Chloride	SOLID	N/A	<5.0000E-01			0.5	ug/Kg			U
3	SAMPLE	S09V000126		0 0		cis-Dichloroethylene	SOLID	N/A	<2.0312E-01			0.20312	ug/Kg			U
3	SAMPLE	S09V000126		0 0		trans-Dichloroethylene	SOLID	N/A	<2.8125E-01			0.28125	ug/Kg			U
3	SAMPLE	S09V000126		0 0		112Trichloro-122Trifluoroethan	SOLID	N/A	<3.9062E-01			0.39062	ug/Kg			U
3	SAMPLE	S09V000126		0 0		2-Nitropropane	SOLID	N/A	<1.2320E+00			1.232	ug/Kg			U
3	SAMPLE	S09V000126		0 0		Ethyl acetate	SOLID	N/A	<7.5938E-01			0.75938	ug/Kg			U
3	SAMPLE	S09V000126		0 0		Diethyl ether	SOLID	N/A	<6.9141E-01			0.69141	ug/Kg			U
3	SAMPLE	S09V000126		0 0		Trichlorofluoromethane	SOLID	N/A	<1.5156E+00			1.5156	ug/Kg			U
3	SAMPLE	S09V000126		0 0		o-Xylene	SOLID	N/A	<1.5625E-01			0.15625	ug/Kg			U
3	SAMPLE	S09V000126		0 0		m,p-Xylene	SOLID	N/A	<3.2812E-01			0.32812	ug/Kg			U
3	SAMPLE	S09V000126		0 0		4-Bromofluorobenzene	SOLID	15.625	1.6491E+01			0.1875	ug/Kg	105.54	% Recovery	
3	SAMPLE	S09V000126		0 0		Dibromofluoromethane	SOLID	15.625	1.8520E+01			0.1875	ug/Kg	118.53	% Recovery	
3	SAMPLE	S09V000126		0 0		1,2-Dichloroethane-d4	SOLID	15.625	1.7844E+01			0.3125	ug/Kg	114.2	% Recovery	
3	SAMPLE	S09V000126		0 0		Toluene-d8	SOLID	15.625	1.5758E+01			0.20312	ug/Kg	100.85	% Recovery	
3	SAMPLE	S09V000126		0 0		1-Hexanol, 2-ethyl-	SOLID		1.8580815				ug/Kg			JNT
3	SAMPLE	S09V000126		0 0		Nonanal	SOLID		2.5256377				ug/Kg			BJNT
Sample Sequence 4																
4	MS	S0908140069	S09V000126	0 0		1,1-Dichloroethene	SOLID	12.04819	1.2980E+01			0.20482	ug/Kg	107.73	% Recovery	
4	MS	S0908140069	S09V000126	0 0		1-Butanol	SOLID	120.4819	1.1791E+02			9.3614	ug/Kg	97.865	% Recovery	
4	MS	S0908140069	S09V000126	0 0		4-Methyl-2-pentanone	SOLID	60.24096	6.9094E+01			1.0602	ug/Kg	114.7	% Recovery	
4	MS	S0908140069	S09V000126	0 0		Acetone	SOLID	60.24096	7.3475E+01			2.6386	ug/Kg	121.97	% Recovery	
4	MS	S0908140069	S09V000126	0 0		Benzene	SOLID	12.04819	1.3332E+01			0.19277	ug/Kg	110.66	% Recovery	
4	MS	S0908140069	S09V000126	0 0		Chlorobenzene	SOLID	12.04819	1.2980E+01			0.13253	ug/Kg	107.73	% Recovery	
4	MS	S0908140069	S09V000126	0 0		2-Butanone	SOLID	60.24096	6.9089E+01			1.6024	ug/Kg	114.69	% Recovery	
4	MS	S0908140069	S09V000126	0 0		Toluene	SOLID	12.04819	1.2743E+01			0.14458	ug/Kg	105.77	% Recovery	
4	MS	S0908140069	S09V000126	0 0		Trichloroethene	SOLID	12.04819	1.3225E+01			0.18072	ug/Kg	109.77	% Recovery	
4	MS	S0908140069	S09V000126	0 0		4-Bromofluorobenzene	SOLID	12.04819	1.2890E+01			0.14458	ug/Kg	106.99	% Recovery	
4	MS	S0908140069	S09V000126	0 0		Dibromofluoromethane	SOLID	12.04819	1.3924E+01			0.14458	ug/Kg	115.57	% Recovery	
4	MS	S0908140069	S09V000126	0 0		1,2-Dichloroethane-d4	SOLID	12.04819	1.3534E+01			0.24096	ug/Kg	112.33	% Recovery	
4	MS	S0908140069	S09V000126	0 0		Toluene-d8	SOLID	12.04819	1.1949E+01			0.15663	ug/Kg	99.177	% Recovery	
Sample Sequence 5																
5	MSD	S0908140070	S09V000126	0 0		1,1-Dichloroethene	SOLID	13.69863	1.5409E+01			0.23288	ug/Kg	112.49	% Recovery	
														4.3229	% RPD	
5	MSD	S0908140070	S09V000126	0 0		1-Butanol	SOLID	136.9863	1.0092E+02			10.644	ug/Kg	73.672	% Recovery	J
														28.207	% RPD	
5	MSD	S0908140070	S09V000126	0 0		4-Methyl-2-pentanone	SOLID	68.49315	6.9546E+01			1.2055	ug/Kg	101.54	% Recovery	
														12.172	% RPD	
5	MSD	S0908140070	S09V000126	0 0		Acetone	SOLID	68.49315	6.6200E+01			3	ug/Kg	96.652	% Recovery	

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LABCORE Completed Batch Report for Batch# 00015493

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
														23.161	% RPD	
5	MSD	S0908140070	S09V000126	0	0	Benzene	SOLID	13.69863	1.4890E+01			0.21918	ug/Kg	108.7	% Recovery	
														1.7870	% RPD	
5	MSD	S0908140070	S09V000126	0	0	Chlorobenzene	SOLID	13.69863	1.4980E+01			0.15068	ug/Kg	109.35	% Recovery	
														1.4925	% RPD	
5	MSD	S0908140070	S09V000126	0	0	2-Butanone	SOLID	68.49315	6.5607E+01			1.8219	ug/Kg	95.786	% Recovery	
														17.963	% RPD	
5	MSD	S0908140070	S09V000126	0	0	Toluene	SOLID	13.69863	1.4759E+01			0.16438	ug/Kg	107.74	% Recovery	
														1.8453	% RPD	
5	MSD	S0908140070	S09V000126	0	0	Trichloroethene	SOLID	13.69863	1.4885E+01			0.20548	ug/Kg	108.66	% Recovery	
														1.0163	% RPD	
5	MSD	S0908140070	S09V000126	0	0	4-Bromofluorobenzene	SOLID	13.69863	1.5148E+01			0.16438	ug/Kg	110.58	% Recovery	
														3.3001	% RPD	
5	MSD	S0908140070	S09V000126	0	0	Dibromofluoromethane	SOLID	13.69863	1.5757E+01			0.16438	ug/Kg	115.03	% Recovery	
														0.46834	% RPD	
5	MSD	S0908140070	S09V000126	0	0	1,2-Dichloroethane-d4	SOLID	13.69863	1.4922E+01			0.27397	ug/Kg	108.93	% Recovery	
														3.0733	% RPD	
5	MSD	S0908140070	S09V000126	0	0	Toluene-d8	SOLID	13.69863	1.4047E+01			0.17808	ug/Kg	102.54	% Recovery	
														3.3344	% RPD	

Comments Section:

Data Flagger Status:
Flagger Not Run

Final Page for Batch# 00015493

Valerie Massie 8-20-09
Analyst Signature Date

8-18-09
Data Entry Signature Date

8/19/09
Reviewer Signature Date

PM Review: 11/8/09

Units shown for QC (BLK/BKG) may not reflect the actual units.

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00015493

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0908140066	BLNK				
2	S0908140067	LCS				
3	S09V000126	SAMPLE		20090160	B1YT78	C Farm WMA C
4	S0908140069	MS	S09V000126			
5	S0908140070	MSD	S09V000126			

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

Date 5-6-09 Project 1090506C 7am Soils Procedure LA-523-118 G-0 Initials VLM

FAXED VLM 5-7-09

1 of 1

VOA BENCH SHEET

Concentration of compounds in secondary				Source "A"						Source "B"	
Internal Std	(µg/mL)	10.0									
Surrogate	(µg/mL)		10.0	1.0	3.0	10.0	30.0	50.0	75.0	10.0	10.0
Megmix	(µg/mL)			1.0	3.0	10.0	30.0	50.0	75.0	10.0	
Hexane	(µg/mL)			1.0	3.0	10.0	30.0	50.0	75.0	10.0	
THF	(µg/mL)			3.0	9.0	30.0	90.0	150.0	225.0	20.0	
Ketones	(µg/mL)			10.0	20.0	50.0	100.0	125.0	150.0	50.0	50.0
2-Pentanone	(µg/mL)			10.0	20.0	50.0	100.0	125.0	150.0	50.0	
n-butanol	(µg/mL)			20.0	40.0	100.0	200.0	250.0	300.0	100.0	100.0
Gases	(µg/mL)			1.0	3.0	10.0	30.0	50.0	75.0	10.0	
MS/LCS Mix	(µg/mL)										10.0

NEELIX		Internal Standard HNF-N-362-4-13.2 Expires: 6/6/09	Surrogate HNF-N-362-4-13.3 Expires: 6/6/09	CAL 1 Secondary (Includes Surrogate) Expires:	CAL 2 Secondary (Includes Surrogate) Expires:	CAL 3 Secondary (Includes Surrogate) HNF-N-362-4-13.4 Expires: 5-11-09 Gases 5-4-09	CAL 4 Secondary (Includes Surrogate) Expires:	CAL 4b Secondary (Includes Surrogate) Expires:	CAL 5 Secondary (Includes Surrogate) Expires:	ICVS Secondary (Includes Surrogate) HNF-N-362-4-13.5 Expires:	LCS/MS Secondary (Includes Surrogate) HNF-N-362-4-13.5 Expires: 6/1/09	BFB HNF-N-362-3-146.3 Expires: 9/11/09	H_2O	Sand Octane LOT 905897	S09V000126	S09V000126 MS	S09V000126 MSD	S09V000127	S09V000127 MS	S09V000127 MSD
Data File ID	TYPE	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(mL)	(g)	g	g	g	g	g	g
9050601 .d	PRERUN																			
9050602 .d	BFB											2.0	10.0							
9050603 .d	CCV	10.0				10.0							10.0							
9050604 .d	CCB	10.0	10.0										10.0	5.2195						
9050605 .d	LCS	10.0									10.0		10.0	5.2662						
9050606 .d	SMP	10.0	10.0										10.0		6.4					
9050607 .d	MS	10.0									10.0		10.0			8.3				
9050608 .d	MSD	10.0									10.0		10.0				7.3			
9050609 .d	SMP	10.0	10.0										10.0					3.2		
9050610 .d	MS	10.0									10.0		10.0						5.9	
9050611 .d	MSD	10.0									10.0		10.0							5.1
															pH:					

NOTES Balance ID: LE - BAL-078 Cal Expires 9-22-09

S09V000126 Sam = vial K, S09V000126 MS = Vial L S09V000126 MSD = vial M, S09V000127 Sam = vial K, S09V000127 MS = vial L, S09V000127 MSD = vial M.

LABCORE Completed Batch Report for Batch# 00015671

Analyst: Duchsherer, Mark **Book#:** See benchsheet

Instrument: GCMSD2 (NELIX) for VOA

Method: VOA 222S #2, LA-523-118 Rev/Mod G-0

Specification: C Farm WMA C

Prep Batch:

Batch Comment: C Farm WMA C, VOA, Solid, Group #20090160

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1																
1	BLNK	S0908170005	0	0		1,1,1-Trichloroethane	SOLID		<2.0000E-01			0.2	ug/Kg			U
1	BLNK	S0908170005	0	0		1,1,2-Trichloroethane	SOLID		<3.8000E-01			0.38	ug/Kg			U
1	BLNK	S0908170005	0	0		1,1,2,2-Tetrachloroethane	SOLID		<5.0000E-01			0.5	ug/Kg			U
1	BLNK	S0908170005	0	0		1,1-Dichloroethene	SOLID		<3.4000E-01			0.34	ug/Kg			U
1	BLNK	S0908170005	0	0		1,2-Dichloroethane	SOLID		<1.8000E-01			0.18	ug/Kg			U
1	BLNK	S0908170005	0	0		1-Butanol	SOLID		<1.5540E+01			15.54	ug/Kg			UY
1	BLNK	S0908170005	0	0		4-Methyl-2-pentanone	SOLID		<1.7600E+00			1.76	ug/Kg			U
1	BLNK	S0908170005	0	0		Acetone	SOLID		<4.3800E+00			4.38	ug/Kg			U
1	BLNK	S0908170005	0	0		Benzene	SOLID		<3.2000E-01			0.32	ug/Kg			U
1	BLNK	S0908170005	0	0		Carbon Disulfide	SOLID		<3.0000E-01			0.3	ug/Kg			U
1	BLNK	S0908170005	0	0		Carbon Tetrachloride	SOLID		<3.0000E-01			0.3	ug/Kg			U
1	BLNK	S0908170005	0	0		Chloroform	SOLID		<1.8000E-01			0.18	ug/Kg			U
1	BLNK	S0908170005	0	0		Chlorobenzene	SOLID		<2.2000E-01			0.22	ug/Kg			U
1	BLNK	S0908170005	0	0		Ethylbenzene	SOLID		<2.4000E-01			0.24	ug/Kg			U
1	BLNK	S0908170005	0	0		Xylenes (total)	SOLID		<6.2000E-01			0.62	ug/Kg			U
1	BLNK	S0908170005	0	0		2-Butanone	SOLID		<2.6600E+00			2.66	ug/Kg			U
1	BLNK	S0908170005	0	0		Methylene Chloride	SOLID		<3.4000E-01			0.34	ug/Kg			U
1	BLNK	S0908170005	0	0		Tetrachloroethene	SOLID		<4.0000E-01			0.4	ug/Kg			U
1	BLNK	S0908170005	0	0		Toluene	SOLID		<2.4000E-01			0.24	ug/Kg			U
1	BLNK	S0908170005	0	0		trans-1,3-Dichloropropene	SOLID		<1.4000E-01			0.14	ug/Kg			U
1	BLNK	S0908170005	0	0		Trichloroethene	SOLID		<3.0000E-01			0.3	ug/Kg			U
1	BLNK	S0908170005	0	0		Vinyl Chloride	SOLID		<6.4000E-01			0.64	ug/Kg			U
1	BLNK	S0908170005	0	0		cis-Dichloroethylene	SOLID		<2.6000E-01			0.26	ug/Kg			U
1	BLNK	S0908170005	0	0		trans-Dichloroethylene	SOLID		<3.6000E-01			0.36	ug/Kg			U
1	BLNK	S0908170005	0	0		112Trichloro-122Trifluoroethan	SOLID		<5.0000E-01			0.5	ug/Kg			U
1	BLNK	S0908170005	0	0		2-Nitropropane	SOLID		<1.5770E+00			1.577	ug/Kg			U
1	BLNK	S0908170005	0	0		Ethyl acetate	SOLID		<9.7200E-01			0.972	ug/Kg			U
1	BLNK	S0908170005	0	0		Diethyl ether	SOLID		<8.8500E-01			0.885	ug/Kg			U
1	BLNK	S0908170005	0	0		Trichlorofluoromethane	SOLID		<1.9400E+00			1.94	ug/Kg			U

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LABCORE Completed Batch Report for Batch# 00015671

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
1	BLNK	S0908170005		0	0	o-Xylene	SOLID		<2.0000E-01			0.2	ug/Kg			U
1	BLNK	S0908170005		0	0	m,p-Xylene	SOLID		<4.2000E-01			0.42	ug/Kg			U
1	BLNK	S0908170005		0	0	4-Bromofluorobenzene	SOLID	20	2.3123E+01			0.24	ug/Kg	115.62	% Recovery	
1	BLNK	S0908170005		0	0	Dibromofluoromethane	SOLID	20	2.4795E+01			0.24	ug/Kg	123.98	% Recovery	
1	BLNK	S0908170005		0	0	1,2-Dichloroethane-d4	SOLID	20	2.4386E+01			0.4	ug/Kg	121.93	% Recovery	
1	BLNK	S0908170005		0	0	Toluene-d8	SOLID	20	2.2604E+01			0.26	ug/Kg	113.02	% Recovery	
1	BLNK	S0908170005		0	0	Nonanal	SOLID		4.2797865				ug/Kg			JNT
1	BLNK	S0908170005		0	0	Unknown-1	SOLID		2.0431457				ug/Kg			JT
1	BLNK	S0908170005		0	0	Unknown-2	SOLID		3.7433016				ug/Kg			JT
Sample Sequence 2																
2	LCS	S0908170006		0	0	1,1-Dichloroethene	SOLID	20	2.0815E+01			0.34	ug/Kg	104.08	% Recovery	
2	LCS	S0908170006		0	0	1-Butanol	SOLID	200	2.0920E+02			15.54	ug/Kg	104.6	% Recovery	Y
2	LCS	S0908170006		0	0	4-Methyl-2-pentanone	SOLID	100	1.1390E+02			1.76	ug/Kg	113.9	% Recovery	
2	LCS	S0908170006		0	0	Acetone	SOLID	100	1.1193E+02			4.38	ug/Kg	111.93	% Recovery	
2	LCS	S0908170006		0	0	Benzene	SOLID	20	2.0189E+01			0.32	ug/Kg	100.94	% Recovery	
2	LCS	S0908170006		0	0	Chlorobenzene	SOLID	20	2.0422E+01			0.22	ug/Kg	102.11	% Recovery	
2	LCS	S0908170006		0	0	2-Butanone	SOLID	100	1.1501E+02			2.66	ug/Kg	115.01	% Recovery	
2	LCS	S0908170006		0	0	Toluene	SOLID	20	2.0389E+01			0.24	ug/Kg	101.94	% Recovery	
2	LCS	S0908170006		0	0	Trichloroethene	SOLID	20	2.0405E+01			0.3	ug/Kg	102.02	% Recovery	
2	LCS	S0908170006		0	0	4-Bromofluorobenzene	SOLID	20	1.8949E+01			0.24	ug/Kg	94.745	% Recovery	
2	LCS	S0908170006		0	0	Dibromofluoromethane	SOLID	20	2.0723E+01			0.24	ug/Kg	103.62	% Recovery	
2	LCS	S0908170006		0	0	1,2-Dichloroethane-d4	SOLID	20	2.0584E+01			0.4	ug/Kg	102.92	% Recovery	
2	LCS	S0908170006		0	0	Toluene-d8	SOLID	20	1.8911E+01			0.26	ug/Kg	94.555	% Recovery	
Sample Sequence 3																
3	BLNK	S0908170012		0	0	1,1,1-Trichloroethane	SOLID		<2.0000E-01			0.2	ug/Kg			U
3	BLNK	S0908170012		0	0	1,1,2-Trichloroethane	SOLID		<3.8000E-01			0.38	ug/Kg			U
3	BLNK	S0908170012		0	0	1,1,2,2-Tetrachloroethane	SOLID		<5.0000E-01			0.5	ug/Kg			U
3	BLNK	S0908170012		0	0	1,1-Dichloroethene	SOLID		<3.4000E-01			0.34	ug/Kg			U
3	BLNK	S0908170012		0	0	1,2-Dichloroethane	SOLID		<1.8000E-01			0.18	ug/Kg			U
3	BLNK	S0908170012		0	0	1-Butanol	SOLID		<1.5540E+01			15.54	ug/Kg			UY
3	BLNK	S0908170012		0	0	4-Methyl-2-pentanone	SOLID		<1.7600E+00			1.76	ug/Kg			U
3	BLNK	S0908170012		0	0	Acetone	SOLID		<4.3800E+00			4.38	ug/Kg			U
3	BLNK	S0908170012		0	0	Benzene	SOLID		<3.2000E-01			0.32	ug/Kg			U
3	BLNK	S0908170012		0	0	Carbon Disulfide	SOLID		<3.0000E-01			0.3	ug/Kg			U
3	BLNK	S0908170012		0	0	Carbon Tetrachloride	SOLID		<3.0000E-01			0.3	ug/Kg			U
3	BLNK	S0908170012		0	0	Chloroform	SOLID		<1.8000E-01			0.18	ug/Kg			U
3	BLNK	S0908170012		0	0	Chlorobenzene	SOLID		<2.2000E-01			0.22	ug/Kg			U
3	BLNK	S0908170012		0	0	Ethylbenzene	SOLID		<2.4000E-01			0.24	ug/Kg			U
3	BLNK	S0908170012		0	0	Xylenes (total)	SOLID		<6.2000E-01			0.62	ug/Kg			U
3	BLNK	S0908170012		0	0	2-Butanone	SOLID		<2.6600E+00			2.66	ug/Kg			U
3	BLNK	S0908170012		0	0	Methylene Chloride	SOLID		<3.4000E-01			0.34	ug/Kg			U

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LABCORE Completed Batch Report for Batch# 00015671

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
3	BLNK	S0908170012		0	0	Tetrachloroethene	SOLID		<4.0000E-01			0.4	ug/Kg			U
3	BLNK	S0908170012		0	0	Toluene	SOLID		<2.4000E-01			0.24	ug/Kg			U
3	BLNK	S0908170012		0	0	trans-1,3-Dichloropropene	SOLID		<1.4000E-01			0.14	ug/Kg			U
3	BLNK	S0908170012		0	0	Trichloroethene	SOLID		<3.0000E-01			0.3	ug/Kg			U
3	BLNK	S0908170012		0	0	Vinyl Chloride	SOLID		<6.4000E-01			0.64	ug/Kg			U
3	BLNK	S0908170012		0	0	cis-Dichloroethylene	SOLID		<2.6000E-01			0.26	ug/Kg			U
3	BLNK	S0908170012		0	0	trans-Dichloroethylene	SOLID		<3.6000E-01			0.36	ug/Kg			U
3	BLNK	S0908170012		0	0	112Trichloro-122Trifluoroethan	SOLID		<5.0000E-01			0.5	ug/Kg			U
3	BLNK	S0908170012		0	0	2-Nitropropane	SOLID		<1.5770E+00			1.577	ug/Kg			U
3	BLNK	S0908170012		0	0	Ethyl acetate	SOLID		<9.7200E-01			0.972	ug/Kg			U
3	BLNK	S0908170012		0	0	Diethyl ether	SOLID		<8.8500E-01			0.885	ug/Kg			U
3	BLNK	S0908170012		0	0	Trichlorofluoromethane	SOLID		<1.9400E+00			1.94	ug/Kg			U
3	BLNK	S0908170012		0	0	o-Xylene	SOLID		<2.0000E-01			0.2	ug/Kg			U
3	BLNK	S0908170012		0	0	m,p-Xylene	SOLID		<4.2000E-01			0.42	ug/Kg			U
3	BLNK	S0908170012		0	0	4-Bromofluorobenzene	SOLID	20	2.1550E+01			0.24	ug/Kg	107.75	% Recovery	
3	BLNK	S0908170012		0	0	Dibromofluoromethane	SOLID	20	2.3325E+01			0.24	ug/Kg	116.62	% Recovery	
3	BLNK	S0908170012		0	0	1,2-Dichloroethane-d4	SOLID	20	2.2171E+01			0.4	ug/Kg	110.86	% Recovery	
3	BLNK	S0908170012		0	0	Toluene-d8	SOLID	20	2.1659E+01			0.26	ug/Kg	108.3	% Recovery	
Sample Sequence 4																
4	LCS	S0908170013		0	0	1,1-Dichloroethene	SOLID	20	2.1886E+01			0.34	ug/Kg	109.43	% Recovery	
4	LCS	S0908170013		0	0	1-Butanol	SOLID	200	1.9642E+02			15.54	ug/Kg	98.21	% Recovery	Y
4	LCS	S0908170013		0	0	4-Methyl-2-pentanone	SOLID	100	1.0840E+02			1.76	ug/Kg	108.4	% Recovery	
4	LCS	S0908170013		0	0	Acetone	SOLID	100	1.0594E+02			4.38	ug/Kg	105.94	% Recovery	
4	LCS	S0908170013		0	0	Benzene	SOLID	20	2.1703E+01			0.32	ug/Kg	108.52	% Recovery	
4	LCS	S0908170013		0	0	Chlorobenzene	SOLID	20	2.1529E+01			0.22	ug/Kg	107.64	% Recovery	
4	LCS	S0908170013		0	0	2-Butanone	SOLID	100	1.0846E+02			2.66	ug/Kg	108.46	% Recovery	
4	LCS	S0908170013		0	0	Toluene	SOLID	20	2.1653E+01			0.24	ug/Kg	108.26	% Recovery	
4	LCS	S0908170013		0	0	Trichloroethene	SOLID	20	2.2059E+01			0.3	ug/Kg	110.3	% Recovery	
4	LCS	S0908170013		0	0	4-Bromofluorobenzene	SOLID	20	2.0231E+01			0.24	ug/Kg	101.16	% Recovery	
4	LCS	S0908170013		0	0	Dibromofluoromethane	SOLID	20	2.1518E+01			0.24	ug/Kg	107.59	% Recovery	
4	LCS	S0908170013		0	0	1,2-Dichloroethane-d4	SOLID	20	2.1617E+01			0.4	ug/Kg	108.08	% Recovery	
4	LCS	S0908170013		0	0	Toluene-d8	SOLID	20	2.0272E+01			0.26	ug/Kg	101.36	% Recovery	
Sample Sequence 5																
5	SAMPLE	S09V000124		0	0	1,1,1-Trichloroethane	SOLID	N/A	<2.0408E-01			0.20408	ug/Kg			U
5	SAMPLE	S09V000124		0	0	1,1,2-Trichloroethane	SOLID	N/A	<3.8776E-01			0.38776	ug/Kg			U
5	SAMPLE	S09V000124		0	0	1,1,2,2-Tetrachloroethane	SOLID	N/A	<5.1020E-01			0.5102	ug/Kg			U
5	SAMPLE	S09V000124		0	0	1,1-Dichloroethene	SOLID	N/A	<3.4694E-01			0.34694	ug/Kg			U
5	SAMPLE	S09V000124		0	0	1,2-Dichloroethane	SOLID	N/A	<1.8367E-01			0.18367	ug/Kg			U
5	SAMPLE	S09V000124		0	0	1-Butanol	SOLID	N/A	<1.5857E+01			15.857	ug/Kg			UY
5	SAMPLE	S09V000124		0	0	4-Methyl-2-pentanone	SOLID	N/A	<1.7959E+00			1.7959	ug/Kg			U

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LABCORE Completed Batch Report for Batch# 00015671

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
5	SAMPLE	S09V000124		0	0	Acetone	SOLID	N/A	4.5700E+00			4.4694	ug/Kg			J
5	SAMPLE	S09V000124		0	0	Benzene	SOLID	N/A	<3.2653E-01			0.32653	ug/Kg			U
5	SAMPLE	S09V000124		0	0	Carbon Disulfide	SOLID	N/A	<3.0612E-01			0.30612	ug/Kg			U
5	SAMPLE	S09V000124		0	0	Carbon Tetrachloride	SOLID	N/A	<3.0612E-01			0.30612	ug/Kg			U
5	SAMPLE	S09V000124		0	0	Chloroform	SOLID	N/A	<1.8367E-01			0.18367	ug/Kg			U
5	SAMPLE	S09V000124		0	0	Chlorobenzene	SOLID	N/A	<2.2449E-01			0.22449	ug/Kg			U
5	SAMPLE	S09V000124		0	0	Ethylbenzene	SOLID	N/A	<2.4490E-01			0.2449	ug/Kg			U
5	SAMPLE	S09V000124		0	0	Xylenes (total)	SOLID	N/A	<6.3265E-01			0.63265	ug/Kg			U
5	SAMPLE	S09V000124		0	0	2-Butanone	SOLID	N/A	<2.7143E+00			2.7143	ug/Kg			U
5	SAMPLE	S09V000124		0	0	Methylene Chloride	SOLID	N/A	<3.4694E-01			0.34694	ug/Kg			U
5	SAMPLE	S09V000124		0	0	Tetrachloroethene	SOLID	N/A	<4.0816E-01			0.40816	ug/Kg			U
5	SAMPLE	S09V000124		0	0	Toluene	SOLID	N/A	1.3580E+00			0.2449	ug/Kg			J
5	SAMPLE	S09V000124		0	0	trans-1,3-Dichloroprop ene	SOLID	N/A	<1.4286E-01			0.14286	ug/Kg			U
5	SAMPLE	S09V000124		0	0	Trichloroethene	SOLID	N/A	<3.0612E-01			0.30612	ug/Kg			U
5	SAMPLE	S09V000124		0	0	Vinyl Chloride	SOLID	N/A	<6.5306E-01			0.65306	ug/Kg			U
5	SAMPLE	S09V000124		0	0	cis-Dichloroethylene	SOLID	N/A	<2.6531E-01			0.26531	ug/Kg			U
5	SAMPLE	S09V000124		0	0	trans-Dichloroethylene	SOLID	N/A	<3.6735E-01			0.36735	ug/Kg			U
5	SAMPLE	S09V000124		0	0	112Trichloro-122Triflu oroethan	SOLID	N/A	<5.1020E-01			0.5102	ug/Kg			U
5	SAMPLE	S09V000124		0	0	2-Nitropropane	SOLID	N/A	<1.6092E+00			1.6092	ug/Kg			U
5	SAMPLE	S09V000124		0	0	Ethyl acetate	SOLID	N/A	<9.9184E-01			0.99184	ug/Kg			U
5	SAMPLE	S09V000124		0	0	Diethyl ether	SOLID	N/A	<9.0306E-01			0.90306	ug/Kg			U
5	SAMPLE	S09V000124		0	0	Trichlorofluoromethane	SOLID	N/A	<1.9796E+00			1.9796	ug/Kg			U
5	SAMPLE	S09V000124		0	0	o-Xylene	SOLID	N/A	<2.0408E-01			0.20408	ug/Kg			U
5	SAMPLE	S09V000124		0	0	m,p-Xylene	SOLID	N/A	<4.2857E-01			0.42857	ug/Kg			U
5	SAMPLE	S09V000124		0	0	4-Bromofluorobenzene	SOLID	20.40816	2.2112E+01			0.2449	ug/Kg	108.35	% Recovery	
5	SAMPLE	S09V000124		0	0	Dibromofluoromethane	SOLID	20.40816	2.3549E+01			0.2449	ug/Kg	115.39	% Recovery	
5	SAMPLE	S09V000124		0	0	1,2-Dichloroethane-d4	SOLID	20.40816	2.2213E+01			0.40816	ug/Kg	108.84	% Recovery	
5	SAMPLE	S09V000124		0	0	Toluene-d8	SOLID	20.40816	2.0189E+01			0.26531	ug/Kg	98.926	% Recovery	
Sample Sequence 6																
6	MS	S0908170008	S09V000124	0	0	1,1-Dichloroethene	SOLID	23.80952	2.5872E+01			0.40476	ug/Kg	108.66	% Recovery	
6	MS	S0908170008	S09V000124	0	0	1-Butanol	SOLID	238.0952	1.7098E+02			18.5	ug/Kg	71.812	% Recovery	JY
6	MS	S0908170008	S09V000124	0	0	4-Methyl-2-pentanone	SOLID	119.0476	1.1689E+02			2.0952	ug/Kg	98.188	% Recovery	
6	MS	S0908170008	S09V000124	0	0	Acetone	SOLID	119.0476	1.1351E+02			5.2143	ug/Kg	91.51	% Recovery	
6	MS	S0908170008	S09V000124	0	0	Benzene	SOLID	23.80952	2.5175E+01			0.38095	ug/Kg	105.74	% Recovery	
6	MS	S0908170008	S09V000124	0	0	Chlorobenzene	SOLID	23.80952	2.5595E+01			0.2619	ug/Kg	107.5	% Recovery	
6	MS	S0908170008	S09V000124	0	0	2-Butanone	SOLID	119.0476	1.1248E+02			3.1667	ug/Kg	94.483	% Recovery	
6	MS	S0908170008	S09V000124	0	0	Toluene	SOLID	23.80952	2.6604E+01			0.28571	ug/Kg	106.03	% Recovery	
6	MS	S0908170008	S09V000124	0	0	Trichloroethene	SOLID	23.80952	2.5170E+01			0.35714	ug/Kg	105.71	% Recovery	
6	MS	S0908170008	S09V000124	0	0	4-Bromofluorobenzene	SOLID	23.80952	2.3284E+01			0.28571	ug/Kg	97.793	% Recovery	
6	MS	S0908170008	S09V000124	0	0	Dibromofluoromethane	SOLID	23.80952	2.4949E+01			0.28571	ug/Kg	104.79	% Recovery	
6	MS	S0908170008	S09V000124	0	0	1,2-Dichloroethane-d4	SOLID	23.80952	2.4075E+01			0.47619	ug/Kg	101.12	% Recovery	

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LABCORE Completed Batch Report for Batch# 00015671

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
6	MS	S0908170008	S09V000124	0 0		Toluene-d8	SOLID	23.80952	2.3399E+01			0.30952	ug/Kg	98.276	% Recovery	
Sample Sequence 7																
7	MSD	S0908170009	S09V000124	0 0		1,1-Dichloroethene	SOLID	25	2.8370E+01			0.425	ug/Kg	113.48	% Recovery	
														4.3396	% RPD	
7	MSD	S0908170009	S09V000124	0 0		1-Butanol	SOLID	250	1.7784E+02			19.425	ug/Kg	71.136	% Recovery	JY
														0.94580	% RPD	
7	MSD	S0908170009	S09V000124	0 0		4-Methyl-2-pentanone	SOLID	125	1.2679E+02			2.2	ug/Kg	101.43	% Recovery	
														3.2482	% RPD	
7	MSD	S0908170009	S09V000124	0 0		Acetone	SOLID	125	1.2325E+02			5.475	ug/Kg	94.944	% Recovery	
														3.6835	% RPD	
7	MSD	S0908170009	S09V000124	0 0		Benzene	SOLID	25	2.7440E+01			0.4	ug/Kg	109.76	% Recovery	
														3.7309	% RPD	
7	MSD	S0908170009	S09V000124	0 0		Chlorobenzene	SOLID	25	2.7413E+01			0.275	ug/Kg	109.65	% Recovery	
														1.9802	% RPD	
7	MSD	S0908170009	S09V000124	0 0		2-Butanone	SOLID	125	1.1847E+02			3.325	ug/Kg	94.776	% Recovery	
														0.30963	% RPD	
7	MSD	S0908170009	S09V000124	0 0		Toluene	SOLID	25	2.9656E+01			0.3	ug/Kg	113.19	% Recovery	
														6.5323	% RPD	
7	MSD	S0908170009	S09V000124	0 0		Trichloroethene	SOLID	25	2.7433E+01			0.375	ug/Kg	109.73	% Recovery	
														3.7319	% RPD	
7	MSD	S0908170009	S09V000124	0 0		4-Bromofluorobenzene	SOLID	25	2.6197E+01			0.3	ug/Kg	104.79	% Recovery	
														6.9078	% RPD	
7	MSD	S0908170009	S09V000124	0 0		Dibromofluoromethane	SOLID	25	2.6626E+01			0.3	ug/Kg	106.5	% Recovery	
														1.6186	% RPD	
7	MSD	S0908170009	S09V000124	0 0		1,2-Dichloroethane-d4	SOLID	25	2.6306E+01			0.5	ug/Kg	105.22	% Recovery	
														3.9740	% RPD	
7	MSD	S0908170009	S09V000124	0 0		Toluene-d8	SOLID	25	2.6168E+01			0.325	ug/Kg	104.67	% Recovery	
														6.3012	% RPD	
Sample Sequence 8																
8	SAMPLE	S09V000125		0 0		1,1,1-Trichloroethane	SOLID	N/A	<1.5873E-01			0.15873	ug/Kg			U
8	SAMPLE	S09V000125		0 0		1,1,2-Trichloroethane	SOLID	N/A	<3.0159E-01			0.30159	ug/Kg			U
8	SAMPLE	S09V000125		0 0		1,1,2,2-Tetrachloroethane	SOLID	N/A	<3.9682E-01			0.39682	ug/Kg			U
8	SAMPLE	S09V000125		0 0		1,1-Dichloroethene	SOLID	N/A	<2.6984E-01			0.26984	ug/Kg			U
8	SAMPLE	S09V000125		0 0		1,2-Dichloroethane	SOLID	N/A	<1.4286E-01			0.14286	ug/Kg			U
8	SAMPLE	S09V000125		0 0		1-Butanol	SOLID	N/A	<1.2333E+01			12.333	ug/Kg			UY
8	SAMPLE	S09V000125		0 0		4-Methyl-2-pentanone	SOLID	N/A	<1.3968E+00			1.3968	ug/Kg			U
8	SAMPLE	S09V000125		0 0		Acetone	SOLID	N/A	<3.4762E+00			3.4762	ug/Kg			U
8	SAMPLE	S09V000125		0 0		Benzene	SOLID	N/A	<2.5397E-01			0.25397	ug/Kg			U
8	SAMPLE	S09V000125		0 0		Carbon Disulfide	SOLID	N/A	<2.3810E-01			0.2381	ug/Kg			U
8	SAMPLE	S09V000125		0 0		Carbon Tetrachloride	SOLID	N/A	<2.3810E-01			0.2381	ug/Kg			U
8	SAMPLE	S09V000125		0 0		Chloroform	SOLID	N/A	<1.4286E-01			0.14286	ug/Kg			U

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00015671

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
8	SAMPLE	S09V000125		0 0		Chlorobenzene	SOLID	N/A	<1.7460E-01			0.1746	ug/Kg			U
8	SAMPLE	S09V000125		0 0		Ethylbenzene	SOLID	N/A	<1.9048E-01			0.19048	ug/Kg			U
8	SAMPLE	S09V000125		0 0		Xylenes (total)	SOLID	N/A	<4.9206E-01			0.49206	ug/Kg			U
8	SAMPLE	S09V000125		0 0		2-Butanone	SOLID	N/A	<2.1111E+00			2.1111	ug/Kg			U
8	SAMPLE	S09V000125		0 0		Methylene Chloride	SOLID	N/A	<2.6984E-01			0.26984	ug/Kg			U
8	SAMPLE	S09V000125		0 0		Tetrachloroethene	SOLID	N/A	<3.1746E-01			0.31746	ug/Kg			U
8	SAMPLE	S09V000125		0 0		Toluene	SOLID	N/A	<1.9048E-01			0.19048	ug/Kg			U
8	SAMPLE	S09V000125		0 0		trans-1,3-Dichloroprop ene	SOLID	N/A	<1.1111E-01			0.11111	ug/Kg			U
8	SAMPLE	S09V000125		0 0		Trichloroethene	SOLID	N/A	<2.3810E-01			0.2381	ug/Kg			U
8	SAMPLE	S09V000125		0 0		Vinyl Chloride	SOLID	N/A	<5.0794E-01			0.50794	ug/Kg			U
8	SAMPLE	S09V000125		0 0		cis-Dichloroethylene	SOLID	N/A	<2.0635E-01			0.20635	ug/Kg			U
8	SAMPLE	S09V000125		0 0		trans-Dichloroethylene	SOLID	N/A	<2.8571E-01			0.28571	ug/Kg			U
8	SAMPLE	S09V000125		0 0		112Trichloro-122Triflu oroethan	SOLID	N/A	<3.9682E-01			0.39682	ug/Kg			U
8	SAMPLE	S09V000125		0 0		2-Nitropropane	SOLID	N/A	<1.2516E+00			1.2516	ug/Kg			U
8	SAMPLE	S09V000125		0 0		Ethyl acetate	SOLID	N/A	<7.7143E-01			0.77143	ug/Kg			U
8	SAMPLE	S09V000125		0 0		Diethyl ether	SOLID	N/A	<7.0238E-01			0.70238	ug/Kg			U
8	SAMPLE	S09V000125		0 0		Trichlorofluoromethane	SOLID	N/A	<1.5397E+00			1.5397	ug/Kg			U
8	SAMPLE	S09V000125		0 0		o-Xylene	SOLID	N/A	<1.5873E-01			0.15873	ug/Kg			U
8	SAMPLE	S09V000125		0 0		m,p-Xylene	SOLID	N/A	<3.3333E-01			0.33333	ug/Kg			U
8	SAMPLE	S09V000125		0 0		4-Bromofluorobenzene	SOLID	15.15151	1.6830E+01			0.19048	ug/Kg	111.08	% Recovery	
8	SAMPLE	S09V000125		0 0		Dibromofluoromethane	SOLID	15.15151	1.7717E+01			0.19048	ug/Kg	116.93	% Recovery	
8	SAMPLE	S09V000125		0 0		1,2-Dichloroethane-d4	SOLID	15.15151	1.7166E+01			0.31746	ug/Kg	113.3	% Recovery	
8	SAMPLE	S09V000125		0 0		Toluene-d8	SOLID	15.15151	1.6281E+01			0.20635	ug/Kg	107.45	% Recovery	
Sample Sequence 9																
9	MS	S0908170010	S09V000125	0 0		1,1-Dichloroethene	SOLID	19.60784	2.1080E+01			0.33333	ug/Kg	107.51	% Recovery	
9	MS	S0908170010	S09V000125	0 0		1-Butanol	SOLID	196.0784	1.7382E+02			15.235	ug/Kg	88.648	% Recovery	Y
9	MS	S0908170010	S09V000125	0 0		4-Methyl-2-pentanone	SOLID	98.03921	1.1049E+02			1.7255	ug/Kg	112.7	% Recovery	
9	MS	S0908170010	S09V000125	0 0		Acetone	SOLID	98.03921	1.1090E+02			4.2941	ug/Kg	113.12	% Recovery	
9	MS	S0908170010	S09V000125	0 0		Benzene	SOLID	19.60784	2.2198E+01			0.31372	ug/Kg	113.21	% Recovery	
9	MS	S0908170010	S09V000125	0 0		Chlorobenzene	SOLID	19.60784	2.2036E+01			0.21569	ug/Kg	112.38	% Recovery	
9	MS	S0908170010	S09V000125	0 0		2-Butanone	SOLID	98.03921	1.0802E+02			2.6078	ug/Kg	110.18	% Recovery	
9	MS	S0908170010	S09V000125	0 0		Toluene	SOLID	19.60784	2.2203E+01			0.23529	ug/Kg	113.24	% Recovery	
9	MS	S0908170010	S09V000125	0 0		Trichloroethene	SOLID	19.60784	2.1853E+01			0.29412	ug/Kg	111.45	% Recovery	
9	MS	S0908170010	S09V000125	0 0		4-Bromofluorobenzene	SOLID	19.60784	2.1907E+01			0.23529	ug/Kg	111.73	% Recovery	
9	MS	S0908170010	S09V000125	0 0		Dibromofluoromethane	SOLID	19.60784	2.1527E+01			0.23529	ug/Kg	109.79	% Recovery	
9	MS	S0908170010	S09V000125	0 0		1,2-Dichloroethane-d4	SOLID	19.60784	2.1827E+01			0.39216	ug/Kg	111.32	% Recovery	
9	MS	S0908170010	S09V000125	0 0		Toluene-d8	SOLID	19.60784	2.0439E+01			0.2549	ug/Kg	104.24	% Recovery	
Sample Sequence 10																
10	MSD	S0908170011	S09V000125	0 0		1,1-Dichloroethene	SOLID	15.87301	1.7908E+01			0.25758	ug/Kg	112.82	% Recovery	
														4.8200	% RPD	

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00015671

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
10	MSD	S0908170011	S09V000125	0 0		1-Butanol	SOLID	158.7301	1.4365E+02			11.773	ug/Kg	90.5	% Recovery	Y
														2.0676	% RPD	
10	MSD	S0908170011	S09V000125	0 0		4-Methyl-2-pentanone	SOLID	79.36507	9.4373E+01			1.3333	ug/Kg	118.91	% Recovery	
														5.3625	% RPD	
10	MSD	S0908170011	S09V000125	0 0		Acetone	SOLID	79.36507	9.7128E+01			3.3182	ug/Kg	122.38	% Recovery	
														7.8641	% RPD	
10	MSD	S0908170011	S09V000125	0 0		Benzene	SOLID	15.87301	1.8423E+01			0.24242	ug/Kg	116.06	% Recovery	
														2.4862	% RPD	
10	MSD	S0908170011	S09V000125	0 0		Chlorobenzene	SOLID	15.87301	1.7715E+01			0.16667	ug/Kg	111.6	% Recovery	
														0.69649	% RPD	
10	MSD	S0908170011	S09V000125	0 0		2-Butanone	SOLID	79.36507	9.4416E+01			2.0152	ug/Kg	118.96	% Recovery	
														7.6634	% RPD	
10	MSD	S0908170011	S09V000125	0 0		Toluene	SOLID	15.87301	1.7160E+01			0.18182	ug/Kg	108.11	% Recovery	
														4.6352	% RPD	
10	MSD	S0908170011	S09V000125	0 0		Trichloroethene	SOLID	15.87301	1.8220E+01			0.22727	ug/Kg	114.79	% Recovery	
														2.9526	% RPD	
10	MSD	S0908170011	S09V000125	0 0		4-Bromofluorobenzene	SOLID	15.87301	1.8334E+01			0.18182	ug/Kg	115.5	% Recovery	
														3.3182	% RPD	
10	MSD	S0908170011	S09V000125	0 0		Dibromofluoromethane	SOLID	15.87301	1.8724E+01			0.18182	ug/Kg	117.96	% Recovery	
														7.1745	% RPD	
10	MSD	S0908170011	S09V000125	0 0		1,2-Dichloroethane-d4	SOLID	15.87301	1.9037E+01			0.30303	ug/Kg	119.93	% Recovery	
														7.4465	% RPD	
10	MSD	S0908170011	S09V000125	0 0		Toluene-d8	SOLID	15.87301	1.5896E+01			0.19697	ug/Kg	100.14	% Recovery	
														4.0121	% RPD	

Comments Section:

Data Flagger Status:
Flagger Not Run

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00015671

Final Page for Batch# 00015671

Valerie L Masari 8-25-09 — Analyst Signature, Date

CMurphy 8.27-09 — Data Entry Signature, Date

Mark J Duchsherer 8/25/09 — Reviewer Signature, Date

PM Reviewer: David Peterson 11/19/09

LABCORE Completed Batch Report for Batch# 00015671

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0908170005	BLNK				
2	S0908170006	LCS				
3	S0908170012	BLNK				
4	S0908170013	LCS				
5	S09V000124	SAMPLE		20090160	B1YT72	C Farm WMA C
6	S0908170008	MS	S09V000124			
7	S0908170009	MSD	S09V000124			
8	S09V000125	SAMPLE		20090160	B1YT75	C Farm WMA C
9	S0908170010	MS	S09V000125			
10	S0908170011	MSD	S09V000125			

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

FAXED 4-24-09 mn

Date 4-23-09 Project 090423 C 7am Soils (low) Procedure LA-523-118 6-0 Initials VLM

FAXED 4-30-09 mn

1 of 2

VOA BENCH SHEET

Concentration of compounds in secondary				Source "A"						Source "B"	
Internal Std	(µg/mL)	10.0									
Surrogate	(µg/mL)		10.0	1.0	3.0	10.0	30.0	50.0	75.0	10.0	10.0
Megmix	(µg/mL)			1.0	3.0	10.0	30.0	50.0	75.0	10.0	
Hexane	(µg/mL)			1.0	3.0	10.0	30.0	50.0	75.0	10.0	
THF	(µg/mL)			3.0	9.0	30.0	90.0	150.0	225.0	20.0	
Ketones	(µg/mL)			10.0	20.0	50.0	100.0	125.0	150.0	50.0	50.0
2-Pentanone	(µg/mL)			10.0	20.0	50.0	100.0	125.0	150.0	50.0	
n-butanol	(µg/mL)			20.0	40.0	100.0	200.0	250.0	300.0	100.0	100.0
Gases	(µg/mL)			1.0	3.0	10.0	30.0	50.0	75.0	10.0	
MS/LCS Mix	(µg/mL)										10.0

NEELIX		Internal Standard HNF-N-362-4-7.1 Expires: 5/20/09	Surrogate HNF-N-362-4-7.2 Expires: 5-20-09	CAL 1 Secondary (includes Surrogate) Expires:	CAL 2 Secondary (includes Surrogate) Expires:	CAL 3 Secondary (includes Surrogate) HNF-N-362-4-7.3 Expires: 4/27/09	CAL 4 Secondary (includes Surrogate) Expires:	CAL 4b Secondary (includes Surrogate) Expires:	CAL 5 Secondary (includes Surrogate) Expires:	ICVS Secondary (includes Surrogate) Expires:	LCS/MS Secondary (includes Surrogate) HNF-N-362-4-6.3 Expires: 5/20/09	BFB HNF-N-362-3-146.3 Expires: 9/11/09	H_2O	Sand Ottawa Lot 905897	S09V000124	S09V000124 MS	S09V000124 MSD	S09V000125	S09V000125 MS	S09V000125 MSD
Data File ID	TYPE	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(mL)	(g)	g	g	g	g	g	g
9042201 .d	PRERUN																			
9042202 .d	BFB											2.0	10.0							
9042203 .d	CCV	10.0				10.0							10.0							
9042204 .d	CCB	10.0	10.0										10.0	5.1564						
9042205 .d	LCS	10.0									10.0		10.0	5.1769						
9042206 .d	SMP	10.0	10.0										10.0		4.2					
9042207 .d	MS	10.0									10.0		10.0			4.2				
9042208 .d	MSD	10.0									10.0		10.0				4.0			
9042209 .d	SMP	10.0	10.0										10.0					4.6		
9042210 .d	MS	10.0									10.0		10.0						5.1	
90422115 .d	MSD	10.0									10.0		10.0							~~3.5~~ 7.0
															pH:					

vm 4-30-09

NOTES Balance ID: vm 4-23-09 LE-BAL-078 Sample S09V000124 MSD = vial m S09V000125 MSD = vial P

Sample S09V000124 = vial K S09V000125 = vial K all caps chipped = were on tight

S09V000124 MS = vial L S09V000125 MS = vial L VLMasai 04-23-09

Date 4-30-09 Project 090428 C7aum Soil Rerun Procedure LA-523-118 0-0 Initials VLM

FAXED 4-30-09 VM

1 of 1

VOA BENCH SHEET

Concentration of compounds in secondary				Source "A"						Source "B"	
Internal Std	(µg/mL)	10.0									
Surrogate	(µg/mL)		10.0	1.0	3.0	10.0	30.0	50.0	75.0	10.0	10.0
Megmix	(µg/mL)			1.0	3.0	10.0	30.0	50.0	75.0	10.0	
Hexane	(µg/mL)			1.0	3.0	10.0	30.0	50.0	75.0	10.0	
THF	(µg/mL)			3.0	9.0	30.0	90.0	150.0	225.0	20.0	
Ketones	(µg/mL)			10.0	20.0	50.0	100.0	125.0	150.0	50.0	50.0
2-Pentanone	(µg/mL)			10.0	20.0	50.0	100.0	125.0	150.0	50.0	
n-butanol	(µg/mL)			20.0	40.0	100.0	200.0	250.0	300.0	100.0	100.0
Gases	(µg/mL)			1.0	3.0	10.0	30.0	50.0	75.0	10.0	
MS/LCS Mix	(µg/mL)										10.0

NEELIX		Internal Standard HNF-N-362-4-7.1 Expires: 5-20-09	Surrogate HNF-N-362-4-7.2 Expires: 5-20-09	CAL 1 Secondary (Includes Surrogate) HNF-N-362-4-8.4 Expires: 5-1-09	CAL 2 Secondary (Includes Surrogate) Expires:	CAL 3 Secondary (Includes Surrogate) HNF-N-362-4-8.6 Expires: 5-1-09	CAL 4 Secondary (Includes Surrogate) Expires:	CAL 4b Secondary (Includes Surrogate) Expires:	CAL 5 Secondary (Includes Surrogate) Expires:	ICVS Secondary (Includes Surrogate) Expires:	LCS/MS Secondary (Includes Surrogate) HNF-N-362-4-6.3 Expires: 5-20-09	BFB HNF-N-362-3-146.3 Expires: 9/11/09	H_2O	Sand Ottawa Lot 905897	S09V000124	S09V000124 MSD	S09V000125	S09V000125 MSD	Sample (Gross Wt.)	Sample (Gross Wt.)
Data File ID	TYPE	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(mL)	(g)	(mL)	(mL)	(mL)	(mL)	(mL)	(mL)
9042101 .d	PRERUN																			
9042102 .d	BFB											2.0	10.0							
9042103 .d	CCV	10.0				10.0							10.0							
9042104 .d	CCB	10.0	10.0										10.0	5.3919						
9042105 .d	LCS	10.0									10.0		10.0	5.1845						
9042806 .d	CCV	10.0				10.0							10.0							
9042807 .d	CCB	10.0	10.0										10.0	5.1703						
9042808 .d	CAL 1	10.0		10.0									10.0							
9042809 .d	LCS	10.0									10.0		10.0	5.0214						
9042810 .d	SMP	10.0	10.0												4.90					
9042811 .d	MSD	10.0														3.5				
9042812 .d	SMP	10.0	10.0								10.0						6.3			
9042813 .d	MSD	10.0											10.0					6.6		
															pH:					

NOTES Balance ID LE-BAL-078 Cal Expires 9-22-09

S09V000124 = vial N, S09V000124 MSD = vial P, S09V000125 = vial N, S09V000125 MSD = vial M. all caps on tight

VLMassie 4-30-09

LABCORE Completed Batch Report for Batch# 00015674

Analyst: Duchsherer, Mark

Book#: See Benchsheet

Instrument: GCMSD2 (NELIX) for VOA

Method: VOA 222S #2, LA-523-118 Rev/Mod G-0

Specification: C Farm WMA C

Prep Batch:

Batch Comment: C Farm WMA C, VOA, Solid, Group#20090160

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 BLNK	S0908170040		0	0	1,1,1-Trichloroethane	SOLID		<2.0000E-01			0.2	ug/Kg			U
1 BLNK	S0908170040		0	0	1,1,2-Trichloroethane	SOLID		<3.8000E-01			0.38	ug/Kg			U
1 BLNK	S0908170040		0	0	1,1,2,2-Tetrachloroethane	SOLID		<5.0000E-01			0.5	ug/Kg			U
1 BLNK	S0908170040		0	0	1,1-Dichloroethene	SOLID		<3.4000E-01			0.34	ug/Kg			U
1 BLNK	S0908170040		0	0	1,2-Dichloroethane	SOLID		<1.8000E-01			0.18	ug/Kg			U
1 BLNK	S0908170040		0	0	1-Butanol	SOLID		<1.5540E+01			15.54	ug/Kg			UY
1 BLNK	S0908170040		0	0	4-Methyl-2-pentanone	SOLID		<1.7600E+00			1.76	ug/Kg			U
1 BLNK	S0908170040		0	0	Acetone	SOLID		<4.3800E+00			4.38	ug/Kg			U
1 BLNK	S0908170040		0	0	Benzene	SOLID		<3.2000E-01			0.32	ug/Kg			U
1 BLNK	S0908170040		0	0	Carbon Disulfide	SOLID		<3.0000E-01			0.3	ug/Kg			U
1 BLNK	S0908170040		0	0	Carbon Tetrachloride	SOLID		<3.0000E-01			0.3	ug/Kg			U
1 BLNK	S0908170040		0	0	Chloroform	SOLID		<1.8000E-01			0.18	ug/Kg			U
1 BLNK	S0908170040		0	0	Chlorobenzene	SOLID		<2.2000E-01			0.22	ug/Kg			U
1 BLNK	S0908170040		0	0	Ethylbenzene	SOLID		<2.4000E-01			0.24	ug/Kg			U
1 BLNK	S0908170040		0	0	Xylenes (total)	SOLID		<6.2000E-01			0.62	ug/Kg			U
1 BLNK	S0908170040		0	0	2-Butanone	SOLID		<2.6600E+00			2.66	ug/Kg			U
1 BLNK	S0908170040		0	0	Methylene Chloride	SOLID		<3.4000E-01			0.34	ug/Kg			U
1 BLNK	S0908170040		0	0	Tetrachloroethene	SOLID		<4.0000E-01			0.4	ug/Kg			U
1 BLNK	S0908170040		0	0	Toluene	SOLID		<2.4000E-01			0.24	ug/Kg			U
1 BLNK	S0908170040		0	0	trans-1,3-Dichloropropene	SOLID		<1.4000E-01			0.14	ug/Kg			U
1 BLNK	S0908170040		0	0	Trichloroethene	SOLID		<3.0000E-01			0.3	ug/Kg			U
1 BLNK	S0908170040		0	0	Vinyl Chloride	SOLID		<6.4000E-01			0.64	ug/Kg			U
1 BLNK	S0908170040		0	0	cis-Dichloroethylene	SOLID		<2.6000E-01			0.26	ug/Kg			U
1 BLNK	S0908170040		0	0	trans-Dichloroethylene	SOLID		<3.6000E-01			0.36	ug/Kg			U
1 BLNK	S0908170040		0	0	112Trichloro-122Trifluoroethan	SOLID		<5.0000E-01			0.5	ug/Kg			U
1 BLNK	S0908170040		0	0	2-Nitropropane	SOLID		<1.5770E+00			1.577	ug/Kg			U
1 BLNK	S0908170040		0	0	Ethyl acetate	SOLID		<9.7200E-01			0.972	ug/Kg			U
1 BLNK	S0908170040		0	0	Diethyl ether	SOLID		<8.8500E-01			0.885	ug/Kg			U
1 BLNK	S0908170040		0	0	Trichlorofluoromethane	SOLID		<1.9400E+00			1.94	ug/Kg			U

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LABCORE Completed Batch Report for Batch# 00015674

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
1	BLNK	S0908170040		0	0	o-Xylene	SOLID		<2.0000E-01			0.2	ug/Kg			U
1	BLNK	S0908170040		0	0	m,p-Xylene	SOLID		<4.2000E-01			0.42	ug/Kg			U
1	BLNK	S0908170040		0	0	4-Bromofluorobenzene	SOLID	20	2.3354E+01			0.24	ug/Kg	116.77	% Recovery	
1	BLNK	S0908170040		0	0	Dibromofluoromethane	SOLID	20	2.5484E+01			0.24	ug/Kg	127.42	% Recovery	
1	BLNK	S0908170040		0	0	1,2-Dichloroethane-d4	SOLID	20	2.3548E+01			0.4	ug/Kg	117.74	% Recovery	
1	BLNK	S0908170040		0	0	Toluene-d8	SOLID	20	2.2677E+01			0.26	ug/Kg	113.38	% Recovery	
1	BLNK	S0908170040		0	0	Nonanal	SOLID		2.2217162				ug/Kg			JNT
Sample Sequence 2																
2	LCS	S0908170041		0	0	1,1-Dichloroethene	SOLID	20	2.2431E+01			0.34	ug/Kg	112.16	% Recovery	
2	LCS	S0908170041		0	0	1-Butanol	SOLID	200	2.0665E+02			15.54	ug/Kg	103.32	% Recovery	Y
2	LCS	S0908170041		0	0	4-Methyl-2-pentanone	SOLID	100	1.0981E+02			1.76	ug/Kg	109.81	% Recovery	
2	LCS	S0908170041		0	0	Acetone	SOLID	100	1.1367E+02			4.38	ug/Kg	113.67	% Recovery	
2	LCS	S0908170041		0	0	Benzene	SOLID	20	2.2261E+01			0.32	ug/Kg	111.3	% Recovery	
2	LCS	S0908170041		0	0	Chlorobenzene	SOLID	20	2.1815E+01			0.22	ug/Kg	109.08	% Recovery	
2	LCS	S0908170041		0	0	2-Butanone	SOLID	100	1.1128E+02			2.66	ug/Kg	111.28	% Recovery	
2	LCS	S0908170041		0	0	Toluene	SOLID	20	2.1241E+01			0.24	ug/Kg	106.2	% Recovery	
2	LCS	S0908170041		0	0	Trichloroethene	SOLID	20	2.2300E+01			0.3	ug/Kg	111.5	% Recovery	
2	LCS	S0908170041		0	0	4-Bromofluorobenzene	SOLID	20	2.1166E+01			0.24	ug/Kg	105.83	% Recovery	
2	LCS	S0908170041		0	0	Dibromofluoromethane	SOLID	20	2.3099E+01			0.24	ug/Kg	115.5	% Recovery	
2	LCS	S0908170041		0	0	1,2-Dichloroethane-d4	SOLID	20	2.2890E+01			0.4	ug/Kg	114.45	% Recovery	
2	LCS	S0908170041		0	0	Toluene-d8	SOLID	20	2.0029E+01			0.26	ug/Kg	100.14	% Recovery	
Sample Sequence 3																
3	BLNK	S0908170045		0	0	1,1,1-Trichloroethane	SOLID		<2.0000E-01			0.2	ug/Kg			U
3	BLNK	S0908170045		0	0	1,1,2-Trichloroethane	SOLID		<3.8000E-01			0.38	ug/Kg			U
3	BLNK	S0908170045		0	0	1,1,2,2-Tetrachloroethane	SOLID		<5.0000E-01			0.5	ug/Kg			U
3	BLNK	S0908170045		0	0	1,1-Dichloroethene	SOLID		<3.4000E-01			0.34	ug/Kg			U
3	BLNK	S0908170045		0	0	1,2-Dichloroethane	SOLID		<1.8000E-01			0.18	ug/Kg			U
3	BLNK	S0908170045		0	0	1-Butanol	SOLID		<1.5540E+01			15.54	ug/Kg			UY
3	BLNK	S0908170045		0	0	4-Methyl-2-pentanone	SOLID		<1.7600E+00			1.76	ug/Kg			U
3	BLNK	S0908170045		0	0	Acetone	SOLID		<4.3800E+00			4.38	ug/Kg			U
3	BLNK	S0908170045		0	0	Benzene	SOLID		<3.2000E-01			0.32	ug/Kg			U
3	BLNK	S0908170045		0	0	Carbon Disulfide	SOLID		<3.0000E-01			0.3	ug/Kg			U
3	BLNK	S0908170045		0	0	Carbon Tetrachloride	SOLID		<3.0000E-01			0.3	ug/Kg			U
3	BLNK	S0908170045		0	0	Chloroform	SOLID		<1.8000E-01			0.18	ug/Kg			U
3	BLNK	S0908170045		0	0	Chlorobenzene	SOLID		<2.2000E-01			0.22	ug/Kg			U
3	BLNK	S0908170045		0	0	Ethylbenzene	SOLID		<2.4000E-01			0.24	ug/Kg			U
3	BLNK	S0908170045		0	0	Xylenes (total)	SOLID		<6.2000E-01			0.62	ug/Kg			U
3	BLNK	S0908170045		0	0	2-Butanone	SOLID		<2.6600E+00			2.66	ug/Kg			U
3	BLNK	S0908170045		0	0	Methylene Chloride	SOLID		<3.4000E-01			0.34	ug/Kg			U
3	BLNK	S0908170045		0	0	Tetrachloroethene	SOLID		<4.0000E-01			0.4	ug/Kg			U
3	BLNK	S0908170045		0	0	Toluene	SOLID		<2.4000E-01			0.24	ug/Kg			U

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LABCORE Completed Batch Report for Batch# 00015674

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
3	BLNK	S0908170045		0	0	trans-1,3-Dichloropropene	SOLID		<1.4000E-01			0.14	ug/Kg			U
3	BLNK	S0908170045		0	0	Trichloroethene	SOLID		<3.0000E-01			0.3	ug/Kg			U
3	BLNK	S0908170045		0	0	Vinyl Chloride	SOLID		<6.4000E-01			0.64	ug/Kg			U
3	BLNK	S0908170045		0	0	cis-Dichloroethylene	SOLID		<2.6000E-01			0.26	ug/Kg			U
3	BLNK	S0908170045		0	0	trans-Dichloroethylene	SOLID		<3.6000E-01			0.36	ug/Kg			U
3	BLNK	S0908170045		0	0	112Trichloro-122Trifluoroethan	SOLID		<5.0000E-01			0.5	ug/Kg			U
3	BLNK	S0908170045		0	0	2-Nitropropane	SOLID		<1.5770E+00			1.577	ug/Kg			U
3	BLNK	S0908170045		0	0	Ethyl acetate	SOLID		<9.7200E-01			0.972	ug/Kg			U
3	BLNK	S0908170045		0	0	Diethyl ether	SOLID		<8.8500E-01			0.885	ug/Kg			U
3	BLNK	S0908170045		0	0	Trichlorofluoromethane	SOLID		<1.9400E+00			1.94	ug/Kg			U
3	BLNK	S0908170045		0	0	o-Xylene	SOLID		<2.0000E-01			0.2	ug/Kg			U
3	BLNK	S0908170045		0	0	m,p-Xylene	SOLID		<4.2000E-01			0.42	ug/Kg			U
3	BLNK	S0908170045		0	0	4-Bromofluorobenzene	SOLID	20	2.1218E+01			0.24	ug/Kg	106.09	% Recovery	
3	BLNK	S0908170045		0	0	Dibromofluoromethane	SOLID	20	2.3834E+01			0.24	ug/Kg	119.17	% Recovery	
3	BLNK	S0908170045		0	0	1,2-Dichloroethane-d4	SOLID	20	2.3036E+01			0.4	ug/Kg	115.18	% Recovery	
3	BLNK	S0908170045		0	0	Toluene-d8	SOLID	20	2.0842E+01			0.26	ug/Kg	104.21	% Recovery	
Sample Sequence 4																
4	LCS	S0908170046		0	0	1,1-Dichloroethene	SOLID	20	2.3100E+01			0.34	ug/Kg	115.5	% Recovery	
4	LCS	S0908170046		0	0	1-Butanol	SOLID	200	1.7087E+02			15.54	ug/Kg	85.435	% Recovery	Y
4	LCS	S0908170046		0	0	4-Methyl-2-pentanone	SOLID	100	9.8468E+01			1.76	ug/Kg	98.468	% Recovery	
4	LCS	S0908170046		0	0	Acetone	SOLID	100	1.0198E+02			4.38	ug/Kg	101.98	% Recovery	
4	LCS	S0908170046		0	0	Benzene	SOLID	20	2.1710E+01			0.32	ug/Kg	108.55	% Recovery	
4	LCS	S0908170046		0	0	Chlorobenzene	SOLID	20	2.1735E+01			0.22	ug/Kg	108.68	% Recovery	
4	LCS	S0908170046		0	0	2-Butanone	SOLID	100	9.6908E+01			2.66	ug/Kg	96.908	% Recovery	
4	LCS	S0908170046		0	0	Toluene	SOLID	20	2.1678E+01			0.24	ug/Kg	108.39	% Recovery	
4	LCS	S0908170046		0	0	Trichloroethene	SOLID	20	2.2274E+01			0.3	ug/Kg	111.37	% Recovery	
4	LCS	S0908170046		0	0	4-Bromofluorobenzene	SOLID	20	2.0720E+01			0.24	ug/Kg	103.6	% Recovery	
4	LCS	S0908170046		0	0	Dibromofluoromethane	SOLID	20	2.2135E+01			0.24	ug/Kg	110.68	% Recovery	
4	LCS	S0908170046		0	0	1,2-Dichloroethane-d4	SOLID	20	2.1167E+01			0.4	ug/Kg	105.84	% Recovery	
4	LCS	S0908170046		0	0	Toluene-d8	SOLID	20	2.0198E+01			0.26	ug/Kg	100.99	% Recovery	
Sample Sequence 5																
5	SAMPLE	S09V000378		0	0	1,1,1-Trichloroethane	SOLID	N/A	<1.3158E-01			0.13158	ug/Kg			U
5	SAMPLE	S09V000378		0	0	1,1,2-Trichloroethane	SOLID	N/A	<2.5000E-01			0.25	ug/Kg			U
5	SAMPLE	S09V000378		0	0	1,1,2,2-Tetrachloroethane	SOLID	N/A	<3.2895E-01			0.32895	ug/Kg			U
5	SAMPLE	S09V000378		0	0	1,1-Dichloroethene	SOLID	N/A	<2.2368E-01			0.22368	ug/Kg			U
5	SAMPLE	S09V000378		0	0	1,2-Dichloroethane	SOLID	N/A	<1.1842E-01			0.11842	ug/Kg			U
5	SAMPLE	S09V000378		0	0	1-Butanol	SOLID	N/A	<1.0224E+01			10.224	ug/Kg			UY
5	SAMPLE	S09V000378		0	0	4-Methyl-2-pentanone	SOLID	N/A	<1.1579E+00			1.1579	ug/Kg			U
5	SAMPLE	S09V000378		0	0	Acetone	SOLID	N/A	<2.8816E+00			2.8816	ug/Kg			U
5	SAMPLE	S09V000378		0	0	Benzene	SOLID	N/A	<2.1053E-01			0.21053	ug/Kg			U

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LABCORE Completed Batch Report for Batch# 00015674

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
5	SAMPLE	S09V000378		0 0		Carbon Disulfide	SOLID	N/A	<1.9737E-01			0.19737	ug/Kg			U
5	SAMPLE	S09V000378		0 0		Carbon Tetrachloride	SOLID	N/A	<1.9737E-01			0.19737	ug/Kg			U
5	SAMPLE	S09V000378		0 0		Chloroform	SOLID	N/A	<1.1842E-01			0.11842	ug/Kg			U
5	SAMPLE	S09V000378		0 0		Chlorobenzene	SOLID	N/A	<1.4474E-01			0.14474	ug/Kg			U
5	SAMPLE	S09V000378		0 0		Ethylbenzene	SOLID	N/A	<1.5789E-01			0.15789	ug/Kg			U
5	SAMPLE	S09V000378		0 0		Xylenes (total)	SOLID	N/A	<4.0789E-01			0.40789	ug/Kg			U
5	SAMPLE	S09V000378		0 0		2-Butanone	SOLID	N/A	<1.7500E+00			1.75	ug/Kg			U
5	SAMPLE	S09V000378		0 0		Methylene Chloride	SOLID	N/A	<2.2368E-01			0.22368	ug/Kg			U
5	SAMPLE	S09V000378		0 0		Tetrachloroethene	SOLID	N/A	<2.6316E-01			0.26316	ug/Kg			U
5	SAMPLE	S09V000378		0 0		Toluene	SOLID	N/A	<1.5789E-01			0.15789	ug/Kg			U
5	SAMPLE	S09V000378		0 0		trans-1,3-Dichloroprop ene	SOLID	N/A	<9.2105E-02			0.092105	ug/Kg			U
5	SAMPLE	S09V000378		0 0		Trichloroethene	SOLID	N/A	<1.9737E-01			0.19737	ug/Kg			U
5	SAMPLE	S09V000378		0 0		Vinyl Chloride	SOLID	N/A	<4.2105E-01			0.42105	ug/Kg			U
5	SAMPLE	S09V000378		0 0		cis-Dichloroethylene	SOLID	N/A	<1.7105E-01			0.17105	ug/Kg			U
5	SAMPLE	S09V000378		0 0		trans-Dichloroethylene	SOLID	N/A	<2.3684E-01			0.23684	ug/Kg			U
5	SAMPLE	S09V000378		0 0		112Trichloro-122Triflu oroethan	SOLID	N/A	<3.2895E-01			0.32895	ug/Kg			U
5	SAMPLE	S09V000378		0 0		2-Nitropropane	SOLID	N/A	<1.0375E+00			1.0375	ug/Kg			U
5	SAMPLE	S09V000378		0 0		Ethyl acetate	SOLID	N/A	<6.3947E-01			0.63947	ug/Kg			U
5	SAMPLE	S09V000378		0 0		Diethyl ether	SOLID	N/A	<5.8224E-01			0.58224	ug/Kg			U
5	SAMPLE	S09V000378		0 0		Trichlorofluoromethane	SOLID	N/A	<1.2763E+00			1.2763	ug/Kg			U
5	SAMPLE	S09V000378		0 0		o-Xylene	SOLID	N/A	<1.3158E-01			0.13158	ug/Kg			U
5	SAMPLE	S09V000378		0 0		m,p-Xylene	SOLID	N/A	<2.7632E-01			0.27632	ug/Kg			U
5	SAMPLE	S09V000378		0 0		4-Bromofluorobenzene	SOLID	13.15789	1.4975E+01			0.15789	ug/Kg	113.81	% Recovery	
5	SAMPLE	S09V000378		0 0		Dibromofluoromethane	SOLID	13.15789	1.6101E+01			0.15789	ug/Kg	122.37	% Recovery	
5	SAMPLE	S09V000378		0 0		1,2-Dichloroethane-d4	SOLID	13.15789	1.5521E+01			0.26316	ug/Kg	117.96	% Recovery	
5	SAMPLE	S09V000378		0 0		Toluene-d8	SOLID	13.15789	1.3877E+01			0.17105	ug/Kg	105.47	% Recovery	
5	SAMPLE	S09V000378		0 0		1-Hexanol, 2-ethyl-	SOLID		24.468642				ug/Kg			JNT
Sample Sequence 6																
6	MS	S0908170043	S09V000378	0 0		1,1-Dichloroethene	SOLID	9.090909	9.6670E+00			0.15454	ug/Kg	106.34	% Recovery	
6	MS	S0908170043	S09V000378	0 0		1-Butanol	SOLID	90.90909	7.3551E+01			7.0636	ug/Kg	80.906	% Recovery	Y
6	MS	S0908170043	S09V000378	0 0		4-Methyl-2-pentanone	SOLID	45.45454	4.5883E+01			0.8	ug/Kg	100.94	% Recovery	
6	MS	S0908170043	S09V000378	0 0		Acetone	SOLID	45.45454	4.7052E+01			1.9909	ug/Kg	103.51	% Recovery	
6	MS	S0908170043	S09V000378	0 0		Benzene	SOLID	9.090909	9.6780E+00			0.14545	ug/Kg	106.46	% Recovery	
6	MS	S0908170043	S09V000378	0 0		Chlorobenzene	SOLID	9.090909	9.4080E+00			0.1	ug/Kg	103.49	% Recovery	
6	MS	S0908170043	S09V000378	0 0		2-Butanone	SOLID	45.45454	4.4902E+01			1.2091	ug/Kg	98.784	% Recovery	
6	MS	S0908170043	S09V000378	0 0		Toluene	SOLID	9.090909	9.1440E+00			0.10909	ug/Kg	100.58	% Recovery	
6	MS	S0908170043	S09V000378	0 0		Trichloroethene	SOLID	9.090909	9.6460E+00			0.13636	ug/Kg	106.11	% Recovery	
6	MS	S0908170043	S09V000378	0 0		4-Bromofluorobenzene	SOLID	9.090909	9.0760E+00			0.10909	ug/Kg	99.836	% Recovery	
6	MS	S0908170043	S09V000378	0 0		Dibromofluoromethane	SOLID	9.090909	1.0175E+01			0.10909	ug/Kg	111.93	% Recovery	
6	MS	S0908170043	S09V000378	0 0		1,2-Dichloroethane-d4	SOLID	9.090909	9.6970E+00			0.18182	ug/Kg	106.67	% Recovery	
6	MS	S0908170043	S09V000378	0 0		Toluene-d8	SOLID	9.090909	8.5800E+00			0.11818	ug/Kg	94.38	% Recovery	

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LABCORE Completed Batch Report for Batch# 00015674

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 7																
7	MSD	S0908170044	S09V000378	0	0	1,1-Dichloroethene	SOLID	10.63829	1.2275E+01			0.18085	ug/Kg	115.39	% Recovery	
														8.1631	% RPD	
7	MSD	S0908170044	S09V000378	0	0	1-Butanol	SOLID	106.3829	1.1250E+02			8.266	ug/Kg	105.75	% Recovery	Y
														26.620	% RPD	
7	MSD	S0908170044	S09V000378	0	0	4-Methyl-2-pentanone	SOLID	53.19148	6.6158E+01			0.93617	ug/Kg	124.38	% Recovery	
														20.806	% RPD	
7	MSD	S0908170044	S09V000378	0	0	Acetone	SOLID	53.19148	6.3304E+01			2.3298	ug/Kg	119.01	% Recovery	
														13.931	% RPD	
7	MSD	S0908170044	S09V000378	0	0	Benzene	SOLID	10.63829	1.2016E+01			0.17021	ug/Kg	112.95	% Recovery	
														5.9159	% RPD	
7	MSD	S0908170044	S09V000378	0	0	Chlorobenzene	SOLID	10.63829	1.1991E+01			0.11702	ug/Kg	112.72	% Recovery	
														8.5380	% RPD	
7	MSD	S0908170044	S09V000378	0	0	2-Butanone	SOLID	53.19148	6.2600E+01			1.4149	ug/Kg	117.69	% Recovery	
														17.467	% RPD	
7	MSD	S0908170044	S09V000378	0	0	Toluene	SOLID	10.63829	1.2257E+01			0.12766	ug/Kg	115.22	% Recovery	
														13.568	% RPD	
7	MSD	S0908170044	S09V000378	0	0	Trichloroethene	SOLID	10.63829	1.2088E+01			0.15957	ug/Kg	113.63	% Recovery	
														6.8445	% RPD	
7	MSD	S0908170044	S09V000378	0	0	4-Bromofluorobenzene	SOLID	10.63829	1.1807E+01			0.12766	ug/Kg	110.99	% Recovery	
														10.581	% RPD	
7	MSD	S0908170044	S09V000378	0	0	Dibromofluoromethane	SOLID	10.63829	1.2276E+01			0.12766	ug/Kg	115.39	% Recovery	
														3.0442	% RPD	
7	MSD	S0908170044	S09V000378	0	0	1,2-Dichloroethane-d4	SOLID	10.63829	1.2323E+01			0.21276	ug/Kg	115.84	% Recovery	
														8.2423	% RPD	
7	MSD	S0908170044	S09V000378	0	0	Toluene-d8	SOLID	10.63829	1.1508E+01			0.1383	ug/Kg	108.18	% Recovery	
														13.626	% RPD	
Sample Sequence 8																
8	SAMPLE	S09V000127		0	0	1,1,1-Trichloroethane	SOLID	N/A	<2.2727E-01			0.22727	ug/Kg			U
8	SAMPLE	S09V000127		0	0	1,1,2-Trichloroethane	SOLID	N/A	<4.3182E-01			0.43182	ug/Kg			U
8	SAMPLE	S09V000127		0	0	1,1,2,2-Tetrachloroethane	SOLID	N/A	<5.6818E-01			0.56818	ug/Kg			U
8	SAMPLE	S09V000127		0	0	1,1-Dichloroethene	SOLID	N/A	<3.8636E-01			0.38636	ug/Kg			U
8	SAMPLE	S09V000127		0	0	1,2-Dichloroethane	SOLID	N/A	<2.0454E-01			0.20454	ug/Kg			U
8	SAMPLE	S09V000127		0	0	1-Butanol	SOLID	N/A	<1.7659E+01			17.659	ug/Kg			UY
8	SAMPLE	S09V000127		0	0	4-Methyl-2-pentanone	SOLID	N/A	<2.0000E+00			2	ug/Kg			U
8	SAMPLE	S09V000127		0	0	Acetone	SOLID	N/A	<4.9773E+00			4.9773	ug/Kg			U
8	SAMPLE	S09V000127		0	0	Benzene	SOLID	N/A	<3.6364E-01			0.36364	ug/Kg			U
8	SAMPLE	S09V000127		0	0	Carbon Disulfide	SOLID	N/A	<3.4091E-01			0.34091	ug/Kg			U
8	SAMPLE	S09V000127		0	0	Carbon Tetrachloride	SOLID	N/A	<3.4091E-01			0.34091	ug/Kg			U
8	SAMPLE	S09V000127		0	0	Chloroform	SOLID	N/A	<2.0454E-01			0.20454	ug/Kg			U
8	SAMPLE	S09V000127		0	0	Chlorobenzene	SOLID	N/A	<2.5000E-01			0.25	ug/Kg			U

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00015674

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
8	SAMPLE	S09V000127		0	0	Ethylbenzene	SOLID	N/A	<2.7273E-01			0.27273	ug/Kg			U
8	SAMPLE	S09V000127		0	0	Xylenes (total)	SOLID	N/A	<7.0454E-01			0.70454	ug/Kg			U
8	SAMPLE	S09V000127		0	0	2-Butanone	SOLID	N/A	<3.0227E+00			3.0227	ug/Kg			U
8	SAMPLE	S09V000127		0	0	Methylene Chloride	SOLID	N/A	<3.8636E-01			0.38636	ug/Kg			U
8	SAMPLE	S09V000127		0	0	Tetrachloroethene	SOLID	N/A	<4.5454E-01			0.45454	ug/Kg			U
8	SAMPLE	S09V000127		0	0	Toluene	SOLID	N/A	<2.7273E-01			0.27273	ug/Kg			U
8	SAMPLE	S09V000127		0	0	trans-1,3-Dichloropropene	SOLID	N/A	<1.5909E-01			0.15909	ug/Kg			U
8	SAMPLE	S09V000127		0	0	Trichloroethene	SOLID	N/A	<3.4091E-01			0.34091	ug/Kg			U
8	SAMPLE	S09V000127		0	0	Vinyl Chloride	SOLID	N/A	<7.2727E-01			0.72727	ug/Kg			U
8	SAMPLE	S09V000127		0	0	cis-Dichloroethylene	SOLID	N/A	<2.9545E-01			0.29545	ug/Kg			U
8	SAMPLE	S09V000127		0	0	trans-Dichloroethylene	SOLID	N/A	<4.0909E-01			0.40909	ug/Kg			U
8	SAMPLE	S09V000127		0	0	112Trichloro-122Trifluoroethan	SOLID	N/A	<5.6818E-01			0.56818	ug/Kg			U
8	SAMPLE	S09V000127		0	0	2-Nitropropane	SOLID	N/A	<1.7920E+00			1.792	ug/Kg			U
8	SAMPLE	S09V000127		0	0	Ethyl acetate	SOLID	N/A	<1.1045E+00			1.1045	ug/Kg			U
8	SAMPLE	S09V000127		0	0	Diethyl ether	SOLID	N/A	<1.0057E+00			1.0057	ug/Kg			U
8	SAMPLE	S09V000127		0	0	Trichlorofluoromethane	SOLID	N/A	<2.2045E+00			2.2045	ug/Kg			U
8	SAMPLE	S09V000127		0	0	o-Xylene	SOLID	N/A	<2.2727E-01			0.22727	ug/Kg			U
8	SAMPLE	S09V000127		0	0	m,p-Xylene	SOLID	N/A	<4.7727E-01			0.47727	ug/Kg			U
8	SAMPLE	S09V000127		0	0	4-Bromofluorobenzene	SOLID	22.72727	2.4080E+01			0.27273	ug/Kg	105.95	% Recovery	
8	SAMPLE	S09V000127		0	0	Dibromofluoromethane	SOLID	22.72727	2.6401E+01			0.27273	ug/Kg	116.16	% Recovery	
8	SAMPLE	S09V000127		0	0	1,2-Dichloroethane-d4	SOLID	22.72727	2.5424E+01			0.45454	ug/Kg	111.87	% Recovery	
8	SAMPLE	S09V000127		0	0	Toluene-d8	SOLID	22.72727	2.2830E+01			0.29545	ug/Kg	100.45	% Recovery	
8	SAMPLE	S09V000127		0	0	1-Hexanol, 2-ethyl-	SOLID		5.9300349				ug/Kg			JNT
8	SAMPLE	S09V000127		0	0	Nonanal	SOLID		6.5131462				ug/Kg			BJNT
Sample Sequence 9																
9	SAMPLE	S09V000383		0	0	1,1,1-Trichloroethane	SOLID	N/A	<1.6667E-01			0.16667	ug/Kg			U
9	SAMPLE	S09V000383		0	0	1,1,2-Trichloroethane	SOLID	N/A	<3.1667E-01			0.31667	ug/Kg			U
9	SAMPLE	S09V000383		0	0	1,1,2,2-Tetrachloroethane	SOLID	N/A	<4.1667E-01			0.41667	ug/Kg			U
9	SAMPLE	S09V000383		0	0	1,1-Dichloroethene	SOLID	N/A	<2.8333E-01			0.28333	ug/Kg			U
9	SAMPLE	S09V000383		0	0	1,2-Dichloroethane	SOLID	N/A	<1.5000E-01			0.15	ug/Kg			U
9	SAMPLE	S09V000383		0	0	1-Butanol	SOLID	N/A	<1.2950E+01			12.95	ug/Kg			UY
9	SAMPLE	S09V000383		0	0	4-Methyl-2-pentanone	SOLID	N/A	<1.4667E+00			1.4667	ug/Kg			U
9	SAMPLE	S09V000383		0	0	Acetone	SOLID	N/A	<3.6500E+00			3.65	ug/Kg			U
9	SAMPLE	S09V000383		0	0	Benzene	SOLID	N/A	<2.6667E-01			0.26667	ug/Kg			U
9	SAMPLE	S09V000383		0	0	Carbon Disulfide	SOLID	N/A	<2.5000E-01			0.25	ug/Kg			U
9	SAMPLE	S09V000383		0	0	Carbon Tetrachloride	SOLID	N/A	<2.5000E-01			0.25	ug/Kg			U
9	SAMPLE	S09V000383		0	0	Chloroform	SOLID	N/A	<1.5000E-01			0.15	ug/Kg			U
9	SAMPLE	S09V000383		0	0	Chlorobenzene	SOLID	N/A	<1.8333E-01			0.18333	ug/Kg			U
9	SAMPLE	S09V000383		0	0	Ethylbenzene	SOLID	N/A	<2.0000E-01			0.2	ug/Kg			U
9	SAMPLE	S09V000383		0	0	Xylenes (total)	SOLID	N/A	<5.1667E-01			0.51667	ug/Kg			U

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LABCORE Completed Batch Report for Batch# 00015674

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
9	SAMPLE	S09V000383		0	0	2-Butanone	SOLID	N/A	<2.2167E+00			2.2167	ug/Kg			U
9	SAMPLE	S09V000383		0	0	Methylene Chloride	SOLID	N/A	<2.8333E-01			0.28333	ug/Kg			U
9	SAMPLE	S09V000383		0	0	Tetrachloroethene	SOLID	N/A	<3.3333E-01			0.33333	ug/Kg			U
9	SAMPLE	S09V000383		0	0	Toluene	SOLID	N/A	<2.0000E-01			0.2	ug/Kg			U
9	SAMPLE	S09V000383		0	0	trans-1,3-Dichloropropene	SOLID	N/A	<1.1667E-01			0.11667	ug/Kg			U
9	SAMPLE	S09V000383		0	0	Trichloroethene	SOLID	N/A	<2.5000E-01			0.25	ug/Kg			U
9	SAMPLE	S09V000383		0	0	Vinyl Chloride	SOLID	N/A	<5.3333E-01			0.53333	ug/Kg			U
9	SAMPLE	S09V000383		0	0	cis-Dichloroethylene	SOLID	N/A	<2.1667E-01			0.21667	ug/Kg			U
9	SAMPLE	S09V000383		0	0	trans-Dichloroethylene	SOLID	N/A	<3.0000E-01			0.3	ug/Kg			U
9	SAMPLE	S09V000383		0	0	112Trichloro-122Trifluoroethan	SOLID	N/A	<4.1667E-01			0.41667	ug/Kg			U
9	SAMPLE	S09V000383		0	0	2-Nitropropane	SOLID	N/A	<1.3142E+00			1.3142	ug/Kg			U
9	SAMPLE	S09V000383		0	0	Ethyl acetate	SOLID	N/A	<8.1000E-01			0.81	ug/Kg			U
9	SAMPLE	S09V000383		0	0	Diethyl ether	SOLID	N/A	<7.3750E-01			0.7375	ug/Kg			U
9	SAMPLE	S09V000383		0	0	Trichlorofluoromethane	SOLID	N/A	<1.6167E+00			1.6167	ug/Kg			U
9	SAMPLE	S09V000383		0	0	o-Xylene	SOLID	N/A	<1.6667E-01			0.16667	ug/Kg			U
9	SAMPLE	S09V000383		0	0	m,p-Xylene	SOLID	N/A	<3.5000E-01			0.35	ug/Kg			U
9	SAMPLE	S09V000383		0	0	4-Bromofluorobenzene	SOLID	16.66666	1.9032E+01			0.2	ug/Kg	114.19	% Recovery	
9	SAMPLE	S09V000383		0	0	Dibromofluoromethane	SOLID	16.66666	1.9832E+01			0.2	ug/Kg	118.99	% Recovery	
9	SAMPLE	S09V000383		0	0	1,2-Dichloroethane-d4	SOLID	16.66666	1.8831E+01			0.33333	ug/Kg	112.99	% Recovery	
9	SAMPLE	S09V000383		0	0	Toluene-d8	SOLID	16.66666	1.7955E+01			0.21667	ug/Kg	107.73	% Recovery	
9	SAMPLE	S09V000383		0	0	1-Hexanol, 2-ethyl-	SOLID		6.6267017				ug/Kg			JNT
Sample Sequence 10																
10	SAMPLE	S09V000386		0	0	1,1,1-Trichloroethane	SOLID	N/A	<1.4925E-01			0.14925	ug/Kg			U
10	SAMPLE	S09V000386		0	0	1,1,2-Trichloroethane	SOLID	N/A	<2.8358E-01			0.28358	ug/Kg			U
10	SAMPLE	S09V000386		0	0	1,1,2,2-Tetrachloroethane	SOLID	N/A	<3.7313E-01			0.37313	ug/Kg			U
10	SAMPLE	S09V000386		0	0	1,1-Dichloroethene	SOLID	N/A	<2.5373E-01			0.25373	ug/Kg			U
10	SAMPLE	S09V000386		0	0	1,2-Dichloroethane	SOLID	N/A	<1.3433E-01			0.13433	ug/Kg			U
10	SAMPLE	S09V000386		0	0	1-Butanol	SOLID	N/A	<1.1597E+01			11.597	ug/Kg			UY
10	SAMPLE	S09V000386		0	0	4-Methyl-2-pentanone	SOLID	N/A	<1.3134E+00			1.3134	ug/Kg			U
10	SAMPLE	S09V000386		0	0	Acetone	SOLID	N/A	4.4640E+00			3.2687	ug/Kg			J
10	SAMPLE	S09V000386		0	0	Benzene	SOLID	N/A	<2.3880E-01			0.2388	ug/Kg			U
10	SAMPLE	S09V000386		0	0	Carbon Disulfide	SOLID	N/A	<2.2388E-01			0.22388	ug/Kg			U
10	SAMPLE	S09V000386		0	0	Carbon Tetrachloride	SOLID	N/A	<2.2388E-01			0.22388	ug/Kg			U
10	SAMPLE	S09V000386		0	0	Chloroform	SOLID	N/A	<1.3433E-01			0.13433	ug/Kg			U
10	SAMPLE	S09V000386		0	0	Chlorobenzene	SOLID	N/A	<1.6418E-01			0.16418	ug/Kg			U
10	SAMPLE	S09V000386		0	0	Ethylbenzene	SOLID	N/A	<1.7910E-01			0.1791	ug/Kg			U
10	SAMPLE	S09V000386		0	0	Xylenes (total)	SOLID	N/A	<4.6269E-01			0.46269	ug/Kg			U
10	SAMPLE	S09V000386		0	0	2-Butanone	SOLID	N/A	<1.9851E+00			1.9851	ug/Kg			U
10	SAMPLE	S09V000386		0	0	Methylene Chloride	SOLID	N/A	<2.5373E-01			0.25373	ug/Kg			U
10	SAMPLE	S09V000386		0	0	Tetrachloroethene	SOLID	N/A	<2.9851E-01			0.29851	ug/Kg			U

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LABCORE Completed Batch Report for Batch# 00015674

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
10	SAMPLE	S09V000386		0	0	Toluene	SOLID	N/A	<1.7910E-01			0.1791	ug/Kg			U
10	SAMPLE	S09V000386		0	0	trans-1,3-Dichloropropene	SOLID	N/A	<1.0448E-01			0.10448	ug/Kg			U
10	SAMPLE	S09V000386		0	0	Trichloroethene	SOLID	N/A	<2.2388E-01			0.22388	ug/Kg			U
10	SAMPLE	S09V000386		0	0	Vinyl Chloride	SOLID	N/A	<4.7761E-01			0.47761	ug/Kg			U
10	SAMPLE	S09V000386		0	0	cis-Dichloroethylene	SOLID	N/A	<1.9403E-01			0.19403	ug/Kg			U
10	SAMPLE	S09V000386		0	0	trans-Dichloroethylene	SOLID	N/A	<2.6866E-01			0.26866	ug/Kg			U
10	SAMPLE	S09V000386		0	0	112Trichloro-122Trifluoroethan	SOLID	N/A	<3.7313E-01			0.37313	ug/Kg			U
10	SAMPLE	S09V000386		0	0	2-Nitropropane	SOLID	N/A	<1.1769E+00			1.1769	ug/Kg			U
10	SAMPLE	S09V000386		0	0	Ethyl acetate	SOLID	N/A	<7.2537E-01			0.72537	ug/Kg			U
10	SAMPLE	S09V000386		0	0	Diethyl ether	SOLID	N/A	<6.6045E-01			0.66045	ug/Kg			U
10	SAMPLE	S09V000386		0	0	Trichlorofluoromethane	SOLID	N/A	<1.4478E+00			1.4478	ug/Kg			U
10	SAMPLE	S09V000386		0	0	o-Xylene	SOLID	N/A	<1.4925E-01			0.14925	ug/Kg			U
10	SAMPLE	S09V000386		0	0	m,p-Xylene	SOLID	N/A	<3.1343E-01			0.31343	ug/Kg			U
10	SAMPLE	S09V000386		0	0	4-Bromofluorobenzene	SOLID	14.92537	1.8109E+01			0.1791	ug/Kg	121.33	% Recovery	
10	SAMPLE	S09V000386		0	0	Dibromofluoromethane	SOLID	14.92537	1.8101E+01			0.1791	ug/Kg	121.28	% Recovery	
10	SAMPLE	S09V000386		0	0	1,2-Dichloroethane-d4	SOLID	14.92537	1.7758E+01			0.29851	ug/Kg	118.98	% Recovery	
10	SAMPLE	S09V000386		0	0	Toluene-d8	SOLID	14.92537	1.6098E+01			0.19403	ug/Kg	107.86	% Recovery	

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00015674

Valerie L Massie 8-20-09 — Analyst Signature — Date

Andrew W. [illegible] 8/19/09 — Data Entry Signature — Date

Mark [illegible] 8/20/09 — Reviewer Signature — Date

PM Reviewer: Randall Peterson 11/19/2009

Units shown for QC (BLK/BKG) may not reflect the actual units.

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LABCORE Completed Batch Report for Batch# 00015674

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0908170040	BLNK				
2	S0908170041	LCS				
3	S0908170045	BLNK				
4	S0908170046	LCS				
5	S09V000378	SAMPLE		20090325	B1YT90	C Farm WMA C
6	S0908170043	MS	S09V000378			
7	S0908170044	MSD	S09V000378			
8	S09V000127	SAMPLE		20090160	B1YT81	C Farm WMA C
9	S09V000383	SAMPLE		20090325	B1YT93	C Farm WMA C
10	S09V000386	SAMPLE		20090325	B1YT96	C Farm WMA C

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

Date 070709 Project V090507 C Farm Soils Procedure LA-523-118 G-D Initials VLM

Concentration of compounds in secondary				Source "A"						Source "B"	
Internal Std	(µg/mL)	10.0									
Surrogate	(µg/mL)		10.0	1.0	3.0	10.0	30.0	50.0	75.0	10.0	10.0
Megmix	(µg/mL)			1.0	3.0	10.0	30.0	50.0	75.0	10.0	
Hexane	(µg/mL)			1.0	3.0	10.0	30.0	50.0	75.0	10.0	
THF	(µg/mL)			3.0	9.0	30.0	90.0	150.0	225.0	20.0	
Ketones	(µg/mL)			10.0	20.0	50.0	100.0	125.0	150.0	50.0	50.0
2-Pentanone	(µg/mL)			10.0	20.0	50.0	100.0	125.0	150.0	50.0	
n-butanol	(µg/mL)			20.0	40.0	100.0	200.0	250.0	300.0	100.0	100.0
Gases	(µg/mL)			1.0	3.0	10.0	30.0	50.0	75.0	10.0	
MS/LCS Mix	(µg/mL)										10.0

1 of 1

VOA BENCH SHEET

NEELIX		Internal Standard HNF-N-362-4-13.2 Expires: 6/6/09	Surrogate HNF-N-362-4-13.3 Expires: 6/6/09	CAL 1 Secondary (Includes Surrogate) HNF-N-362-4-14.1 Expires: 5-11-09	CAL 2 Secondary (Includes Surrogate) Expires:	CAL 3 Secondary (Includes Surrogate) HNF-N-362-4-13.4 Expires: 5-11-09	CAL 4 Secondary (Includes Surrogate) Expires:	CAL 4b Secondary (Includes Surrogate) Expires:	CAL 5 Secondary (Includes Surrogate) Expires:	ICV/S Secondary (Includes Surrogate) Expires:	LCS/MS Secondary (Includes Surrogate) HNF-N-362-4-13.5 Expires: 6/16/09	BFB HNF-N-362-3-146.3 Expires: 9/11/09	H_2O	Sand Ottawa lot 905897	S09V000127	S09V000378	S09V000378 MS	S09V000378 MSD	S09V000383	S09V000386
Data File ID	TYPE	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(mL)	(g)	g	g	g	g	g	g
9050701 .d	PRERUN																			
9050702 .d	BFB											2.0	10.0							
9050703 .d	CCV	10.0				10.0							10.0							
9050704 .d	CCB	10.0	10.0										10.0	5.3116						
9050705 .d	LCS	10.0									10.0		10.0	5.3524						
9050706 .d	CAL 1	10.0		10.0									10.0							
9050707 .d	SMP	10.0	10.0										10.0		~~7.5~~ 4.4					
9050708 .d	SMP	10.0	10.0										10.0			7.6				
9050709 .d	MS	10.0									10.0		10.0				8.6			
9050710 .d	MSD	10.0									10.0		10.0					9.4		
9050711 .d	SMP	10.0	10.0										10.0						6.0	
9050712 .d	SMP[	10.0	10.0										10.0							6.7
															pH:					

MSD 7/16/09

MSD 7/7/09

NOTES Balance ID: LE-BAL-078 Cal Expires 9-22-09 vial N = S09V000127, S09V000378 = vial K

S09V000378 MS = vial L, S09V000378 MSD = vial M, S09V000383 = vial K, S09V000386 = vial K

Date 050809 Project Y090508 C Farm Soils Rerun Procedure LA-523-118 G-0 Initials YLM

1 of 1

VOA BENCH SHEET

Concentration of compounds in secondary				Source "A"						Source "B"	
Internal Std	(µg/mL)	10.0									
Surrogate	(µg/mL)		10.0	1.0	3.0	10.0	30.0	50.0	75.0	10.0	10.0
Megmix	(µg/mL)			1.0	3.0	10.0	30.0	50.0	75.0	10.0	
Hexane	(µg/mL)			1.0	3.0	10.0	30.0	50.0	75.0	10.0	
THF	(µg/mL)			3.0	9.0	30.0	90.0	150.0	225.0	20.0	
Ketones	(µg/mL)			10.0	20.0	50.0	100.0	125.0	150.0	50.0	50.0
2-Pentanone	(µg/mL)			10.0	20.0	50.0	100.0	125.0	150.0	50.0	
n-butanol	(µg/mL)			20.0	40.0	100.0	200.0	250.0	300.0	100.0	100.0
Gases	(µg/mL)			1.0	3.0	10.0	30.0	50.0	75.0	10.0	
MS/LCS Mix	(µg/mL)										10.0

NEELIX		Internal Standard HNF-N-362-4-13.2 Expires: 6/6/09	Surrogate HNF-N-362-4-13.3 Expires: 6/6/09	CAL 1 Secondary (Includes Surrogate) HNF-N-362-4-14.1 Expires: 5-11-09	CAL 2 Secondary (Includes Surrogate) Expires:	CAL 3 Secondary (Includes Surrogate) HNF-N-362-4-13.4 Expires: 5-11-09	CAL 4 Secondary (Includes Surrogate) Expires:	CAL 4b Secondary (Includes Surrogate) Expires:	CAL 5 Secondary (Includes Surrogate) Expires:	ICVS Secondary (Includes Surrogate) Expires:	LCS/MS Secondary (Includes Surrogate) HNF-N-362-4-13.5 Expires: 6/6/09	BFB HNF-N-362-3-146.3 Expires: 9/11/09	H_2O	Sand 1905897	S09V000378 MS					
Data File ID	TYPE	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(mL)	(g)	g	g	g	g	g	g
9050801 .d	PRERUN																			
9050802 .d	BFB											2.0	10.0							
9050803 .d	CCV	10.0				10.0							10.0							
9050804 .d	CCB	10.0	10.0										10.0	5.0486						
9050805 .d	LCS	10.0									10.0		10.0	5.0541						
9050806 .d	CAL 1	10.0		10.0									10.0							
9050807 .d	MS	10.0	10.0										10.0		11.0					
															pH:					

NOTES Balance ID: LE-BAL-078 Cal expires 9-22-09 Sample S09V000378 MS = vial N

LABCORE Completed Batch Report for Batch# 00015479

Analyst: Duchsherer, Mark

Book#: See Benchsheet

Instrument: GCMSD2 (NELIX) for VOA

Method: VOA 222S #2, LA-523-118 Rev/Mod G-0

Specification: C Farm WMA C

Prep Batch:

Batch Comment: C Farm WMA C, VOA 222S #2, Liq

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1																
1	BLNK	S0908130050		0	0	1,1,1-Trichloroethane	LIQUID		<1.0000E-01			0.1	ug/L			U
1	BLNK	S0908130050		0	0	1,1,2-Trichloroethane	LIQUID		<1.9000E-01			0.19	ug/L			U
1	BLNK	S0908130050		0	0	1,1,2,2-Tetrachloroethane	LIQUID		<2.5000E-01			0.25	ug/L			U
1	BLNK	S0908130050		0	0	1,1-Dichloroethene	LIQUID		<1.7000E-01			0.17	ug/L			U
1	BLNK	S0908130050		0	0	1,2-Dichloroethane	LIQUID		<8.9999E-02			0.089999	ug/L			U
1	BLNK	S0908130050		0	0	1-Butanol	LIQUID		<7.7700E+00			7.77	ug/L			U
1	BLNK	S0908130050		0	0	4-Methyl-2-pentanone	LIQUID		<8.8000E-01			0.88	ug/L			U
1	BLNK	S0908130050		0	0	Acetone	LIQUID		<2.1900E+00			2.19	ug/L			U
1	BLNK	S0908130050		0	0	Benzene	LIQUID		<1.6000E-01			0.16	ug/L			U
1	BLNK	S0908130050		0	0	Carbon Disulfide	LIQUID		<1.5000E-01			0.15	ug/L			U
1	BLNK	S0908130050		0	0	Carbon Tetrachloride	LIQUID		<1.5000E-01			0.15	ug/L			U
1	BLNK	S0908130050		0	0	Chloroform	LIQUID		<8.9999E-02			0.089999	ug/L			U
1	BLNK	S0908130050		0	0	Chlorobenzene	LIQUID		<1.1000E-01			0.11	ug/L			U
1	BLNK	S0908130050		0	0	Ethylbenzene	LIQUID		<1.2000E-01			0.12	ug/L			U
1	BLNK	S0908130050		0	0	Xylenes (total)	LIQUID		<3.1000E-01			0.31	ug/L			U
1	BLNK	S0908130050		0	0	2-Butanone	LIQUID		<1.3300E+00			1.33	ug/L			U
1	BLNK	S0908130050		0	0	Methylene Chloride	LIQUID		<1.7000E-01			0.17	ug/L			U
1	BLNK	S0908130050		0	0	Tetrachloroethene	LIQUID		<2.0000E-01			0.2	ug/L			U
1	BLNK	S0908130050		0	0	Toluene	LIQUID		<1.2000E-01			0.12	ug/L			U
1	BLNK	S0908130050		0	0	trans-1,3-Dichloropropene	LIQUID		<6.9999E-02			0.069999	ug/L			U
1	BLNK	S0908130050		0	0	Trichloroethene	LIQUID		<1.5000E-01			0.15	ug/L			U
1	BLNK	S0908130050		0	0	Vinyl Chloride	LIQUID		<3.2000E-01			0.32	ug/L			U
1	BLNK	S0908130050		0	0	cis-Dichloroethylene	LIQUID		<1.3000E-01			0.13	ug/L			U
1	BLNK	S0908130050		0	0	trans-Dichloroethylene	LIQUID		<1.8000E-01			0.18	ug/L			U
1	BLNK	S0908130050		0	0	112Trichloro-122Trifluoroethan	LIQUID		<2.5000E-01			0.25	ug/L			U
1	BLNK	S0908130050		0	0	2-Nitropropane	LIQUID		<1.0300E+00			1.03	ug/L			U
1	BLNK	S0908130050		0	0	Ethyl acetate	LIQUID		<2.9000E-01			0.29	ug/L			U
1	BLNK	S0908130050		0	0	Diethyl ether	LIQUID		<3.9000E-01			0.39	ug/L			U
1	BLNK	S0908130050		0	0	Trichlorofluoromethane	LIQUID		<9.7000E-01			0.97	ug/L			U

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00015479

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
1	BLNK	S0908130050		0	0	o-Xylene	LIQUID		<1.0000E-01			0.1	ug/L			U
1	BLNK	S0908130050		0	0	m,p-Xylene	LIQUID		<2.1000E-01			0.21	ug/L			U
1	BLNK	S0908130050		0	0	4-Bromofluorobenzene	LIQUID	10	1.0573E+01			0.12	ug/L	105.73	% Recovery	
1	BLNK	S0908130050		0	0	Dibromofluoromethane	LIQUID	10	1.0426E+01			0.12	ug/L	104.26	% Recovery	
1	BLNK	S0908130050		0	0	1,2-Dichloroethane-d4	LIQUID	10	1.0225E+01			0.2	ug/L	102.25	% Recovery	
1	BLNK	S0908130050		0	0	Toluene-d8	LIQUID	10	1.0249E+01			0.13	ug/L	102.49	% Recovery	
1	BLNK	S0908130050		0	0	System Artifact #1	LIQUID		3.0205468				ug/L			JT
1	BLNK	S0908130050		0	0	System Artifact #2	LIQUID		2.0145241				ug/L			JT
Sample Sequence 2																
2	LCS	S0908130051		0	0	1,1-Dichloroethene	LIQUID	10	1.0998E+01			0.17	ug/L	109.98	% Recovery	
2	LCS	S0908130051		0	0	1-Butanol	LIQUID	100	9.7415E+01			7.77	ug/L	97.415	% Recovery	
2	LCS	S0908130051		0	0	4-Methyl-2-pentanone	LIQUID	50	5.5918E+01			0.88	ug/L	111.84	% Recovery	
2	LCS	S0908130051		0	0	Acetone	LIQUID	50	5.7214E+01			2.19	ug/L	114.43	% Recovery	
2	LCS	S0908130051		0	0	Benzene	LIQUID	10	1.0017E+01			0.16	ug/L	100.17	% Recovery	
2	LCS	S0908130051		0	0	Chlorobenzene	LIQUID	10	1.0056E+01			0.11	ug/L	100.56	% Recovery	
2	LCS	S0908130051		0	0	2-Butanone	LIQUID	50	5.4118E+01			1.33	ug/L	108.24	% Recovery	
2	LCS	S0908130051		0	0	Toluene	LIQUID	10	1.0316E+01			0.12	ug/L	103.16	% Recovery	
2	LCS	S0908130051		0	0	Trichloroethene	LIQUID	10	9.8610E+00			0.15	ug/L	98.61	% Recovery	
2	LCS	S0908130051		0	0	4-Bromofluorobenzene	LIQUID	10	1.0420E+01			0.12	ug/L	104.2	% Recovery	
2	LCS	S0908130051		0	0	Dibromofluoromethane	LIQUID	10	1.0497E+01			0.12	ug/L	104.97	% Recovery	
2	LCS	S0908130051		0	0	1,2-Dichloroethane-d4	LIQUID	10	1.0438E+01			0.2	ug/L	104.38	% Recovery	
2	LCS	S0908130051		0	0	Toluene-d8	LIQUID	10	1.0410E+01			0.13	ug/L	104.1	% Recovery	
Sample Sequence 3																
3	SAMPLE	S09V000377		0	0	1,1,1-Trichloroethane	LIQUID	N/A	<1.1111E-01			0.11111	ug/L			U
3	SAMPLE	S09V000377		0	0	1,1,2-Trichloroethane	LIQUID	N/A	<2.1111E-01			0.21111	ug/L			U
3	SAMPLE	S09V000377		0	0	1,1,2,2-Tetrachloroethane	LIQUID	N/A	<2.7778E-01			0.27778	ug/L			U
3	SAMPLE	S09V000377		0	0	1,1-Dichloroethene	LIQUID	N/A	<1.8889E-01			0.18889	ug/L			U
3	SAMPLE	S09V000377		0	0	1,2-Dichloroethane	LIQUID	N/A	<9.9999E-02			0.099999	ug/L			U
3	SAMPLE	S09V000377		0	0	1-Butanol	LIQUID	N/A	<8.6333E+00			8.6333	ug/L			U
3	SAMPLE	S09V000377		0	0	4-Methyl-2-pentanone	LIQUID	N/A	<9.7778E-01			0.97778	ug/L			U
3	SAMPLE	S09V000377		0	0	Acetone	LIQUID	N/A	<2.4333E+00			2.4333	ug/L			U
3	SAMPLE	S09V000377		0	0	Benzene	LIQUID	N/A	<1.7778E-01			0.17778	ug/L			U
3	SAMPLE	S09V000377		0	0	Carbon Disulfide	LIQUID	N/A	<1.6667E-01			0.16667	ug/L			U
3	SAMPLE	S09V000377		0	0	Carbon Tetrachloride	LIQUID	N/A	<1.6667E-01			0.16667	ug/L			U
3	SAMPLE	S09V000377		0	0	Chloroform	LIQUID	N/A	<9.9999E-02			0.099999	ug/L			U
3	SAMPLE	S09V000377		0	0	Chlorobenzene	LIQUID	N/A	<1.2222E-01			0.12222	ug/L			U
3	SAMPLE	S09V000377		0	0	Ethylbenzene	LIQUID	N/A	<1.3333E-01			0.13333	ug/L			U
3	SAMPLE	S09V000377		0	0	Xylenes (total)	LIQUID	N/A	<3.4444E-01			0.34444	ug/L			U
3	SAMPLE	S09V000377		0	0	2-Butanone	LIQUID	N/A	<1.4778E+00			1.4778	ug/L			U
3	SAMPLE	S09V000377		0	0	Methylene Chloride	LIQUID	N/A	5.4400E+00			0.18889	ug/L			
3	SAMPLE	S09V000377		0	0	Tetrachloroethene	LIQUID	N/A	<2.2222E-01			0.22222	ug/L			U

Units shown for QC (BLK/BKG) may not reflect the actual units.

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00015479

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
3	SAMPLE	S09V000377		0 0		Toluene	LIQUID	N/A	<1.3333E-01			0.13333	ug/L			U
3	SAMPLE	S09V000377		0 0		trans-1,3-Dichloroprop ene	LIQUID	N/A	<7.7777E-02			0.077777	ug/L			U
3	SAMPLE	S09V000377		0 0		Trichloroethene	LIQUID	N/A	<1.6667E-01			0.16667	ug/L			U
3	SAMPLE	S09V000377		0 0		Vinyl Chloride	LIQUID	N/A	<3.5556E-01			0.35556	ug/L			U
3	SAMPLE	S09V000377		0 0		cis-Dichloroethylene	LIQUID	N/A	<1.4444E-01			0.14444	ug/L			U
3	SAMPLE	S09V000377		0 0		trans-Dichloroethylene	LIQUID	N/A	<2.0000E-01			0.2	ug/L			U
3	SAMPLE	S09V000377		0 0		112Trichloro-122Triflu oroethan	LIQUID	N/A	<2.7778E-01			0.27778	ug/L			U
3	SAMPLE	S09V000377		0 0		2-Nitropropane	LIQUID	N/A	<1.1444E+00			1.1444	ug/L			U
3	SAMPLE	S09V000377		0 0		Ethyl acetate	LIQUID	N/A	<3.2222E-01			0.32222	ug/L			U
3	SAMPLE	S09V000377		0 0		Diethyl ether	LIQUID	N/A	<4.3333E-01			0.43333	ug/L			U
3	SAMPLE	S09V000377		0 0		Trichlorofluoromethane	LIQUID	N/A	<1.0778E+00			1.0778	ug/L			U
3	SAMPLE	S09V000377		0 0		o-Xylene	LIQUID	N/A	<1.1111E-01			0.11111	ug/L			U
3	SAMPLE	S09V000377		0 0		m,p-Xylene	LIQUID	N/A	<2.3333E-01			0.23333	ug/L			U
3	SAMPLE	S09V000377		0 0		4-Bromofluorobenzene	LIQUID	11.11111	1.1521E+01			0.13333	ug/L	103.69	% Recovery	
3	SAMPLE	S09V000377		0 0		Dibromofluoromethane	LIQUID	11.11111	1.1376E+01			0.13333	ug/L	102.38	% Recovery	
3	SAMPLE	S09V000377		0 0		1,2-Dichloroethane-d4	LIQUID	11.11111	1.1281E+01			0.22222	ug/L	101.53	% Recovery	
3	SAMPLE	S09V000377		0 0		Toluene-d8	LIQUID	11.11111	1.1603E+01			0.14444	ug/L	104.43	% Recovery	
3	SAMPLE	S09V000377		0 0		Isopropyl Alcohol	LIQUID	N/A	1.6623394				ug/L			JNT
3	SAMPLE	S09V000377		0 0		System Artifact #1	LIQUID		8.1400442				ug/L			BJT
3	SAMPLE	S09V000377		0 0		System Artifact #2	LIQUID		3.4033129				ug/L			BJT
3	SAMPLE	S09V000377		0 0		Unknown-1	LIQUID		1.8951346				ug/L			JT
Sample Sequence 4																
4	MS	S0908130053	S09V000377	0 0		1,1-Dichloroethene	LIQUID	11.11111	1.2122E+01			0.18889	ug/L	109.1	% Recovery	
4	MS	S0908130053	S09V000377	0 0		1-Butanol	LIQUID	111.1111	1.2207E+02			8.6333	ug/L	109.86	% Recovery	
4	MS	S0908130053	S09V000377	0 0		4-Methyl-2-pentanone	LIQUID	55.55555	6.3310E+01			0.97778	ug/L	113.96	% Recovery	
4	MS	S0908130053	S09V000377	0 0		Acetone	LIQUID	55.55555	6.5774E+01			2.4333	ug/L	118.39	% Recovery	
4	MS	S0908130053	S09V000377	0 0		Benzene	LIQUID	11.11111	1.1068E+01			0.17778	ug/L	99.612	% Recovery	
4	MS	S0908130053	S09V000377	0 0		Chlorobenzene	LIQUID	11.11111	1.0978E+01			0.12222	ug/L	98.802	% Recovery	
4	MS	S0908130053	S09V000377	0 0		2-Butanone	LIQUID	55.55555	6.2325E+01			1.4778	ug/L	112.19	% Recovery	
4	MS	S0908130053	S09V000377	0 0		Toluene	LIQUID	11.11111	1.1276E+01			0.13333	ug/L	101.48	% Recovery	
4	MS	S0908130053	S09V000377	0 0		Trichloroethene	LIQUID	11.11111	1.0847E+01			0.16667	ug/L	97.623	% Recovery	
4	MS	S0908130053	S09V000377	0 0		4-Bromofluorobenzene	LIQUID	11.11111	1.1436E+01			0.13333	ug/L	102.92	% Recovery	
4	MS	S0908130053	S09V000377	0 0		Dibromofluoromethane	LIQUID	11.11111	1.1604E+01			0.13333	ug/L	104.44	% Recovery	
4	MS	S0908130053	S09V000377	0 0		1,2-Dichloroethane-d4	LIQUID	11.11111	1.1598E+01			0.22222	ug/L	104.38	% Recovery	
4	MS	S0908130053	S09V000377	0 0		Toluene-d8	LIQUID	11.11111	1.1532E+01			0.14444	ug/L	103.79	% Recovery	
Sample Sequence 5																
5	MSD	S0908130054	S09V000377	0 0		1,1-Dichloroethene	LIQUID	11.11111	1.2329E+01			0.18889	ug/L	110.96	% Recovery	
														1.6904	% RPD	
5	MSD	S0908130054	S09V000377	0 0		1-Butanol	LIQUID	111.1111	1.0849E+02			8.6333	ug/L	97.641	% Recovery	
														11.777	% RPD	

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LABCORE Completed Batch Report for Batch# 00015479

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
5	MSD	S0908130054	S09V000377	0	0	4-Methyl-2-pentanone	LIQUID	55.55555	6.2597E+01			0.97778	ug/L	112.67	% Recovery	
														1.1384	% RPD	
5	MSD	S0908130054	S09V000377	0	0	Acetone	LIQUID	55.55555	6.3292E+01			2.4333	ug/L	113.93	% Recovery	
														3.8395	% RPD	
5	MSD	S0908130054	S09V000377	0	0	Benzene	LIQUID	11.11111	1.1031E+01			0.17778	ug/L	99.279	% Recovery	
														0.33486	% RPD	
5	MSD	S0908130054	S09V000377	0	0	Chlorobenzene	LIQUID	11.11111	1.1202E+01			0.12222	ug/L	100.82	% Recovery	
														2.0218	% RPD	
5	MSD	S0908130054	S09V000377	0	0	2-Butanone	LIQUID	55.55555	5.9234E+01			1.4778	ug/L	106.62	% Recovery	
														5.0912	% RPD	
5	MSD	S0908130054	S09V000377	0	0	Toluene	LIQUID	11.11111	1.1751E+01			0.13333	ug/L	105.76	% Recovery	
														4.1305	% RPD	
5	MSD	S0908130054	S09V000377	0	0	Trichloroethene	LIQUID	11.11111	1.0824E+01			0.16667	ug/L	97.416	% Recovery	
														0.21227	% RPD	
5	MSD	S0908130054	S09V000377	0	0	4-Bromofluorobenzene	LIQUID	11.11111	1.1475E+01			0.13333	ug/L	103.28	% Recovery	
														0.34918	% RPD	
5	MSD	S0908130054	S09V000377	0	0	Dibromofluoromethane	LIQUID	11.11111	1.1558E+01			0.13333	ug/L	104.02	% Recovery	
														0.40296	% RPD	
5	MSD	S0908130054	S09V000377	0	0	1,2-Dichloroethane-d4	LIQUID	11.11111	1.1444E+01			0.22222	ug/L	103	% Recovery	
														1.3309	% RPD	
5	MSD	S0908130054	S09V000377	0	0	Toluene-d8	LIQUID	11.11111	1.2006E+01			0.14444	ug/L	108.05	% Recovery	
														4.0219	% RPD	

Comments Section:

Data Flagger Status:
Flagger Not Run

Final Page for Batch# 00015479

Valerie L Massie 8-20-09
Analyst Signature **Date**

8-17-09
Data Entry Signature **Date**

8/19/09
Reviewer Signature **Date**

PM Reviewer: DP Peterson
10-13-09

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* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00015479

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0908130050	BLNK				
2	S0908130051	LCS				
3	S09V000377	SAMPLE		20090345	B1YY23	C Farm WMA C
4	S0908130053	MS	S09V000377			
5	S0908130054	MSD	S09V000377			

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

Date 05/21/09 Project V090521 C Farm Soils Procedure LA-523-118 G-0 Initials VLM

1 of 2

VOA BENCH SHEET

Concentration of compounds in secondary				Source "A"						Source "B"	
Internal Std	(µg/mL)	10.0									
Surrogate	(µg/mL)		10.0	1.0	3.0	10.0	30.0	50.0	75.0	10.0	10.0
Megmix	(µg/mL)			1.0	3.0	10.0	30.0	50.0	75.0	10.0	
Hexane	(µg/mL)			1.0	3.0	10.0	30.0	50.0	75.0	10.0	
THF	(µg/mL)			3.0	9.0	30.0	90.0	150.0	225.0	20.0	
Ketones	(µg/mL)			10.0	20.0	50.0	100.0	125.0	150.0	50.0	50.0
2-Pentanone	(µg/mL)			10.0	20.0	50.0	100.0	125.0	150.0	50.0	
n-butanol	(µg/mL)			20.0	40.0	100.0	200.0	250.0	300.0	100.0	100.0
Gases	(µg/mL)			1.0	3.0	10.0	30.0	50.0	75.0	10.0	
MS/LCS Mix	(µg/mL)										10.0

NEELIX		Internal Standard HNF-N-362-4-19.2 Expires: 6/20/09	Surrogate HNF-N-362-4-19.3 Expires: 6/20/09	CAL 1 Secondary (Includes Surrogate) Expires:	CAL 2 Secondary (Includes Surrogate) Expires:	CAL 3 Secondary (Includes Surrogate) HNF-N-362-4-20.1 Expires: 5/28/09	CAL 4 Secondary (Includes Surrogate) Expires:	CAL 5 Secondary (Includes Surrogate) Expires:	CAL 6 Secondary (Includes Surrogate) Expires:	ICVS Secondary (Includes Surrogate) Expires:	LCS/MS Secondary (Includes Surrogate) HNF-N-362-4-19.1 Expires: 6/20/09	BFB HNF-N-362-4-16.9 Expires: 11/18/09	H_2O	Sand Ottawa Lot #905897	CCB 65CN3 6m HCL	LCS 65CN3 6m HCL	S09V000377	S09V000377 MS	S09V000377 MSD	S09V000395
Data File ID	TYPE	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(uL)	(mL)	(g)	(uL)	(uL)	(mL)	(mL)	(mL)	g
9052101 .d	PRERUN																			
9052102 .d	BFB											2.0	10.0							
9052103 .d	CCV	10.0				10.0							10.0							
9052104 .d	CCB	10.0	10.0										10.0		20					
9052105 .d	LCS	10.0									10.0		10.0			20				
9052106 .d	CCB	10.0	10.0										10.0	5.1493						
9052107 .d	LCS	10.0									10.0		10.0	5.1493						
9052108 .d	LCS	10.0									10.0		10.0	5.2882						
9052109 .d	SMP	10.0	10.0										1.0				9.0			
9052110 .d	MS	10.0									10.0		1.0					9.0		
9052111 .d	MSD	10.0									10.0		1.0						9.0	
9052112 .d	SMP	10.0	1.0										10.0							5.7
															pH:					

NOTES Balance ID: LE-BAL-078 - Cal expires 9-22-09 Samples S09V000395 = vial K, S09V000395MS = vial L
S09V000395MSD = vial M, S09V000410 = vial K, S09V000427 = vial K, S09V000442 = vial K

Date 05/01/09 Project Y090521 C7am Soils Procedure LA-523-118 G-0 Initials VLM

2 of 2

VOA BENCH SHEET

(Non-Tank Closure Compounds)

Concentration of compounds in secondary				Source "A"						Source "B"	
Internal Std	(µg/mL)	10.0									
Surrogate	(µg/mL)		10.0	1.0	3.0	10.0	30.0	75.0	n/a	10.0	10.0
Megmix	(µg/mL)			1.0	3.0	10.0	30.0	75.0	n/a	10.0	
Hexane	(µg/mL)			1.0	3.0	10.0	30.0	75.0	n/a	11.1	
THF	(µg/mL)			3.0	9.0	30.0	90.0	225.0	n/a	30.0	
Ketones	(µg/mL)			10.0	20.0	50.0	100.0	150.0	n/a	50.0	50.0
2-Pentanone	(µg/mL)			10.0	20.0	50.0	100.0	150.0	n/a	50.0	
n-butanol	(µg/mL)			20.0	40.0	100.0	200.0	300.0	n/a	100.0	100.0
Gases	(µg/mL)			1.0	3.0	10.0	30.0	75.0	n/a	10.0	
MS/LCS Mix	(µg/mL)										10.0

Data File ID	TYPE	Internal Standard HNF-N-362-4-19.2 Expires: 6/20/09 (uL)	Surrogate HNF-N-362-4-19.3 Expires: 6/20/09 (uL)	CAL 1 Secondary (Includes Surrogate) Expires: (uL)	CAL 2 Secondary (Includes Surrogate) Expires: (uL)	CAL 3 Secondary (Includes Surrogate) Expires: (uL)	CAL 4 Secondary (Includes Surrogate) Expires: (uL)	CAL 5 Secondary (Includes Surrogate) Expires: (uL)	CAL 6 Secondary (Includes Surrogate) Expires: (uL)	ICVS Secondary (Includes Surrogate) Expires: (uL)	LCS/MS Secondary (Includes Surrogate) HNF-N-362-4-19.1 Expires: 6/20/09 (uL)	BFB Expires: (uL)	H_2O (mL)	Sand (g)	S09V000395 MS (g)	S09V000395 MSD (g)	S09V000410 (g)	S09V000427 (g)	S09V000442 (g)	Sample (mL)
9052113 .d	MS	10.0									10.0		10.0		5.3					
9052114 .d	MSD	10.0									10.0		10.0			5.8				
9052115 .d	SMP	10.0	10.0										10.0				5.2			
9052116 .d	SMP	10.0	10.0										10.0					6.8		
9052117 .d	SMP	10.0	10.0										10.0						5.0	
															pH:					

NOTES Balance ID:

Date: 28 April 2010
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: WMA C
Subject: Semivolatile Organics - Sample Data Group (SDG) 20090160

INTRODUCTION

This memorandum presents the results of data validation for SDG 20090160 prepared by 222-S Laboratory. A list of samples validated along with the analytical methods is provided in the following table.

Sample ID	Sample Date	Media	Validation Level	Analytical Methods
B1YT71	4/14/2009	Soil	C	8270
B1YT74	4/21/2009	Soil	C	8270
B1YT77	4/22/2009	Soil	C	8270
B1YT80	4/30/2009	Soil	C	8270
B1YT83	4/30/2009	Soil	C	8270

Data validation was conducted in accordance with the CHPRC validation statement of work and the Field Sampling and Analysis Plan for Sites P and L at Waste Management Area C, RPP-PLAN-40564, Rev. 0 (SAP). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Documentation Requested By Client

DATA QUALITY OBJECTIVES

- **Holding Times and Sample Preservation**

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The holding time requirements for semivolatile organics in soil are extraction within 14 days of sample collection and analysis within 40 days of sample extraction. Sample preservation requires chilling to 4 degrees Celsius.

The samples were extracted and analyzed within the prescribed holding times and properly preserved.

- **Blanks**

The blank data results are reviewed to assess the extent of contamination introduced through sampling, sample preparation, and analysis.

Laboratory Blanks

All laboratory blank results were acceptable.

Trip Blanks

No trip blanks were submitted for analysis.

Field Blanks

No field blanks were submitted for analysis.

Equipment Blanks

No equipment blanks were submitted for analysis.

- **Accuracy**

Accuracy is evaluated by reviewing surrogate results, matrix spike sample results, and laboratory control sample results. According to the SAP, the matrix spike and laboratory control sample accuracy limits are 70% to 130%. The limits for reported analytes not listed in the SAP are specified by the DV procedure.

Surrogates

All surrogate recoveries were acceptable with the following exceptions.

For batch 14169, the terphenyl-d14 recovery for sample B1YT77 was below the lower acceptance limit but >10%. The class of reported sample results associated with surrogate terphenyl-d14 were all non-detects and should be qualified as estimates and flagged "UJ." See the table in Appendix 2 for a listing of all affected sample results.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Samples

All MS/MSD recoveries were acceptable with the following exceptions.

For all batches, only eleven 8270 MS/MSD analytes were reported. Reported analytes not represented in the MS/MSDs were pyridine, tributyl phosphate, 2-ethoxyethanol, cyclohexanone, n-nitrosomorpholine and isobutanol. All sample results for these analytes were non-detects and should be qualified as estimates and flagged "UJ."

For batch 14169, the MS and MSD recoveries for 1,2,4-trichlorobenzene; 1,4-dichlorobenzene; 4-chloro-3-methylphenol; 2-chlorophenol; n-ninitrosodipropylamine; phenol and acenaphthene were below the lower acceptance limits. The associated classes of results for sample B1YT77 were all non-detects and should be qualified as estimates and flagged "UJ." See the table in Appendix 2 for a listing of all affected sample results.

For batch 14181, the MS and MSD recoveries for 1,2,4-trichlorobenzene; 1,4-dichlorobenzene; 2-chlorophenol; n-ninitrosodipropylamine and phenol were below the lower acceptance limits. The associated classes of results for samples B1YT71 and B1YT74 were all non-detects and should be qualified as estimates and flagged "UJ." See the table in Appendix 2 for a listing of all affected sample results.

For batch 14528, the MS and MSD recoveries for n-ninitrosodipropylamine were below the lower acceptance limit. The associated class of results for samples B1YT80 and B1YT83 were all non-detects and should be qualified as estimates and flagged "UJ." See the table in Appendix 2 for a listing of all affected sample results.

Laboratory Control Samples (LCSs)

All LCS recoveries were acceptable with the following exceptions.

For all batches, only eleven 8270 LCS analytes were reported. Reported analytes not represented in the LCSs were pyridine, tributyl phosphate, 2-ethoxyethanol, cyclohexanone, n-nitrosomorpholine and isobutanol. All sample results for these analytes were non-detects and should be qualified as estimates and flagged "UJ."

For batch 14169, the LCS recoveries for 1,2,4-trichlorobenzene; 1,4-dichlorobenzene; 4-chloro-3-methylphenol; 2-chlorophenol; n-ninitrosodipropylamine; phenol and pentachlorophenol were below the lower acceptance limits. The associated classes of results for sample B1YT77 were all non-detects and should be qualified as estimates and flagged "UJ." See the table in Appendix 2 for a listing of all affected sample results.

For batch 14181, the LCS recoveries for 1,4-dichlorobenzene; 2-chlorophenol; n-ninitrosodipropylamine and phenol were below the lower acceptance limits. The associated classes of results for samples B1YT71 and B1YT74 were all non-detects and should be qualified as estimates and flagged "UJ." See the table in Appendix 2 for a listing of all affected sample results.

- **Precision**

Precision is evaluated by reviewing MS/MSD results, field duplicate sample results, and field split sample results. These QC results provide information on the laboratory reproducibility and whether sampling activities are adequate to acquire consistent sample results. According to the SAP, the relative percent difference (RPD) limits are ±30%. The RPD limits for reported analytes not listed in the SAP are specified by the DV procedure. When duplicate RPDs exceed

the limits and have associated results <5X the required detection limits with differences <2X the required detection limits no precision infraction occurred.

MS/MSD Samples

All MS/MSD relative percent difference values were acceptable.

Field Duplicate Samples

No field duplicates were submitted for analysis.

Field Split Samples

No field splits were submitted for analysis.

- **Detection Limits**

Reported MDLs are compared against the contractually required detection limits (CRDLs) to ensure that laboratory detection limits meet the required criteria.

All reported sample MDLs were below the CRDLs [or Target Detection Limits (TDLs) when CRDLs were not provided in the SAP] with the following exceptions. All sample cyclohexanone MDLs were > the TDL, and all associated sample results were non-detects.

- **Completeness**

SDG 20090160 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Minor deficiencies leading to qualification of sample results as estimates were due to a surrogate recovery infraction and non-represented QC data. See the table in Appendix 2 for a listing of all affected sample results.

It should be noted that results were not reported for COC requested analyte monobutyl phosphate.

REFERENCES

HNF-20433, Rev. 0, *Data Validation Procedure for Chemical Analyses*, June 2004.

RPP-PLAN-40564, Rev. 0, *Field Sampling and Analysis Plan for Sites P and L at Waste Management Area C*, March 2009.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers that may be applied by data validators in compliance with the CHPRC statement of work are as follows:

- **U** — The constituent was analyzed for and was not detected. The data should be considered usable for decision-making purposes.

- **UJ** — The constituent was analyzed for and was not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the MDL. The data should be considered usable for decision-making purposes.

- **J** — Indicates the constituent was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **UR** — Indicates the constituent was analyzed for and not detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

- **R** — Indicates the constituent was analyzed for and detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

Appendix 2

Summary of Data Qualification

Semivolatile Organics Data Qualification Summary			
SDG: 20090160	Reviewer: AQA	Project: WMA C	Page 1 of 2
Analyte(s)	**Qualifier**	**Samples Affected**	**Reason**
Pyridine Tributyl phosphate 2-Ethoxyethanol Cyclohexanone n-Nitrosomorpholine Isobutanol	UJ	B1YT71, B1YT74, B1YT77, B1YT80, B1YT83	Lack of MS/MSD & LCS data
Benzo(a)anthracene Benzo(b)fluoranthene Benzo(a)pyrene Benzo(k)fluoranthene Chrysene Dibenz[a,h]anthracene Fluoranthene Indeno(1,2,3-cd)pyrene Pyrene	UJ	B1YT77	Low surrogate recovery
Acenaphthene Naphthalene	UJ	B1YT77	Low surrogate recovery and low MS/MSD recoveries
1,2,4-Trichlorobenzene 1,2-Dichlorobenzene 1,4-Dichlorobenzene 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol 2-Methylphenol 2-Nitrophenol Cresol (m & p) Bis(2-ethylhexyl)phthalate Butylbenzylphthalate 4-Chloro-3-methylphenol 2-Chlorophenol Di-n-butylphthalate Di-n-octylphthalate N-Nitroso-di-n-dipropylamine Hexachlorobutadiene Hexachloroethane Phenol Pentachlorophenol BHT Total Methylphenols	UJ	B1YT77	Low LCS and/or MS/MSD recoveries

Semivolatile Organics Data Qualification Summary			
SDG 20090160	Reviewer: AQA	Project: WMA C	Page 2 of 2
Analyte(s)	**Qualifier**	**Samples Affected**	**Reason**
1,2,4-Trichlorobenzene 1,2-Dichlorobenzene 1,4-Dichlorobenzene 2-Methylphenol Cresol (m & p) Bis(2-ethylhexyl)phthalate Butylbenzylphthalate 4-Chloro-3-methylphenol 2-Chlorophenol Di-n-butylphthalate Di-n-octylphthalate N-Nitroso-di-n-dipropylamine Hexachlorobutadiene Hexachloroethane Phenol BHT Total Methylphenols	UJ	B1YT71, B1YT74	Low LCS and/or MS/MSD recoveries
N-Nitroso-di-n-dipropylamine	UJ	B1YT80, B1YT83	Low MS/MSD recoveries

Comments: None

Appendix 3

Annotated Laboratory Reports

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT71
Sample Depth: 14-15

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S09V000171~~			~~%WATERA~~	~~%WATER-APD~~		~~%~~	~~n/a~~	~~n/a~~	~~9.120~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	
S09V000171			57-12-5	Cyanide		ug/g	108	<0.0370	<4.77	<4.82	n/a	n/a	102	4.77	n/a	U
S09V000171			10198-40-0	Cobalt-60		uCi/g	103	<2.35E-07	8.33E-07	n/a	n/a	n/a	n/a	2.40E-07	15.31	
S09V000171			14234-35-6	Antimony-125		uCi/g	n/a	<6.05E-07	1.12E-06	n/a	n/a	n/a	n/a	8.63E-07	40.05	J
S09V000171			10045-97-3	Cesium-137		uCi/g	108	<2.89E-07	7.31E-05	n/a	n/a	n/a	n/a	2.89E-07	6.25	
S09V000171			14683-23-9	Europium-152		uCi/g	n/a	<1.20E-06	<1.28E-06	n/a	n/a	n/a	n/a	1.28E-06	n/a	U
S09V000171			15585-10-1	Europium-154		uCi/g	n/a	<7.88E-07	<8.85E-07	n/a	n/a	n/a	n/a	8.85E-07	n/a	U
S09V000171			14391-16-3	Europium-155		uCi/g	n/a	<4.64E-07	<7.81E-07	n/a	n/a	n/a	n/a	7.81E-07	n/a	U
S09V000171			7439-97-6	Mercury		ug/g	100	<1.00E-04	<0.0175	<0.0201	n/a	n/a	97.3	0.0175	n/a	U
S09V000171			15046-84-1	Iodine-129		uCi/g	91.4	<2.74E-07	<2.38E-07	n/a	n/a	n/a	n/a	2.38E-07	n/a	U
S09V000171			PH	pH		unitless	n/a	n/a	10.1	10.1	10.1	0.396	n/a	0.0100	n/a	
~~S09V000171~~			~~18496-25-8~~	~~Sulfide~~		~~ug/g~~	~~107~~	~~<0.186~~	~~32.2~~	~~32.1~~	~~32.15~~	~~0.142~~	~~113~~	~~7.61~~	~~n/a~~	~~J~~
S09V000179		O	120-82-1	1,2,4-Trichlorobenzene	UJ	ug/kg	72.4	<774	<72.9	n/a	n/a	n/a	n/a	72.9	n/a	U
S09V000179		O	95-50-1	1,2-Dichlorobenzene	UJ	ug/kg	n/a	<1.01E+03	<94.8	n/a	n/a	n/a	n/a	94.8	n/a	U
S09V000179		O	106-46-7	1,4-Dichlorobenzene	UJ	ug/kg	68.5	<1.13E+03	<107	n/a	n/a	n/a	n/a	107	n/a	U
S09V000179		O	121-14-2	2,4-Dinitrotoluene		ug/kg	80.0	<381	<35.9	n/a	n/a	n/a	n/a	35.9	n/a	U
S09V000179		O	95-95-4	2,4,5-Trichlorophenol		ug/kg	n/a	<440	<41.4	n/a	n/a	n/a	n/a	41.4	n/a	U
S09V000179		O	88-06-2	2,4,6-Trichlorophenol		ug/kg	n/a	<495	<46.6	n/a	n/a	n/a	n/a	46.6	n/a	U
S09V000179		O	95-48-7	2-Methylphenol	UJ	ug/kg	n/a	<575	<54.1	n/a	n/a	n/a	n/a	54.1	n/a	U
S09V000179		O	88-75-5	2-Nitrophenol		ug/kg	n/a	<537	<50.6	n/a	n/a	n/a	n/a	50.6	n/a	U
S09V000179		O	108-39-4M	Cresol (m & p)	UJ	ug/kg	n/a	<514	<48.4	n/a	n/a	n/a	n/a	48.4	n/a	U
S09V000179		O	83-32-9	Acenaphthene		ug/kg	76.9	<176	<16.6	n/a	n/a	n/a	n/a	16.6	n/a	U
S09V000179		O	56-55-3	Benzo(a)anthracene		ug/kg	n/a	<378	<35.6	n/a	n/a	n/a	n/a	35.6	n/a	U
S09V000179		O	205-99-2	Benzo(b)fluoranthene		ug/kg	n/a	<489	<46.0	n/a	n/a	n/a	n/a	46.0	n/a	U
S09V000179		O	50-32-8	Benzo(a)pyrene		ug/kg	n/a	<412	<38.8	n/a	n/a	n/a	n/a	38.8	n/a	U
S09V000179		O	117-81-7	Bis(2-ethylhexyl) phthalate	UJ	ug/kg	n/a	<5.90E+03	<556	n/a	n/a	n/a	n/a	556	n/a	U
S09V000179		O	207-08-9	Benzo(k)fluoranthene		ug/kg	n/a	<391	<36.8	n/a	n/a	n/a	n/a	36.8	n/a	U
S09V000179		O	85-68-7	Butylbenzylphthalate	UJ	ug/kg	n/a	<500	<47.1	n/a	n/a	n/a	n/a	47.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated
B - Found in Blank
X - Comment
U - Less Than Detection Limit
a - LCS Outside Range
Y - Comment
c - RPD Outside Range
b - MS/MSD Outside Range
e - SERDIL Outside Range

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT71
Sample Depth: 14-15

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000179		O	59-50-7	4-Chloro-3-methylphenol	UJ	ug/kg	72.4	<432	<40.7	n/a	n/a	n/a	n/a	40.7	n/a	U
S09V000179		O	95-57-8	2-Chlorophenol	UJ	ug/kg	66.9	<665	<62.6	n/a	n/a	n/a	n/a	62.6	n/a	U
S09V000179		O	218-01-9	Chrysene		ug/kg	n/a	<814	<76.6	n/a	n/a	n/a	n/a	76.6	n/a	U
S09V000179		O	53-70-3	Dibenz[a,h]anthracene		ug/kg	n/a	<511	<48.1	n/a	n/a	n/a	n/a	48.1	n/a	U
S09V000179		O	84-74-2	Di-n-butylphthalate	UJ	ug/kg	n/a	<5.62E+03	<529	n/a	n/a	n/a	n/a	529	n/a	U
S09V000179		O	117-84-0	Di-n-octylphthalate	UJ	ug/kg	n/a	<477	<44.9	n/a	n/a	n/a	n/a	44.9	n/a	U
S09V000179		O	621-64-7	N-Nitroso-di-n-dipropylamine	UJ	ug/kg	65.7	<581	<54.7	n/a	n/a	n/a	n/a	54.7	n/a	U
S09V000179		O	206-44-0	Fluoranthene		ug/kg	n/a	<354	<33.3	n/a	n/a	n/a	n/a	33.3	n/a	U
S09V000179		O	87-68-3	Hexachlorobutadiene	UJ	ug/kg	n/a	<697	<65.6	n/a	n/a	n/a	n/a	65.6	n/a	U
S09V000179		O	67-72-1	Hexachloroethane	UJ	ug/kg	n/a	<1.12E+03	<105	n/a	n/a	n/a	n/a	105	n/a	U
S09V000179		O	193-39-5	Indeno(1,2,3-cd)pyrene		ug/kg	n/a	<510	<48.0	n/a	n/a	n/a	n/a	48.0	n/a	U
S09V000179		O	108-95-2	Phenol	UJ	ug/kg	69.2	<594	<55.9	n/a	n/a	n/a	n/a	55.9	n/a	U
S09V000179		O	91-20-3	Naphthalene		ug/kg	n/a	<626	<58.9	n/a	n/a	n/a	n/a	58.9	n/a	U
S09V000179		O	98-95-3	Nitrobenzene		ug/kg	n/a	<646	<60.8	n/a	n/a	n/a	n/a	60.8	n/a	U
S09V000179		O	100-02-7	4-Nitrophenol		ug/kg	79.8	<526	<49.5	n/a	n/a	n/a	n/a	49.5	n/a	U
S09V000179		O	87-86-5	Pentachlorophenol		ug/kg	76.3	<375	<35.3	n/a	n/a	n/a	n/a	35.3	n/a	U
S09V000179		O	129-00-0	Pyrene		ug/kg	80.4	<629	<59.2	n/a	n/a	n/a	n/a	59.2	n/a	U
S09V000179		O	110-86-1	Pyridine	UJ	ug/kg	n/a	<650	<61.2	n/a	n/a	n/a	n/a	61.2	n/a	U
S09V000179		O	126-73-8	Tributyl phosphate	UJ	ug/kg	n/a	<1.08E+03	<102	n/a	n/a	n/a	n/a	102	n/a	U
S09V000179		O	128-37-0	BHT	UJ	ug/kg	n/a	<2.36E+03	<222	n/a	n/a	n/a	n/a	222	n/a	U
S09V000179		O	110-80-5	2-Ethoxyethanol	UJ	ug/kg	n/a	<1.82E+03	<172	n/a	n/a	n/a	n/a	172	n/a	U
S09V000179		O	1319-77-3	Total Methylphenols	UJ	ug/kg	n/a	<1.07E+03	<100	n/a	n/a	n/a	n/a	100	n/a	U
S09V000179		O	108-94-1	Cyclohexanone	UJ	ug/kg	n/a	<5.59E+03	<526	n/a	n/a	n/a	n/a	526	n/a	U
S09V000179		O	59-89-2	N-Nitrosomorpholine	UJ	ug/kg	n/a	<1.91E+03	<180	n/a	n/a	n/a	n/a	180	n/a	U
S09V000179		O	78-83-1	Isobutanol	UJ	ug/kg	n/a	<4.60E+03	<433	n/a	n/a	n/a	n/a	433	n/a	U
~~S09V000187~~	~~W~~	~~14762-75-5~~	~~Carbon-14~~			~~uCi/g~~	~~98.8~~	~~<3.65E-07~~	~~<5.45E-05~~	~~<8.58E-05~~	~~n/a~~	~~n/a~~	~~98.8~~	~~5.45E-05~~	~~n/a~~	~~U~~
S09V000187	W	10028-17-8	Tritium			uCi/g	92.2	<3.28E-04	<4.15E-04	<3.07E-04	n/a	n/a	93.4	4.15E-04	n/a	U
~~S09V000195~~	~~A~~	~~7429-90-5~~	~~Aluminum~~			~~ug/g~~	~~93.0~~	~~<0.0300~~	~~7.80E+03~~	~~7.49E+03~~	~~7645~~	~~4.07~~	~~233~~	~~30.3~~	~~n/a~~	

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT74
Sample Depth: 19.5-21.5

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S09V000172~~			~~%WATERA~~	~~%WATER APD~~		~~%~~	~~n/a~~	~~n/a~~	~~6.600~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	
S09V000172			57-12-5	Cyanide		ug/g	108	<0.0370	<4.67	n/a	n/a	n/a	n/a	4.67	n/a	U
S09V000172			10198-40-0	Cobalt-60		uCi/g	103	<2.35E-07	6.26E-07	n/a	n/a	n/a	n/a	2.05E-07	18.79	
S09V000172			14234-35-6	Antimony-125		uCi/g	n/a	<6.05E-07	<6.99E-07	n/a	n/a	n/a	n/a	6.99E-07	n/a	U
S09V000172			10045-97-3	Cesium-137		uCi/g	108	<2.89E-07	6.31E-06	n/a	n/a	n/a	n/a	3.26E-07	7.66	
S09V000172			14683-23-9	Europium-152		uCi/g	n/a	<1.20E-06	<1.19E-06	n/a	n/a	n/a	n/a	1.19E-06	n/a	U
S09V000172			15585-10-1	Europium-154		uCi/g	n/a	<7.88E-07	2.28E-06	n/a	n/a	n/a	n/a	8.08E-07	8.41	
S09V000172			14391-16-3	Europium-155		uCi/g	n/a	<4.64E-07	8.10E-07	n/a	n/a	n/a	n/a	4.95E-07	39.17	J
S09V000172			7439-97-6	Mercury		ug/g	100	<1.00E-04	<0.0205	n/a	n/a	n/a	n/a	0.0205	n/a	U
S09V000172			15046-84-1	Iodine-129		uCi/g	91.4	<2.74E-07	<2.02E-07	n/a	n/a	n/a	n/a	2.02E-07	n/a	U
S09V000172			PH	pH		unitless	n/a	7.99	10.3	10.3	10.3	0.291	n/a	0.0100	n/a	
~~S09V000172~~			~~18496-25-8~~	~~Sulfide~~		~~ug/g~~	~~93.4~~	~~<0.180~~	~~10.8~~	~~7.98~~	~~9.13~~	~~26.6~~	~~81.3~~	~~5.24~~	~~n/a~~	~~J~~
S09V000180	O		120-82-1	1,2,4-Trichlorobenzene	UJ	ug/kg	72.4	<774	<77.5	n/a	n/a	n/a	65.5	77.5	n/a	U
S09V000180	O		95-50-1	1,2-Dichlorobenzene	UJ	ug/kg	n/a	<1.01E+03	<101	n/a	n/a	n/a	n/a	101	n/a	U
S09V000180	O		106-46-7	1,4-Dichlorobenzene	UJ	ug/kg	68.5	<1.13E+03	<113	n/a	n/a	n/a	61.3	113	n/a	U
S09V000180	O		121-14-2	2,4-Dinitrotoluene		ug/kg	80.0	<381	<38.2	n/a	n/a	n/a	76.9	38.2	n/a	U
S09V000180	O		95-95-4	2,4,5-Trichlorophenol		ug/kg	n/a	<440	<44.1	n/a	n/a	n/a	n/a	44.1	n/a	U
S09V000180	O		88-06-2	2,4,6-Trichlorophenol		ug/kg	n/a	<495	<49.6	n/a	n/a	n/a	n/a	49.6	n/a	U
S09V000180	O		95-48-7	2-Methylphenol	UJ	ug/kg	n/a	<575	<57.6	n/a	n/a	n/a	n/a	57.6	n/a	U
S09V000180	O		88-75-5	2-Nitrophenol		ug/kg	n/a	<537	<53.8	n/a	n/a	n/a	n/a	53.8	n/a	U
S09V000180	O		108-39-4M	Cresol (m & p)	UJ	ug/kg	n/a	<514	<51.5	n/a	n/a	n/a	n/a	51.5	n/a	U
S09V000180	O		83-32-9	Acenaphthene		ug/kg	76.9	<176	<17.6	n/a	n/a	n/a	70.9	17.6	n/a	U
S09V000180	O		56-55-3	Benzo(a)anthracene		ug/kg	n/a	<378	<37.9	n/a	n/a	n/a	n/a	37.9	n/a	U
S09V000180	O		205-99-2	Benzo(b)fluoranthene		ug/kg	n/a	<489	<49.0	n/a	n/a	n/a	n/a	49.0	n/a	U
S09V000180	O		50-32-8	Benzo(a)pyrene		ug/kg	n/a	<412	<41.3	n/a	n/a	n/a	n/a	41.3	n/a	U
S09V000180	O		117-81-7	Bis(2-ethylhexyl) phthalate	UJ	ug/kg	n/a	<5.90E+03	<591	n/a	n/a	n/a	n/a	591	n/a	U
S09V000180	O		207-08-9	Benzo(k)fluoranthene		ug/kg	n/a	<391	<39.2	n/a	n/a	n/a	n/a	39.2	n/a	U
S09V000180	O		85-68-7	Butylbenzylphthalate	UJ	ug/kg	n/a	<500	<50.1	n/a	n/a	n/a	n/a	50.1	n/a	U

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT74
Sample Depth: 19.5-21.5

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000180		O	59-50-7	4-Chloro-3-methylphenol	UJ	ug/kg	72.4	<432	<43.3	n/a	n/a	n/a	72.3	43.3	n/a	U
S09V000180		O	95-57-8	2-Chlorophenol	UJ	ug/kg	66.9	<665	<66.6	n/a	n/a	n/a	61.3	66.6	n/a	U
S09V000180		O	218-01-9	Chrysene		ug/kg	n/a	<814	<81.5	n/a	n/a	n/a	n/a	81.5	n/a	U
S09V000180		O	53-70-3	Dibenz[a,h]anthracene		ug/kg	n/a	<511	<51.2	n/a	n/a	n/a	n/a	51.2	n/a	U
S09V000180		O	84-74-2	Di-n-butylphthalate	UJ	ug/kg	n/a	<5.62E+03	<563	n/a	n/a	n/a	n/a	563	n/a	U
S09V000180		O	117-84-0	Di-n-octylphthalate	UJ	ug/kg	n/a	<477	<47.8	n/a	n/a	n/a	n/a	47.8	n/a	U
S09V000180		O	621-64-7	N-Nitroso-di-n-dipropylamine	UJ	ug/kg	65.7	<581	<58.2	n/a	n/a	n/a	59.7	58.2	n/a	U
S09V000180		O	206-44-0	Fluoranthene		ug/kg	n/a	<354	<35.4	n/a	n/a	n/a	n/a	35.4	n/a	U
S09V000180		O	87-68-3	Hexachlorobutadiene	UJ	ug/kg	n/a	<697	<69.8	n/a	n/a	n/a	n/a	69.8	n/a	U
S09V000180		O	67-72-1	Hexachloroethane	UJ	ug/kg	n/a	<1.12E+03	<112	n/a	n/a	n/a	n/a	112	n/a	U
S09V000180		O	193-39-5	Indeno(1,2,3-cd)pyrene		ug/kg	n/a	<510	<51.1	n/a	n/a	n/a	n/a	51.1	n/a	U
S09V000180		O	108-95-2	Phenol	UJ	ug/kg	69.2	<594	<59.5	n/a	n/a	n/a	64.3	59.5	n/a	U
S09V000180		O	91-20-3	Naphthalene		ug/kg	n/a	<626	<62.7	n/a	n/a	n/a	n/a	62.7	n/a	U
S09V000180		O	98-95-3	Nitrobenzene		ug/kg	n/a	<646	<64.7	n/a	n/a	n/a	n/a	64.7	n/a	U
S09V000180		O	100-02-7	4-Nitrophenol		ug/kg	79.8	<526	<52.7	n/a	n/a	n/a	78.9	52.7	n/a	U
S09V000180		O	87-86-5	Pentachlorophenol		ug/kg	76.3	<375	<37.6	n/a	n/a	n/a	78.3	37.6	n/a	U
S09V000180		O	129-00-0	Pyrene		ug/kg	80.4	<629	<63.0	n/a	n/a	n/a	79.8	63.0	n/a	U
S09V000180		O	110-86-1	Pyridine	UJ	ug/kg	n/a	<650	<65.1	n/a	n/a	n/a	n/a	65.1	n/a	U
S09V000180		O	126-73-8	Tributyl phosphate	UJ	ug/kg	n/a	<1.08E+03	<108	n/a	n/a	n/a	n/a	108	n/a	U
S09V000180		O	128-37-0	BHT	UJ	ug/kg	n/a	<2.36E+03	<236	n/a	n/a	n/a	n/a	236	n/a	U
S09V000180		O	110-80-5	2-Ethoxyethanol	UJ	ug/kg	n/a	<1.82E+03	<183	n/a	n/a	n/a	n/a	183	n/a	U
S09V000180		O	1319-77-3	Total Methylphenols	UJ	ug/kg	n/a	<1.07E+03	<107	n/a	n/a	n/a	n/a	107	n/a	U
S09V000180		O	108-94-1	Cyclohexanone	UJ	ug/kg	n/a	<5.59E+03	<560	n/a	n/a	n/a	n/a	560	n/a	U
S09V000180		O	59-89-2	N-Nitrosomorpholine	UJ	ug/kg	n/a	<1.91E+03	<192	n/a	n/a	n/a	n/a	192	n/a	U
S09V000180		O	78-83-1	Isobutanol	UJ	ug/kg	n/a	<4.60E+03	<461	n/a	n/a	n/a	n/a	461	n/a	U
~~S09V000180~~		~~W~~	~~14762-75-5~~	~~Carbon-14~~		~~uCi/g~~	~~98.6~~	~~<3.65E-07~~	~~<6.45E-05~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~6.45E-05~~	~~n/a~~	~~U~~
S09V000188		W	10028-17-8	Tritium		uCi/g	92.2	<3.28E-04	<4.36E-04	n/a	n/a	n/a	n/a	4.36E-04	n/a	U
~~S09V000196~~		~~A~~	~~7429-90-5~~	~~Aluminum~~		~~ug/g~~	~~93.0~~	~~<0.0300~~	~~4.90E+03~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~6.04~~	~~n/a~~	

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT77
Sample Depth: 25-27

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S09V000173~~			~~%WATERA~~	~~%WATER-APD~~		~~%~~	~~n/a~~	~~n/a~~	~~0.138~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	
S09V000173			57-12-5	Cyanide		ug/g	108	<0.0370	<5.01	n/a	n/a	n/a	n/a	5.01	n/a	U
S09V000173			10198-40-0	Cobalt-60		uCi/g	103	<2.35E-07	<2.60E-07	<2.47E-07	n/a	n/a	n/a	2.60E-07	n/a	U
S09V000173			14234-35-6	Antimony-125		uCi/g	n/a	<6.05E-07	<6.87E-07	<6.36E-07	n/a	n/a	n/a	6.87E-07	n/a	U
S09V000173			10045-97-3	Cesium-137		uCi/g	108	<2.89E-07	1.31E-06	1.37E-06	.00000134	4.69	n/a	4.03E-07	20.88	
S09V000173			14683-23-9	Europium-152		uCi/g	n/a	<1.20E-06	<1.25E-06	<1.24E-06	n/a	n/a	n/a	1.25E-06	n/a	U
S09V000173			15585-10-1	Europium-154		uCi/g	n/a	<7.88E-07	<8.67E-07	<7.97E-07	n/a	n/a	n/a	8.67E-07	n/a	U
S09V000173			14391-16-3	Europium-155		uCi/g	n/a	<4.64E-07	<5.11E-07	<4.86E-07	n/a	n/a	n/a	5.11E-07	n/a	U
S09V000173			7439-97-6	Mercury		ug/g	100	<1.00E-04	<0.0221	n/a	n/a	n/a	n/a	0.0221	n/a	U
S09V000173			15046-84-1	Iodine-129		uCi/g	91.4	<2.74E-07	<1.92E-07	<2.13E-07	n/a	n/a	n/a	1.92E-07	n/a	U
S09V000173			PH	pH		unitless	n/a	7.99	10.1	n/a	n/a	n/a	n/a	0.0100	n/a	
~~S09V000173~~			~~18496-25-8~~	~~Sulfide~~		~~ug/g~~	~~93.1~~	~~<0.186~~	~~<5.25~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~5.25~~	~~n/a~~	~~U~~
S09V000181	O		120-82-1	1,2,4-Trichlorobenzene	UJ	ug/kg	69.4	<774	<97.7	n/a	n/a	n/a	59.7	97.7	n/a	U
S09V000181	O		95-50-1	1,2-Dichlorobenzene	UJ	ug/kg	n/a	<1.01E+03	<127	n/a	n/a	n/a	n/a	127	n/a	U
S09V000181	O		106-46-7	1,4-Dichlorobenzene	UJ	ug/kg	67.5	<1.13E+03	<143	n/a	n/a	n/a	57.0	143	n/a	U
S09V000181	O		121-14-2	2,4-Dinitrotoluene		ug/kg	70.1	<381	<48.1	n/a	n/a	n/a	72.2	48.1	n/a	U
S09V000181	O		95-95-4	2,4,5-Trichlorophenol	UJ	ug/kg	n/a	<440	<55.5	n/a	n/a	n/a	n/a	55.5	n/a	U
S09V000181	O		88-06-2	2,4,6-Trichlorophenol	UJ	ug/kg	n/a	<495	<62.5	n/a	n/a	n/a	n/a	62.5	n/a	U
S09V000181	O		95-48-7	2-Methylphenol	UJ	ug/kg	n/a	<575	<72.5	n/a	n/a	n/a	n/a	72.5	n/a	U
S09V000181	O		88-75-5	2-Nitrophenol	UJ	ug/kg	n/a	<537	<67.8	n/a	n/a	n/a	n/a	67.8	n/a	U
S09V000181	O		108-39-4M	Cresol (m & p)	UJ	ug/kg	n/a	<514	<64.8	n/a	n/a	n/a	n/a	64.8	n/a	U
S09V000181	O		83-32-9	Acenaphthene	UJ	ug/kg	69.7	<176	<22.2	n/a	n/a	n/a	63.5	22.2	n/a	U
S09V000181	O		56-55-3	Benzo(a)anthracene	UJ	ug/kg	n/a	<378	<47.7	n/a	n/a	n/a	n/a	47.7	n/a	U
S09V000181	O		205-99-2	Benzo(b)fluoranthene	UJ	ug/kg	n/a	<489	<61.7	n/a	n/a	n/a	n/a	61.7	n/a	U
S09V000181	O		50-32-8	Benzo(a)pyrene	UJ	ug/kg	n/a	<412	<52.0	n/a	n/a	n/a	n/a	52.0	n/a	U
S09V000181	O		117-81-7	Bis(2-ethylhexyl) phthalate	UJ	ug/kg	n/a	<5.90E+03	<745	n/a	n/a	n/a	n/a	745	n/a	U
S09V000181	O		207-08-9	Benzo(k)fluoranthene	UJ	ug/kg	n/a	<391	<49.3	n/a	n/a	n/a	n/a	49.3	n/a	U
S09V000181	O		85-68-7	Butylbenzylphthalate	UJ	ug/kg	n/a	<500	<63.1	n/a	n/a	n/a	n/a	63.1	n/a	U

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Y - Comment
c - RPD Outside Range
b - MS/MSD Outside Range
e - SERDIL Outside Range

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT77
Sample Depth: 25-27

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000181		O	59-50-7	4-Chloro-3-methylphenol	UJ	ug/kg	66.8	<432	<54.5	n/a	n/a	n/a	67.3	54.5	n/a	U
S09V000181		O	95-57-8	2-Chlorophenol	UJ	ug/kg	65.0	<665	<83.9	n/a	n/a	n/a	56.8	83.9	n/a	U
S09V000181		O	218-01-9	Chrysene	UJ	ug/kg	n/a	<814	<103	n/a	n/a	n/a	n/a	103	n/a	U
S09V000181		O	53-70-3	Dibenz[a,h]anthracene	UJ	ug/kg	n/a	<511	<64.5	n/a	n/a	n/a	n/a	64.5	n/a	U
S09V000181		O	84-74-2	Di-n-butylphthalate	UJ	ug/kg	n/a	<5.62E+03	<709	n/a	n/a	n/a	n/a	709	n/a	U
S09V000181		O	117-84-0	Di-n-octylphthalate	UJ	ug/kg	n/a	<477	<60.2	n/a	n/a	n/a	n/a	60.2	n/a	U
S09V000181		O	621-64-7	N-Nitroso-di-n-dipropylamine	UJ	ug/kg	60.9	<581	<73.3	n/a	n/a	n/a	54.6	73.3	n/a	U
S09V000181		O	206-44-0	Fluoranthene	UJ	ug/kg	n/a	<354	<44.7	n/a	n/a	n/a	n/a	44.7	n/a	U
S09V000181		O	87-68-3	Hexachlorobutadiene	UJ	ug/kg	n/a	<697	<87.9	n/a	n/a	n/a	n/a	87.9	n/a	U
S09V000181		O	67-72-1	Hexachloroethane	UJ	ug/kg	n/a	<1.12E+03	<141	n/a	n/a	n/a	n/a	141	n/a	U
S09V000181		O	193-39-5	Indeno(1,2,3-cd)pyrene	UJ	ug/kg	n/a	<510	<64.3	n/a	n/a	n/a	n/a	64.3	n/a	U
S09V000181		O	108-95-2	Phenol	UJ	ug/kg	67.3	<594	<74.9	n/a	n/a	n/a	59.7	74.9	n/a	U
S09V000181		O	91-20-3	Naphthalene	UJ	ug/kg	n/a	<626	<79.0	n/a	n/a	n/a	n/a	79.0	n/a	U
S09V000181		O	98-95-3	Nitrobenzene		ug/kg	n/a	<646	<81.5	n/a	n/a	n/a	n/a	81.5	n/a	U
S09V000181		O	100-02-7	4-Nitrophenol		ug/kg	70.4	<526	<66.4	n/a	n/a	n/a	75.9	66.4	n/a	U
S09V000181		O	87-86-5	Pentachlorophenol	UJ	ug/kg	61.2	<375	<47.3	n/a	n/a	n/a	70.6	47.3	n/a	U
S09V000181		O	129-00-0	Pyrene	UJ	ug/kg	70.4	<629	<79.4	n/a	n/a	n/a	72.8	79.4	n/a	U
S09V000181		O	110-86-1	Pyridine	UJ	ug/kg	n/a	<650	<82.0	n/a	n/a	n/a	n/a	82.0	n/a	U
S09V000181		O	126-73-8	Tributyl phosphate	UJ	ug/kg	n/a	<1.08E+03	<136	n/a	n/a	n/a	n/a	136	n/a	U
S09V000181		O	128-37-0	BHT	UJ	ug/kg	n/a	<2.36E+03	<297	n/a	n/a	n/a	n/a	297	n/a	U
S09V000181		O	110-80-5	2-Ethoxyethanol	UJ	ug/kg	n/a	<1.82E+03	<230	n/a	n/a	n/a	n/a	230	n/a	U
S09V000181		O	1319-77-3	Total Methylphenols	UJ	ug/kg	n/a	<1.07E+03	<134	n/a	n/a	n/a	n/a	134	n/a	U
S09V000181		O	108-94-1	Cyclohexanone	UJ	ug/kg	n/a	<5.59E+03	<705	n/a	n/a	n/a	n/a	705	n/a	U
S09V000181		O	59-89-2	N-Nitrosomorpholine	UJ	ug/kg	n/a	<1.91E+03	<241	n/a	n/a	n/a	n/a	241	n/a	U
S09V000181		O	78-83-1	Isobutanol	UJ	ug/kg	n/a	<4.60E+03	<581	n/a	n/a	n/a	n/a	581	n/a	U
~~S09V000189~~		~~W~~	~~14762-75-5~~	~~Carbon-14~~		~~uCi/g~~	~~98.6~~	~~<3.65E-07~~	~~<5.67E-05~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~5.67E-05~~	~~n/a~~	~~U~~
S09V000189		W	10028-17-8	Tritium		uCi/g	92.2	<3.28E-04	<3.14E-04	n/a	n/a	n/a	n/a	3.14E-04	n/a	U
~~S09V000197~~		~~A~~	~~7429-90-5~~	~~Aluminum~~		~~ug/g~~	~~93.0~~	~~<0.0300~~	~~6.39E+03~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~6.02~~	~~n/a~~	

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT80
Sample Depth: 42-44

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S09V000174~~			~~%WATERA~~	~~%WATER-APD~~	~~%~~	~~n/a~~	~~n/a~~	~~5.453~~	~~5.652~~	~~5.5525~~	~~3.584~~	~~n/a~~	~~n/a~~	~~n/a~~	
S09V000174			57-12-5	Cyanide	ug/g	108	<0.0370	<4.46	<4.55	n/a	n/a	94.3	4.46	n/a	U
S09V000174			10198-40-0	Cobalt-60	uCi/g	99.1	<3.66E-07	<4.38E-07	n/a	n/a	n/a	n/a	4.38E-07	n/a	U
S09V000174			14234-35-6	Antimony-125	uCi/g	n/a	<8.57E-07	<1.09E-06	n/a	n/a	n/a	n/a	1.09E-06	n/a	U
S09V000174			10045-97-3	Cesium-137	uCi/g	104	<5.59E-07	1.64E-06	n/a	n/a	n/a	n/a	6.47E-07	27.15	
S09V000174			14683-23-9	Europium-152	uCi/g	n/a	<1.70E-06	<2.07E-06	n/a	n/a	n/a	n/a	2.07E-06	n/a	U
S09V000174			15585-10-1	Europium-154	uCi/g	n/a	<1.19E-06	<1.38E-06	n/a	n/a	n/a	n/a	1.38E-06	n/a	U
S09V000174			14391-16-3	Europium-155	uCi/g	n/a	<9.66E-07	<1.04E-06	n/a	n/a	n/a	n/a	1.04E-06	n/a	U
S09V000174			7439-97-6	Mercury	ug/g	108	<1.00E-04	<0.0100	n/a	n/a	n/a	n/a	0.0100	n/a	U
S09V000174			15046-84-1	Iodine-129	uCi/g	91.4	<2.74E-07	<1.95E-07	n/a	n/a	n/a	n/a	1.95E-07	n/a	U
S09V000174			PH	pH	unitless	n/a	n/a	9.02	9.00	9.01	0.222	n/a	0.0100	n/a	
~~S09V000174~~			~~18496-25-8~~	~~Sulfide~~	~~ug/g~~	~~98.2~~	~~<0.180~~	~~14.6~~	~~10.1~~	~~12.35~~	~~35.7~~	~~89.3~~	~~5.25~~	~~n/a~~	~~J~~
S09V000182		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	87.1	<77.4	<76.5	n/a	n/a	n/a	n/a	76.5	n/a	U
S09V000182		O	95-50-1	1,2-Dichlorobenzene	ug/kg	n/a	<101	<99.5	n/a	n/a	n/a	n/a	99.5	n/a	U
S09V000182		O	106-46-7	1,4-Dichlorobenzene	ug/kg	85.1	<113	<112	n/a	n/a	n/a	n/a	112	n/a	U
S09V000182		O	121-14-2	2,4-Dinitrotoluene	ug/kg	90.9	<38.1	<37.7	n/a	n/a	n/a	n/a	37.7	n/a	U
S09V000182		O	95-95-4	2,4,5-Trichlorophenol	ug/kg	n/a	<44.0	<43.5	n/a	n/a	n/a	n/a	43.5	n/a	U
S09V000182		O	88-06-2	2,4,6-Trichlorophenol	ug/kg	n/a	<49.5	<48.9	n/a	n/a	n/a	n/a	48.9	n/a	U
S09V000182		O	95-48-7	2-Methylphenol	ug/kg	n/a	<57.5	<56.8	n/a	n/a	n/a	n/a	56.8	n/a	U
S09V000182		O	88-75-5	2-Nitrophenol	ug/kg	n/a	<53.7	<53.1	n/a	n/a	n/a	n/a	53.1	n/a	U
S09V000182		O	108-39-4M	Cresol (m & p)	ug/kg	n/a	<51.4	<50.8	n/a	n/a	n/a	n/a	50.8	n/a	U
S09V000182		O	83-32-9	Acenaphthene	ug/kg	97.0	<17.6	<17.4	n/a	n/a	n/a	n/a	17.4	n/a	U
S09V000182		O	56-55-3	Benzo(a)anthracene	ug/kg	n/a	<37.8	<37.4	n/a	n/a	n/a	n/a	37.4	n/a	U
S09V000182		O	205-99-2	Benzo(b)fluoranthene	ug/kg	n/a	<48.9	<48.3	n/a	n/a	n/a	n/a	48.3	n/a	U
S09V000182		O	50-32-8	Benzo(a)pyrene	ug/kg	n/a	<41.2	<40.7	n/a	n/a	n/a	n/a	40.7	n/a	U
S09V000182		O	117-81-7	Bis(2-ethylhexyl) phthalate	ug/kg	n/a	<590	5.05E+03	n/a	n/a	n/a	n/a	583	n/a	J
S09V000182		O	207-08-9	Benzo(k)fluoranthene	ug/kg	n/a	<39.1	<38.7	n/a	n/a	n/a	n/a	38.7	n/a	U
S09V000182		O	85-68-7	Butylbenzylphthalate	ug/kg	n/a	<50.0	<49.4	n/a	n/a	n/a	n/a	49.4	n/a	U

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT80
Sample Depth: 42-44

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000182		O	59-50-7	4-Chloro-3-methylphenol		ug/kg	85.1	<43.2	<42.7	n/a	n/a	n/a	n/a	42.7	n/a	U
S09V000182		O	95-57-8	2-Chlorophenol		ug/kg	85.5	<66.5	<65.7	n/a	n/a	n/a	n/a	65.7	n/a	U
S09V000182		O	218-01-9	Chrysene		ug/kg	n/a	<81.4	<80.5	n/a	n/a	n/a	n/a	80.5	n/a	U
S09V000182		O	53-70-3	Dibenz[a,h]anthracene		ug/kg	n/a	<51.1	<50.5	n/a	n/a	n/a	n/a	50.5	n/a	U
S09V000182		O	84-74-2	Di-n-butylphthalate		ug/kg	n/a	<562	<556	n/a	n/a	n/a	n/a	556	n/a	U
S09V000182		O	117-84-0	Di-n-octylphthalate		ug/kg	n/a	<47.7	<47.2	n/a	n/a	n/a	n/a	47.2	n/a	U
S09V000182		O	621-64-7	N-Nitroso-di-n-dipropylamine	UJ	ug/kg	77.9	<58.1	<57.4	n/a	n/a	n/a	n/a	57.4	n/a	U
S09V000182		O	206-44-0	Fluoranthene		ug/kg	n/a	<35.4	<35.0	n/a	n/a	n/a	n/a	35.0	n/a	U
S09V000182		O	87-68-3	Hexachlorobutadiene		ug/kg	n/a	<69.7	<68.9	n/a	n/a	n/a	n/a	68.9	n/a	U
S09V000182		O	67-72-1	Hexachloroethane		ug/kg	n/a	<112	<111	n/a	n/a	n/a	n/a	111	n/a	U
S09V000182		O	193-39-5	Indeno(1,2,3-cd)pyrene		ug/kg	n/a	<51.0	<50.4	n/a	n/a	n/a	n/a	50.4	n/a	U
S09V000182		O	108-95-2	Phenol		ug/kg	86.4	<59.4	<58.7	n/a	n/a	n/a	n/a	58.7	n/a	U
S09V000182		O	91-20-3	Naphthalene		ug/kg	n/a	<62.6	<61.9	n/a	n/a	n/a	n/a	61.9	n/a	U
S09V000182		O	98-95-3	Nitrobenzene		ug/kg	n/a	<64.6	<63.9	n/a	n/a	n/a	n/a	63.9	n/a	U
S09V000182		O	100-02-7	4-Nitrophenol		ug/kg	89.8	<52.6	<52.0	n/a	n/a	n/a	n/a	52.0	n/a	U
S09V000182		O	87-86-5	Pentachlorophenol		ug/kg	88.8	<37.5	<37.1	n/a	n/a	n/a	n/a	37.1	n/a	U
S09V000182		O	129-00-0	Pyrene		ug/kg	93.3	<62.9	<62.2	n/a	n/a	n/a	n/a	62.2	n/a	U
S09V000182		O	110-86-1	Pyridine	UJ	ug/kg	n/a	<65.0	<64.3	n/a	n/a	n/a	n/a	64.3	n/a	U
S09V000182		O	126-73-8	Tributyl phosphate	UJ	ug/kg	n/a	<108	<107	n/a	n/a	n/a	n/a	107	n/a	U
S09V000182		O	128-37-0	BHT		ug/kg	n/a	<236	<233	n/a	n/a	n/a	n/a	233	n/a	U
S09V000182		O	110-80-5	2-Ethoxyethanol	UJ	ug/kg	n/a	<182	<180	n/a	n/a	n/a	n/a	180	n/a	U
S09V000182		O	1319-77-3	Total Methylphenols		ug/kg	n/a	<107	<105	n/a	n/a	n/a	n/a	105	n/a	U
S09V000182		O	108-94-1	Cyclohexanone	UJ	ug/kg	n/a	<559	<553	n/a	n/a	n/a	n/a	553	n/a	U
S09V000182		O	59-89-2	N-Nitrosomorpholine	UJ	ug/kg	n/a	<191	<189	n/a	n/a	n/a	n/a	189	n/a	U
S09V000182		O	78-83-1	Isobutanol	UJ	ug/kg	n/a	<460	<455	n/a	n/a	n/a	n/a	455	n/a	U
~~S09V000190~~		~~W~~	~~14762-75-5~~	~~Carbon-14~~		~~uCi/g~~	~~98.6~~	~~<3.65E-07~~	~~<6.93E-05~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~6.93E-05~~	~~n/a~~	~~U~~
S09V000190		W	10028-17-8	Tritium		uCi/g	92.2	<3.28E-04	<4.11E-04	n/a	n/a	n/a	n/a	4.11E-04	n/a	U
~~S09V000198~~		~~A~~	~~7429-90-5~~	~~Aluminum~~		~~ug/g~~	~~93.0~~	~~<0.0300~~	~~3.79E+03~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~6.04~~	~~n/a~~	

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT83
Sample Depth: 56-58

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S09V000175~~			~~%WATERA~~	~~%WATER-APD~~	~~%~~	~~n/a~~	~~n/a~~	~~3.836~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	
S09V000175			57-12-5	Cyanide	ug/g	108	<0.0370	<5.07	n/a	n/a	n/a	n/a	5.07	n/a	U
S09V000175			13966-00-2	Potassium-40	uCi/g	n/a	n/a	1.94E-05	n/a	n/a	n/a	n/a	8.01E-06	28.59	
S09V000175			10198-40-0	Cobalt-60	uCi/g	99.1	<3.66E-07	<3.96E-07	n/a	n/a	n/a	n/a	3.96E-07	n/a	U
S09V000175			14234-35-6	Antimony-125	uCi/g	n/a	<8.57E-07	<1.13E-06	n/a	n/a	n/a	n/a	1.13E-06	n/a	U
S09V000175			10045-97-3	Cesium-137	uCi/g	104	<5.59E-07	<5.47E-07	n/a	n/a	n/a	n/a	5.47E-07	n/a	U
S09V000175			14683-23-9	Europium-152	uCi/g	n/a	<1.70E-06	<1.97E-06	n/a	n/a	n/a	n/a	1.97E-06	n/a	U
S09V000175			15585-10-1	Europium-154	uCi/g	n/a	<1.19E-06	<1.44E-06	n/a	n/a	n/a	n/a	1.44E-06	n/a	U
S09V000175			14391-16-3	Europium-155	uCi/g	n/a	<9.66E-07	<1.05E-06	n/a	n/a	n/a	n/a	1.05E-06	n/a	U
S09V000175			7439-97-6	Mercury	ug/g	108	<1.00E-04	<0.0110	n/a	n/a	n/a	n/a	0.0110	n/a	U
S09V000175			15046-84-1	Iodine-129	uCi/g	91.4	<2.74E-07	<2.42E-07	n/a	n/a	n/a	n/a	2.42E-07	n/a	U
S09V000175			PH	pH	unitless	n/a	n/a	9.20	n/a	n/a	n/a	n/a	0.0100	n/a	
~~S09V000175~~			~~18496-25-8~~	~~Sulfide~~	~~ug/g~~	~~98.2~~	~~<0.180~~	~~7.48~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~5.56~~	~~n/a~~	~~J~~
S09V000183		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	87.1	<77.4	<78.8	n/a	n/a	n/a	75.4	78.8	n/a	U
S09V000183		O	95-50-1	1,2-Dichlorobenzene	ug/kg	n/a	<101	<102	n/a	n/a	n/a	n/a	102	n/a	U
S09V000183		O	106-46-7	1,4-Dichlorobenzene	ug/kg	85.1	<113	<115	n/a	n/a	n/a	71.3	115	n/a	U
S09V000183		O	121-14-2	2,4-Dinitrotoluene	ug/kg	90.9	<38.1	<38.8	n/a	n/a	n/a	91.1	38.8	n/a	U
S09V000183		O	95-95-4	2,4,5-Trichlorophenol	ug/kg	n/a	<44.0	<44.8	n/a	n/a	n/a	n/a	44.8	n/a	U
S09V000183		O	88-06-2	2,4,6-Trichlorophenol	ug/kg	n/a	<49.5	<50.4	n/a	n/a	n/a	n/a	50.4	n/a	U
S09V000183		O	95-48-7	2-Methylphenol	ug/kg	n/a	<57.5	<58.5	n/a	n/a	n/a	n/a	58.5	n/a	U
S09V000183		O	88-75-5	2-Nitrophenol	ug/kg	n/a	<53.7	<54.7	n/a	n/a	n/a	n/a	54.7	n/a	U
S09V000183		O	108-39-4M	Cresol (m & p)	ug/kg	n/a	<51.4	<52.3	n/a	n/a	n/a	n/a	52.3	n/a	U
S09V000183		O	83-32-9	Acenaphthene	ug/kg	97.0	<17.6	<17.9	n/a	n/a	n/a	88.4	17.9	n/a	U
S09V000183		O	56-55-3	Benzo(a)anthracene	ug/kg	n/a	<37.8	<38.5	n/a	n/a	n/a	n/a	38.5	n/a	U
S09V000183		O	205-99-2	Benzo(b)fluoranthene	ug/kg	n/a	<48.9	<49.8	n/a	n/a	n/a	n/a	49.8	n/a	U
S09V000183		O	50-32-8	Benzo(a)pyrene	ug/kg	n/a	<41.2	<41.9	n/a	n/a	n/a	n/a	41.9	n/a	U
S09V000183		O	117-81-7	Bis(2-ethylhexyl) phthalate	ug/kg	n/a	<590	<601	n/a	n/a	n/a	n/a	601	n/a	U
S09V000183		O	207-08-9	Benzo(k)fluoranthene	ug/kg	n/a	<39.1	<39.8	n/a	n/a	n/a	n/a	39.8	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated
B - Found in Blank
X - Comment
U - Less Than Detection Limit
a - LCS Outside Range
Y - Comment
c - RPD Outside Range
b - MS/MSD Outside Range
e - SERDIL Outside Range

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT83
Sample Depth: 56-58

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000183		O	85-68-7	Butylbenzylphthalate		ug/kg	n/a	<50.0	<50.9	n/a	n/a	n/a	n/a	50.9	n/a	U
S09V000183		O	59-50-7	4-Chloro-3-methylphenol		ug/kg	85.1	<43.2	<44.0	n/a	n/a	n/a	84.9	44.0	n/a	U
S09V000183		O	95-57-8	2-Chlorophenol		ug/kg	85.5	<66.5	<67.7	n/a	n/a	n/a	73.9	67.7	n/a	U
S09V000183		O	218-01-9	Chrysene		ug/kg	n/a	<81.4	<82.8	n/a	n/a	n/a	n/a	82.8	n/a	U
S09V000183		O	53-70-3	Dibenz[a,h]anthracene		ug/kg	n/a	<51.1	<52.0	n/a	n/a	n/a	n/a	52.0	n/a	U
S09V000183		O	84-74-2	Di-n-butylphthalate		ug/kg	n/a	<562	<572	n/a	n/a	n/a	n/a	572	n/a	U
S09V000183		O	117-84-0	Di-n-octylphthalate		ug/kg	n/a	<47.7	<48.6	n/a	n/a	n/a	n/a	48.6	n/a	U
S09V000183		O	621-64-7	N-Nitroso-di-n-dipropylamine	UJ	ug/kg	77.9	<58.1	<59.1	n/a	n/a	n/a	69.3	59.1	n/a	U
S09V000183		O	206-44-0	Fluoranthene		ug/kg	n/a	<35.4	<36.0	n/a	n/a	n/a	n/a	36.0	n/a	U
S09V000183		O	87-68-3	Hexachlorobutadiene		ug/kg	n/a	<69.7	<70.9	n/a	n/a	n/a	n/a	70.9	n/a	U
S09V000183		O	67-72-1	Hexachloroethane		ug/kg	n/a	<112	<114	n/a	n/a	n/a	n/a	114	n/a	U
S09V000183		O	193-39-5	Indeno(1,2,3-cd)pyrene		ug/kg	n/a	<51.0	<51.9	n/a	n/a	n/a	n/a	51.9	n/a	U
S09V000183		O	108-95-2	Phenol		ug/kg	86.4	<59.4	<60.5	n/a	n/a	n/a	75.6	60.5	n/a	U
S09V000183		O	91-20-3	Naphthalene		ug/kg	n/a	<62.6	<63.7	n/a	n/a	n/a	n/a	63.7	n/a	U
S09V000183		O	98-95-3	Nitrobenzene		ug/kg	n/a	<64.6	<65.8	n/a	n/a	n/a	n/a	65.8	n/a	U
S09V000183		O	100-02-7	4-Nitrophenol		ug/kg	89.8	<52.6	<53.5	n/a	n/a	n/a	94.8	53.5	n/a	U
S09V000183		O	87-86-5	Pentachlorophenol		ug/kg	88.8	<37.5	<38.2	n/a	n/a	n/a	96.8	38.2	n/a	U
S09V000183		O	129-00-0	Pyrene		ug/kg	93.3	<62.9	<64.0	n/a	n/a	n/a	88.4	64.0	n/a	U
S09V000183		O	110-86-1	Pyridine	UJ	ug/kg	n/a	<65.0	<66.2	n/a	n/a	n/a	n/a	66.2	n/a	U
S09V000183		O	126-73-8	Tributyl phosphate	UJ	ug/kg	n/a	<108	<110	n/a	n/a	n/a	n/a	110	n/a	U
S09V000183		O	128-37-0	BHT		ug/kg	n/a	<236	<240	n/a	n/a	n/a	n/a	240	n/a	U
S09V000183		O	110-80-5	2-Ethoxyethanol	UJ	ug/kg	n/a	<182	<186	n/a	n/a	n/a	n/a	186	n/a	U
S09V000183		O	1319-77-3	Total Methylphenols		ug/kg	n/a	<107	<108	n/a	n/a	n/a	n/a	108	n/a	U
S09V000183		O	108-94-1	Cyclohexanone	UJ	ug/kg	n/a	<559	<569	n/a	n/a	n/a	n/a	569	n/a	U
S09V000183		O	59-89-2	N-Nitrosomorpholine	UJ	ug/kg	n/a	<191	<195	n/a	n/a	n/a	n/a	195	n/a	U
S09V000183		O	78-83-1	Isobutanol	UJ	ug/kg	n/a	<460	<468	n/a	n/a	n/a	n/a	468	n/a	U
~~S09V000191~~		~~W~~	~~14762-75-5~~	~~Carbon-14~~		~~uCi/g~~	~~90.5~~	~~<6.77E-05~~	~~6.11E-05~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~5.08E-05~~	~~87.5~~	~~U~~
~~S09V000191~~		~~W~~	~~10028-17-8~~	~~Tritium~~		~~uCi/g~~	~~90.5~~	~~<3.95E-04~~	~~<3.94E-04~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~3.04E-04~~	~~n/a~~	~~U~~

NA = Not Analyzed, ND = Not Detected

J - Estimated
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X - Comment
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a - LCS Outside Range
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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

222-S LABORATORY

FINAL ANALYTICAL REPORT FOR SAMPLES FROM WASTE MANAGEMENT AREA C FOR CORE HOLES: C6392, C6400, C6402 C6404, AND C6406 IN SUPPORT OF RCRA SOIL CHARATERICZATION

1.0 INTRODUCTION

This final report presents the results for the samples taken from Waste Management Area C between March 11th and June 15th, 2009. The samples were analyzed in accordance with RPP-PLAN-40564, *Field Sampling and Analysis Plan for Sites P and L at Waste Management Area C,* (FSAP); RPP-PLAN 3877, *Sampling and Analysis Plan for Phase 2 Characterization of Vadose Zone Soil in Waste Management Area C* (SAP); ATL-MP-1011, *ATL Quality Assurance Project Plan for 222-S Laboratory* (QAPP); *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* (SW-846); and the additional guidance given by the client's point of contact.

Because the 222-S Laboratory Facility was designed to analyze hazardous and complex tank waste samples, most SW-846 test methods performed at the 222-S Laboratory contain deviations that are listed in an appendix in the analytical procedures. All known deviations or variances from SW-846 are documented in this narrative. The following attachments are included in this report.

Attachment 1	Data Summary Report
Attachment 2	Sample Breakdown Diagrams
Attachment 3	Holding Time Report
Attachment 4	Tentatively Identified Compounds (TIC) for Organic Analyses
Attachment 5	Correspondence
Attachment 6	Receipt Paperwork

This report also contains the following appendices.

Appendix A	Geologic Report
Appendix B	Analytical Raw Data

2.0 SAMPLE RECEIPT AND BREAKDOWN

2.1.1 Sample Receipt

A total of 25 core intervals from five core holes along with two equipment blanks and three trip blanks were received by 222-S beginning March 11th and ending June 15th, 2009. The samples were delivered in a cooler with ice or, in the case of the volatile organic samples, in a freezer. The temperature of a randomly selected sample from each cooler or freezer was measured and recorded on the chain of custody. Laboratory sample receipt personnel failed to record the receipt temperature for four core intervals:

- C6404 - 6 ft. to 8 ft
- C6404 - 10 ft. to 12 ft.
- C6406 - 54.5 ft. to 56.5 ft.
- C6406 - 59 ft. to 61 ft.

This was caused partially by the confusion from the delivery of multiple core projects at the same time and failure of laboratory personnel to follow the sample receipt procedure. These issues have been addressed and corrective measures have been taken. Many of the samples received were outside the required temperature ranges. This was due to the fact that these samples had not been in the cooler or freezer long enough to reach equilibrium. This can be verified, in most cases, by comparing the receipt time with the sampling time. The cooler and freezer walls were sometimes measured and were within the required temperature range. This temperature was not generally recorded since this measurement is not called out in the procedure. For future projects, the temperature of a temperature blank or the side of the cooler or freezer will be measured and recorded as described in SW-846.

2.1.2 Sample Breakdown

The laboratory received each core interval as a set of volatile organic analysis (VOA) samples and three liner samples, when complete core recovery was obtained. Nine core intervals had less than full recovery (see Attachment 2 and Attachment 6). The liner samples from each core interval were extruded, described, and composited by the Washington River Protection Solutions, Inc. (WRPS) geologist. The geologist's report is included in Appendix A. Provided sufficient samples existed, the composite for each core interval was analyzed as described in the SAP and FSAP. WRPS shipped a subsample of each composite to an offsite laboratory, when sufficient sample was available. The results of these analyses are not discussed in this report.

The 10-ft. to 12-ft. interval from core hole C6404 consisted of only VOA vial samples. No core liners were received for this interval. A limited suite for radiochemical analyses was performed using the methanol-preserved VOA sample. No other analyses were performed.

3.0 ANALYTICAL RESULTS SUMMARY

The Data Summary Report (Attachment 1) presents the final analytical results for those analytes requested in the SAP and FSAP. Secondary analytes are only reported if detected. The TIC from gas chromatography-mass spectrometry (GC/MS) analysis of semivolatile organic compounds (SVOC) is presented in Attachment 4. In addition to the required isotopes, all isotopes with positive gamma energy analysis (GEA) results were reported.

The "Det Limit" column in Attachment 1 contains the method detection limit (MDL) for non-radionuclide analyses, or the minimum detectable activity for radionuclides.

In Attachment 1 the column labeled "A#" indicates the aliquot class or the method used for sample preparation before analysis. For solid samples, the aliquot classes are defined as follows:

"A" indicates samples that were prepared by SW846-3050B.

"E" indicates samples that were prepared by a strong acid digest.

"O" indicates samples that were extracted for organic analysis.

"S" indicates samples that were prepared by a distillation.

"W" indicates samples that were prepared by a water digest.

Samples without a letter identifier in the "A#" column were analyzed directly with no separate preparation or with sample preparation performed as a part of the procedure steps.

The "Qual Flags" column in Attachment 1 contains data qualifier flags that are defined as follows:

"B" is used to indicate that the analyte was detected in the method or preparation blank and in the sample, and the result for the blank was greater than 5% of the reported sample result.

"J" indicates that the reported result should be considered an estimate because it is below the quantitation limit. The "J" flag is applied to sample concentrations that are greater than the MDL but less than the quantitation limit or sample activity with a counting uncertainty greater than 30%.

"N" indicates a TIC which has been named.

"Q" indicates that the result is qualitative only.

"T" indicated a TIC.

"U" indicates that the reported result is less than the calculated detection limit.

"Y" indicates that the percent difference (%D) for the continuing calibration verification standard (CCV) was greater than -20%.

"X" indicates that the initial calibration verification (ICV) standard was outside the range specified in the QAPP.

"a" indicates that the laboratory control sample (LCS) was outside of the specified range in the QAPP or SAP.

"b" indicates that the matrix spike (MS) was outside of the specified range in the QAPP or SAP.

"c" indicates that the relative percent difference (RPD) between the sample and the duplicate is greater than 30%.

"e" indicates that the %D between the sample result and the serial dilution exceeded 10%.

"f" indicates that the MS failed and the serial dilution passed.

Manual calculations using rounded results from the Data Summary Report or result calculation forms may differ slightly from the actual results derived from the raw data.

3.1 SAMPLE DIGESTIONS

3.1.1 Radiochemistry Strong Acid Digestion

Strong acid digestions with a hot plate for the heat source were performed using a mixture of concentrated nitric and hydrochloric acids. For each digest, approximately 10 grams of sample were digested, filtered, and diluted to a final volume of 100 or 125 mL. This digestion was used for all radiochemical analyses except tritium, ^{14}C, and ^{129}I. This digestion is a leach of the acid soluble species only.

3.1.2 SW846-3050B - Acid Digestion-Heating Block

This acid digestion follows SW846-3050B using a heating block and nitric and hydrochloric acids. Approximately 0.25 g of sample was digested. All heating-block digestions were filtered and diluted to a final volume of 50 mL. In soil, this digestion is a leach of the acid soluble species only. This digestion was used for all inductively coupled plasma/mass spectrometry (ICP/MS) and inductively coupled plasma/atomic emission spectroscopy (ICP/AES) analyses except for ^{99}Tc and isotopic tin (^{117}Sn and ^{126}Sn) analysis. The digestion is modified for the ^{99}Tc analysis by using only nitric acid. This is done to eliminate the possibility of the formation a zinc-chlorine ion pair of mass 99. The laboratory believes this ion, when present, is responsible for low level false positives.

3.1.3 Water Digestion

A water digestion or leach was prepared for the anions by ion chromatography, ^{14}C, and tritium analyses using approximately 0.25 to 4 g of sample diluted to 25 mL. Sonification was used, and the leachate was then filtered. In soil, this digestion is a leach of the water soluble species only.

3.2 INORGANIC ANALYSES

3.2.1 Cyanide

The cyanide analysis was performed on direct subsamples of the liner composite samples. All analyses met the SW846 holding time of 14 days except for sample B1YT71 (S09V000171). The holding time was missed due to the need for reanalysis, which was caused by quality control (QC) failures during the first analysis. The sample was initially analyzed within the holding time, but the final analysis, which passed all QC requirements, was 1 day past the holding. The sample result was the same for both analyses. The laboratory believes there was no effect on the final result from this missed holding time. There was no required reporting limit in the SAP for cyanide. The target detection limit was 0.5 µg/g, which is at least an order of magnitude lower than the current laboratory method (lachet micro-distillation) can reach.

3.2.2 Sulfide

Sulfide analysis was performed on direct subsamples of the liner composite samples. All analysis met the SW846 holding time of 7 days except for samples B1YT92 (S09V000382), B1YTH1

(S09V000626), and B1YTH3 (S09V000642). The first holding time was missed due to the lack of analytical personnel resources. The other two missed holding times were caused by the inability of the analytical personnel to access the laboratory due the lack of facility support, which is beyond the control of analytical personnel and their management. There was no required reporting limit in the SAP for sulfide. The target detection limit was 5 µg/g. Three sample results had adjusted MDLs of 5 µg/g. The rest were between 6 µg/g and 8 µg/g.

Batches 13951, 13952, 14332, 14517, 14598, and 14778: There were no notable issues with these batches and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 14184: The RPD between the sample and duplicate exceeded the required 30% in the SAP at 36%. Since the sample result was below the quantitation limit, this criterion is not applicable. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

Batch 14354: The RPD between the sample and duplicate exceeded the required 30% in the SAP at 32%. Since the sample result was below the quantitation limit, this criterion is not applicable. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

3.2.3 pH Analysis

The pH analysis was performed on the liner composite samples. These analyses met all QC requirements in the FSAP, SAP, and QAPP. The FSAP lists a pH holding time requirement of "as soon as possible." All pH measurements were taken immediately after the water leach was performed, but the sampling to analysis date varied from 2 to 20 days (see Attachment 3). There is no correlation between pH results and days to analysis, and the results fall within an expected range for alkaline soils. This indicates that the large variation in time has no apparent effect on the results. However, the client's expectation was that analysis would be performed within 14 days. For future projects, the analysis will be performed in less time.

3.2.4 Mercury

Analysis for mercury was performed on digested subsamples of the liner composite samples. All results met the QC requirements in the FSAP, SAP, and QAPP. All analyses met the holding time of 28 days, except for samples B1YT80 (S09V000174), B1YT83 (S09V000175), and B1YT98 (S09V000392). This was apparently the result of an oversight error by the analytical staff. The laboratory is working on improvements in holding time expiration tracking.

This analysis met the required and target detection limits except for three samples: B1YT71 (S09V000171), B1YT74 (S09V000172), and B1YT77 (S09V000173). These sample results met the target detection limit of 0.2 mg/Kg but were twice the required detection limit of 0.01 mg/Kg.

3.2.5 Ion Chromatography - Ammonium

Analysis for NH_4^+ was performed using a distillation preparation of the liner composite samples. The SAP lists an administrative holding time of 7 days. The laboratory believes that after

distillation and preservation, the holding is 28 days based on EPA drinking water and waste water holding times for preserved samples. There is no regulatory holding time limit promulgated for ammonium in soil. Four samples were analyzed outside of the administrative 7-day holding time: B1YT71 (S09V000219), B1YT92 (S09V000425), B1YTH1 (S09V000632), and B1YTH3 (S09V000648). This was apparently the result of an oversight error by the analytical staff. The laboratory is working on improvements in holding time expiration tracking. These analyses met the target detection limit listed in the SAP. There was no required reporting limit in the SAP or FSAP for ammonium.

Batches 14073, 14226, 14237, and 14498: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 14301: The preparation blank had a result above the MDL but below the quantitation limit. Since the blank result was more than 5% of the sample, a "B" flag has been applied to the associated results. Since both the sample and the blank results were below the quantitation limit, reanalysis was not required. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

Batch 14710: Samples B1YTF4 (S09V000599) and B1YTF4 (S09V000615) were analyzed with an LCS and MS, which used a standard that was 2 days past the expiration date. Since the recoveries of the expired standards were within 95% to 100% of the expected value, and the analytical batch contained other valid standards with acceptable recoveries, it is the laboratory's opinion that the data quality was not affected. Therefore, no reanalysis was requested. One of the two preparation blanks contained in this analytical batch had an ammonium result slightly above the MDL. Since the associated samples were non-detect, there is no effect on the data. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

Batch 14840: The preparation blank had a result above the MDL but below the quantitation limit. Since the blank result was more than 5% of the sample results, a "B" flag has been applied to the associated results. Since the blank result was below the quantitation limit, reanalysis was not required. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

Batch 14659: The preparation blank had a result above the MDL but below the quantitation limit. Since the blank result was more than 5% of the sample results, a "B" flag has been applied to the associated results. Since both the sample and the blank results were below the quantitation limit, reanalysis was not required. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

3.2.6 Ion Chromatography – Anions and Small Organic Acids

Ion chromatography analysis was performed on a water digest of subsamples from all soil composite samples except for B20XV5. This was due to insufficient sample volume. This sample was the 6-ft. to 8-ft. interval from core hole C6402, which was a retake of the same interval in core hole C6404. The laboratory met all the required and target detection limits. All analyses were within the applicable holding time. All sample spikes used in this analysis are post digestion spikes. Current laboratory procedures and practice were developed for the analysis of concentrated waste, which typically does not include the use of predigestion spikes for this

analysis. The laboratory will change to predigestion spike for future projects. In general, these samples experienced multiple RPD failures in every batch. All samples were reanalyzed and little improvement was seen. Other analyses also experienced high RPDs. The exact cause of the IC failures is unknown at this time, but it is matrix related. The "c" has been applied to all samples in the batch, not just the sample used for the duplicate analysis.

Batch 16700: Nitrite and nitrate were present in the preparation blank at levels below the quantitation limit; therefore, reanalysis was not required. Sample results have been flagged with "B" when appropriate. The RPD for formate and oxalate exceeded the required 30%. However, since the results for these analytes were below the quantitation limit, the criterion does not apply. The RPD for fluoride, acetate, sulfate, nitrate, and phosphate exceeded the 30% requirement, and results were all above the quantitation limit. The sample results have been flagged with a "c."

Batch 16701: The preparation blank result for chloride was above the MDL but less than the quantitation limit. Therefore, the data quality was not affected and reanalysis was not required. The samples were "B" flagged as appropriate. The closing continuing calibration blank (CCB) result for formate was above the MDL but less than the quantitation limit. Therefore, the data quality was not affected and reanalysis was not required. The samples were "B" flagged as appropriate. The RPD for nitrite and oxalate exceeded the required 30%. However, since the results for these analytes were below the quantitation limit, the criterion does not apply. The RPD for sulfate, nitrate, and chloride exceeded the 30% requirement, and results were all above the quantitation limit. The sample results have been flagged with a "c."

Batch 16744: The RPD for acetate exceeded the required 30%. Since the result for this analyte was below the quantitation limit, the criterion does not apply. The RPD for nitrite exceeded the 30% requirement, and all results were above the quantitation limit. The sample results have been flagged with a "c."

Batch 17027: The RPD for oxalate and formate exceeded the required 30%. Since the result for these analytes were below the quantitation limit, the criterion does not apply. The RPD for acetate, nitrate, nitrite, and sulfate exceeded the 30% requirement, and results were all above the quantitation limit. The sample results have been flagged with a "c."

3.2.7 Inductively Coupled Plasma/Atomic Emission Spectroscopy

The ICP/AES analysis was performed on an acid-digest (SW846-3050B) of all liner composite samples. In general, the ICP/AES analysis experienced repeated failures for the duplicate RPDs, serial dilutions, and matrix spike recoveries. The laboratory believes these failures are due to interferences from high levels of iron and aluminum, and sample inhomogeneity. This is supported by the fact that there were no post digestion spike failures. The interference from the iron and aluminum appeared to cause signal suppression in most cases. The impact of this interference could be reduced by reanalyzing the samples using smaller aliquots or greater dilution, but this would cause some primary elements to be reported as estimated or non-detected above the required detection limits. This was discussed with the client, who agreed that reanalysis would not improve the overall analytical results (see Attachment 5). Additionally, it was noted that some of the secondary analytes experienced LCS failures and that reanalysis was not required for secondary elements. In particular, the digestion method used, which was an acid

leach, does not produce consistent results for silicon. The amount of silicon leached from a highly siliceous material, like soil, is not consistent when using an acid leach. Also, the LCS recoveries are somewhat variable and may be related to the concentration and types of acid used. Silicon is not listed with other elements in SW846-3050B, section 1.1, under "Scope and Application" for the method.

The ICP/AES analysis was unable to obtain the required detection limit for antimony, arsenic, cadmium, lead, nickel, selenium, silver, thallium, and vanadium. These elements have been reported from separate ICP/MS analyses. Additionally, some chromium and cobalt results were from these same ICP/MS analyses. Total uranium has been reported by the ICP/AES analysis but did not meet the required detection limits in the FSAP. Since the isotopic uranium analysis by ICP/MS met the required detection limit for ^{238}U, the overall data usability was not affected. For all other metals reported by ICP/AES, all target and required detection limits were met or the results were above the quantitation limit, with the exception of one sample. Sample B1YT71 from core C6392 failed to meet the required detection limit for molybdenum and the target detection limits for beryllium, copper, and molybdenum.

Batch 15041: The low level standard (LLS) for potassium failed low at 69%. This indicates that results near the LLS could be biased low. Since all potassium results were near the mid-range of the calibration, the data was not affected by the low LLS recovery. The MS recoveries for aluminum, calcium, and iron failed to meet the FSAP criterion. Since the sample concentrations of these analytes exceeded four times the spike level, the MS recovery criterion does not apply. The MS recovery for silicon exceeded the ±25% criterion in the SAP and FSAP at 311%. The laboratory believes that the failure is due to the inconsistent leaching of silicon discussed previously. The associated sample results have been flagged with a "b."

Batch 16002: The MS recoveries for aluminum, calcium, iron, and magnesium failed to meet the FSAP criterion. Since the sample concentrations of these analytes exceeded four times the spike level, the MS recovery criterion does not apply. The MS recovery for sodium, tantalum, titanium, and potassium exceeded the ±25% criterion in the SAP and FSAP, and the results have been flagged with a "b." The laboratory believes this is a result of matrix interference due to the high levels of other elements in these samples and sample inhomogeneity. This was discussed with the client (see Attachment 5), and reanalysis was deemed unnecessary. The MS recovery for tantalum was less than 1%. The laboratory believes this was due to an issue with the standard. Since tantalum is not a required analyte, reanalysis was not required. Zinc was detected in the preparation blank above the MDL but less than the quantitation limit. Since the result was less than 5% of the sample result, the data quality was not affected.

Batch 16229: Calcium was present in the preparation blank but was less than 5% of the lowest sample result. The MS recoveries for aluminum, calcium, iron, silicon, titanium, and magnesium failed to meet the FSAP criterion. Since the sample concentrations of these analytes exceeded four times the spike level, the MS recovery criterion does not apply. The serial dilution for manganese and sodium failed the 10% requirement at 19% and 12%, respectively. The results have been flagged with an "e." This could indicate that the parent sample result is biased low due to matrix interference.

Batch 16778: The ICV standard recovery for rubidium was outside the 90% to 110% criterion at 112%. The sample results have been flagged with an "X." Reanalysis was not required since rubidium is a secondary analyte. The results for palladium and rubidium in the CCBs and initial calibration standard (ICB) were above MDL but below the quantitation limits. A "B" flag was applied since the blank result was greater than 5% of the sample results. Reanalysis was not required because all results (blank and samples) were below the quantitation limit. The LLS for rubidium, potassium, and palladium exceeded the 130% recovery criterion at 237%, 134%, and 137%, respectively. The palladium and rubidium results should be considered biased high. Since these are secondary analytes, reanalysis is not required. All potassium results are above the ICV and CCV level. Therefore, the slightly high recovery of the LLS does not impact the data quality. The LCS for silicon failed low at 52%. Silicon results should be considered biased low and are flagged with an "a." The preparation blank results for calcium and zinc were above the MDL but below the quantitation limit and less than 5% of the sample result. Therefore, the sample results were not affected. The duplicate RPD for praseodymium exceeded the 30% requirement in the SAP and FSAP. Since the sample result was below the quantitation limit, this criterion does not apply. The MS recoveries for aluminum, calcium, iron, and magnesium were outside the ±25% requirement in the SAPs. However, since the sample results for these elements were more than four times the spike level, the criterion does not apply. The MS recoveries for sodium, potassium, rubidium, silicon, and titanium were outside the 75% to 125% requirement, so all associated sample results have been flagged with a "b." The laboratory believes this is a result of matrix interference due to the high levels of other elements in these samples. The %D for the serial dilutions exceeded 10% for magnesium, phosphorous, silicon, and titanium. The laboratory believes this is a result of matrix interference due to the high levels of other elements in these samples. An "e" flag has been applied to these results. Since the post digestion spike passed, the serial dilution was not required, nor was reanalysis. However, these results do indicate matrix interference.

Batch 16822: The mid batch CCB result for praseodymium was above the MDL but below the quantitation limit. All associated sample results were less than 20 times the CCB result and were flagged with a "B." Since the blank and sample results were below the quantitation limit, reanalysis was not required. The initial calibration blank result for iron was above the MDL but less than the quantitation limit and much less than 5% of the sample results; therefore, the data quality was not affected. The LCS failed low for silicon and tungsten; since these were secondary analytes, reanalysis was not required. The affected sample results have been flagged with an "a." The duplicate RPD for cerium, cobalt, europium, sulfur, and praseodymium exceeded the required 30%. Since the results were below the quantitation limit, this criterion does apply. The duplicate RPD for aluminum, calcium, copper, iron, magnesium, manganese, sodium, neodymium, phosphorous, strontium, titanium, yttrium, and zinc exceeded the 30% criterion, and the associated samples have been flagged with "c." The laboratory believes that this particular failure is due to sample inhomogeneity. The serial dilution for silicon, magnesium, calcium, iron, and manganese exceeded the required 10% criterion. Since the post digestion spike passed, the serial dilution was not required, nor was reanalysis. However, these results do indicate matrix interference. The MS recovery for aluminum, calcium, iron, and magnesium exceeded the 30% requirement in the SAP and FSAP. Since the sample results were more than four times the spike concentration, this criterion does not apply. The MS recovery for phosphorous, potassium, sodium, and tungsten exceeded the 30% requirement in the SAP and FSAP. The laboratory believes this is a result of matrix interference due to the high levels of

other elements in these samples and sample inhomogeneity. This was discussed with the client (see Attachment 5), and reanalysis was deemed unnecessary. The MS recovery for cerium was less than 1%. The laboratory believes this was due to an issue with the standard. Since cerium is not a required analyte, reanalysis was not required.

3.2.8 Inductively Coupled Plasma/Mass Spectroscopy

The ICP/MS actinide analysis was performed on the SW846-3050 acid digestion of all liner composite samples. The ICP/MS ^{126}Sn and ^{99}Tc analysis was performed on the same digest, without the addition of the hydrochloric acid. Hydrochloric acid is not used for ^{99}Tc analysis because of the potential formation of a ZnCl ion pair with mass 99.

Direct calibration, where a standard containing the isotope and element of interest is used to calibrate the response of the isotope, is the most accurate type of calibration. Standard material is not available for all the isotopes of interest. Those isotopes without available standards are calibrated using the instrument's mass-response curve that is generated by using the intensity/concentration relationship for the available isotope standards. While the isotope results calibrated in this manner are designated "semi-quantitative" in the procedure, the differences in instrument response along the curve are generally small enough across the actinide mass range such that the results generated might be expected to be within similar uncertainties associated with quantitative results (i.e., those obtained directly against an isotope-specific standard).

A similar approach is used to evaluate the recoveries of calibration checks, standards, and spikes. Just as all of the elemental isotopes of interest are not available for calibration, they are also not available for the various QC samples. Because the chemical properties of an element are the same for all of its isotopes, one elemental isotope can be used as a measure for other isotopes of interest. For example, by measuring the recovery of ^{238}U in the various QC samples, the accuracy of the other uranium isotopes also can be evaluated. Table 1 lists the isotopes used for standards and spike samples for ICP-MS analyses. A response curve is derived using the slopes of the calibration lines of the available isotope standards. Slopes for the isotopes without available standards are then derived from the response curve, and results are calculated using the derived slopes.

Table 1. Inductively Coupled Plasma-Mass Spectroscopy Standards and Spikes.

Standard Type	Analytes Analyzed
Initial calibration verification (nondigested)	^{232}Th, ^{235}U, ^{238}U, ^{237}Np, ^{99}Tc, ^{117}Sn
Acid digest standard (laboratory control standard)	^{232}Th, ^{235}U, ^{238}U, ^{237}Np, ^{99}Tc, ^{117}Sn
Predigest spike (MS)	^{232}Th, ^{235}U, ^{238}U, ^{237}Np, ^{99}Tc, ^{117}Sn
Post-digest spike	^{232}Th, ^{235}U, ^{238}U, ^{237}Np, ^{99}Tc, ^{117}Sn
No standard or spike of either type	^{126}Sn, ^{230}Th, ^{233}U, ^{234}U, ^{236}U,

3.2.8.1 Technetium-99 and Tin-126

The required detection limit listed in the SAP for ^{99}Tc was met. The target detection limit for ^{99}Tc was not met. There were no required or target detection limits for ^{126}Sn listed in the SAP. The FSAP lists a holding time of isotopic analytes as 6 months. All samples were initially

analyzed within the holding time. However, due to a required reanalysis, nine samples exceeded the holding time. The reanalysis was delayed by instrument repair, failure of the chemist review to recognize the need for reanalysis, and delayed third level review by the project manager. Additionally, Washington River Projection System's management set the analytical priority of C Farm analysis behind other projects. Since the analytical results did not significantly change from the initial to the final analysis, the laboratory does not believe these exceedances affected the final results.

Batches 16639, 16734, and 16982: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 16341: The preparation blank contained ^{117}Sn below the quantitation limit. However, all samples in the batch were nondetect for ^{117}Sn, so the data was not affected. The LCS for ^{117}Sn exceeded the required 120% at 141% and the associated results have been flagged with an "a." This could indicate a high bias for these results. However, since the results for all samples were below the MDL, the data was not affected. The MS for ^{117}Sn met the recovery requirements, demonstrating preparation batch accuracy to some degree.

Batch 16865: The mid-run CCB contained ^{99}Tc below the quantitation limit. All field samples in this batch demonstrated results below the MDL; therefore, the data was not affected.

Batch 16970: All blanks contained a low level of ^{126}Sn, and the preparation blank contained a low level of ^{126}Sn and ^{99}Tc. Since neither ^{126}Sn or ^{99}Tc were detected in the samples, the data quality was not affected and reanalysis was not required.

3.2.8.2 Actinides

The required and target detection limits were met for all isotopes and in all samples. The FSAP lists the holding time for isotopic analytes as 6 months. All samples were initially analyzed within the holding time. However, due to a required reanalysis, 11 samples exceeded the holding time. The reanalysis was delayed by instrument repair, failure of the chemist review to recognize the need for reanalysis, and a delayed third level review by the project manager. Additionally, Washington River Projection System's management set the analytical priority of C Farm analysis behind other projects. Since the analytical results did not significantly change from the initial to the final analysis, the laboratory does not believe these exceedances affected the final results.

Batch 15672: Neptunium-237 was detected in the mid-run CCB below the quantitation level. All affected samples have a similar result and have been flagged with a "B." Since all ^{237}Np results were below the quantitation level, reanalysis is not required. All blanks (CCB and preparation blanks) contained ^{232}Th below the quantitation level and were less than 5% of the sample results. Therefore, the results were not affected and reanalysis was not required. The LLS for ^{235}U was recovered above the 130% requirement at 131%. Since the lowest sample result was more than 10 times the LLS level, the results were not affected. The RPD for ^{237}Np exceeded the 30% requirement at 47%. Since the results were below the quantitation limit, this criterion does not apply. The closing CCB result for ^{238}U was above the MDL but below the quantitation limit and less than 5% of the sample results; therefore, reanalysis was not required.

Batch 16171: The preparation blank result for ^{235}U was below the quantitation limit but less than 5% of the lowest sample result. Therefore, no reanalysis was required and the data quality was

not affected. The preparation blank result for ^{232}Th was above the quantitation limit but less than 5% for the sample result; therefore, reanalysis was not required and the data quality was not affected. The preparation blank contained ^{238}U above the quantitation level and was greater than 5% of three of the sample results. However, since the sample results were below the TDL and above the quantitation limit, the client gave permission to report the data with a "B" qualifier (see Attachment 5). The ending LLS for ^{235}U exceeded the 130% requirement at 133%. This could indicate a high bias for ^{235}U results near the LLS level. However, the lowest sample result for ^{235}U was approximately 80 times the LLS level and the data quality was not affected.

Batch 16595: The preparation blank contained ^{238}U and ^{235}U above the quantitation level and was greater than 5% of all of the sample results in this batch. Since the sample results were above the quantitation level but below the TDL, the client gave permission to report the data with a "B" qualifier and narration of the issue (see Attachment 5). The preparation blank result for ^{233}U was below the quantitation limit and greater than 5% of the sample results. Since both the sample results and the blank result were below the quantitation level, reanalysis was not required. The associated results have been flagged with a "B." The preparation blank result for ^{232}Th was above the quantitation limit but less than 5% of the sample results; therefore, reanalysis was not required and the data quality was not affected. The ICB and CCBs contained ^{232}Th below the quantitation limit, which had no effect on the data quality. The RPD for ^{234}U exceeded the 30% requirement at 38%; since the sample result was below the quantitation limit, this criterion does not apply.

Batch 17023: The closing LLS exceeded the 130% criterion for ^{232}Th at 164%. However, all results were near the CCV level, which is 200 times the LLS. Therefore, the data quality was not affected. The RPD for ^{234}U and ^{238}U exceeded the 30% requirement; since the sample result was below the quantitation limit, this criterion does not apply.

Batch 17024: The first CCB contained ^{235}U at a level equal to the MDL; since it was below the quantitation limit, the data quality was not affected. The initial LLS exceeded the 130% for ^{232}Th criterion at 164%. However, all results were near the CCV, which is 200 times the LLS, and therefore, there was no effect on the data quality. The RPD for ^{234}U exceeded the 30% requirement; since the sample result was below the quantitation limit, this criterion does not apply.

3.2.8.3 Trace Metals

Antimony, arsenic, cadmium, lead, nickel, selenium, silver, thallium, and vanadium were analyzed by ICP/MS to obtain the required detection limits in the SAP. Additionally, some chromium and cobalt results were used from the ICP/MS analyses. Except for the required detection limit for selenium, all target and required detection limits were met or the sample results were above the quantitation limit and the sample detection limit criteria do not apply. The target detection limit for selenium was approximately an order of magnitude below the detection limit obtained by using ICP/MS. The laboratory does not anticipate reaching this detection limit for future projects. The FSAP lists the holding time of isotopic analytes as 6 months. All samples were initially analyzed within the holding time using ICP/AES. However, due to a required reanalysis, 23 samples exceeded this holding time. The reanalysis was delayed by instrument repair, failure of the chemist review to recognize the need for reanalysis, and a delayed third level review by the project manager. Additionally, Washington River Projection System's management set the analytical priority of C Farm analysis behind other projects. Since the

analytes with results that could be compared (chromium, cobalt, nickel, and vanadium) did not significantly change from the initial ICP/AES to the final ICP/MS analysis, the laboratory does not believe these exceedances affected the final results.

SW846-6020A requires that an interference check standard be used to determine possible isobaric or polyatomic ion interferences. The current laboratory procedure does not require the use of this standard, and it was not included in these analyses. However, interferences were mitigated by the use of the collision cell, or gas mode, of the instrument. This was used for arsenic and vanadium to mitigate chloride interference. Since the blank result for these elements were below the MDL, the mitigation appears to have been successful. The laboratory plans to use the required interference check standard for future projects.

Batch 16927: The initial LLS recovered Cr at 152%. Since all chromium results were above the ICV/CCV level, the high recovery of the LLS does not affect data quality for chromium. The selenium recoveries for the LLS were outside the 70% to 130% requirement in SW846 at 167% for the initial LLS and 36% for the final LLS. The selenium concentration selected for the LLS was only slightly above the MDL and was determined to be too low. Some of the subsequent analyses used a more appropriate LLS level of selenium. The preparation blank contained silver, cadmium, thallium, and nickel above their MDLs but below the quantitation limits. All sample results, except for nickel, have been flagged with a “B” because the blank result was greater than 5% of the sample results. Reanalysis was not required because the blank results were below the quantitation limits.

Batch 16990: The preparation blank and mid-run CCB results for thallium were above the MDL but less than the quantitation limit. Since the blank result was greater than 5% of all sample results, a “B” flag has been applied. Reanalysis was not required since the blank result was below the quantitation limit.

Batch 17021: The closing LLS for selenium was recovered at 202%. Since all sample results for selenium were below the MDL, the data quality was not affected. The selenium concentration selected for the LLS was at the MDL and was determined to be too low. Some of the subsequent batches used a more appropriate LLS concentration of selenium. The preparation blank result for selenium was above the MDL. However, since all sample results were below the MDL, the data quality was not affected. The closing CCV for silver was below the required 90% at 89.3%. This CCV bracketed only QC samples, all of which met requirements. Therefore, reanalysis was deemed unnecessary. The duplicate RPD for nickel exceeded the 30% requirement at 45%, and the associated results have been flagged with a “c.” The laboratory believes this is due to sample inhomogeneity, and with client agreement, reanalysis was not performed (see Attachment 5).

Batch 17062: The LLS recoveries for selenium were 213% and 220%. Since all sample results for selenium were below the MDL, the data quality was not affected. The selenium concentration selected for this LLS, though higher than previously used, was determined to be too low. Subsequent analyses used a more appropriate LLS concentration of selenium. The preparation blank and closing CCB results for selenium were above the MDL. However, since all sample results were below the MDL, the data quality was not affected. The duplicate RPD for cadmium exceeded the 30% requirement at 33%. Since the sample result was below the quantitation level, this criterion does not apply. The duplicate RPD for lead, thallium, and vanadium exceeded the 30% requirement at 47%, 59%, and 44%, respectively, and the associated results have been flagged with a “c.” Based on ICP/AES and other analyses, the laboratory believes this is due to

sample inhomogeneity and, with client agreement, no reanalysis was performed (see Attachment 5).

Batch 17063: The preparation blank result for thallium was above the MDL but less than the quantitation limit. Since the blank result was greater than 5% of all sample results, a "B" flag has been applied. Reanalysis was not required since the blank result was below the quantitation limit. The duplicate RPD for thallium exceeded the 30% requirement at 32%. Since the sample result was below the quantitation level, this criterion does not apply.

Batch 17222: The preparation blank result for selenium was above the MDL. However, since all sample results were below the MDL, the data quality was not affected.

Batch 17230: The post digestion spike failed low at 42% for selenium. However, since the MS met the required recovery criteria at 102%, a post digestion spike is not required (per SW846). It should be noted that the raw sample result was negative, indicating a matrix interference. This may be the cause of the low post digestion spike recovery. The spike level for the MS is higher than the post digestion spike and possibly negated the interference.

Batch 17234: There were no notable issues with this batch; all QC requirements in the FSAP, SAP, and the QAPP were met.

3.3 RADIOCHEMICAL ANALYSIS

The holding time listed in the FSAP for radioactive isotopes is 6 months. SW846 does not address holding times for these analytes. All radiochemical analyses met the 6-month holding time. Holding time tables for these analytes have not been included in Attachment 2.

3.3.1 Gamma Energy Analysis

Gamma energy analysis was performed directly on approximately 60 mL of soil from all liner composite samples. Sample B1YT98 was inadvertently analyzed twice. The sample with the highest ^{137}Cs result (S09V000473) has been reported in Attachment 1. The other analysis results and raw data are contained in Appendix 2. The GEA analysis met all the required detection limits in the SAP. The laboratory was unable to meet any of the target detection limits.

Batches 13909, 15005, 15098, 15100, and 15511: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batches 15099: This batch did not contain a field sample duplicate as required in the QAPP. However, the client indicated (see Attachment 5) the FSAP and SAP only requires one field duplicate per core hole. Since the client QC requirement was met, reanalysis was not required.

3.3.2 Strontium-90/89

Strontium-90/89 analysis was performed on a strong acid digest of all liner composite samples. Fifteen of the sample analyses met the required detection limit of 2.3 pCi/g listed in the FSAP or had results above the quantitation limit. Of the remaining ten samples, all but one achieved a detection limit between 2.3 pCi/g and 4.2 pCi/g. No detection limit exceeded the lowest action limit of 23 pCi/g in Table 5.2 of the SAP.

Batches 16420, 16466, and 16485: There were no notable QC issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 16482: The preparation blank had a positive result slightly above the minimum detectable activity with a counting error of 117%. All samples, except one, had results below the MDA. The sample result above the MDA was below the quantitation limit and has been flagged with a "B." Because the result of the blank and the sample were below the quantitation limit, reanalysis was not performed.

Batch 16610: The RPD between the sample and duplicate was 116%. The original digestates were reanalyzed with similar results. There was insufficient sample to perform a second preparation of the sample. A "c" flag has been applied to all samples in the batch.

Batch 16776: The blank result displayed in Attachment 1 for sample S09V000509 (<2.7E-6 μCi/g), is different from that in the batch report (<1.95E-6 μCi/g). This resulted from the sample being rejected and reanalyzed in a new batch (16776) while the remaining samples in the original batch were reported from the original batch. Both batches share the same preparation blank, which has now been analyzed twice. Currently, the Data Summary Report (Attachment 1) reports only one blank result; it is from the original batch. Additional programming is required to change this. The two blank results are essentially the same.

3.3.3 Tritium

The tritium analysis was performed on a water leach of all liner composite samples. This method only measured the tritium in the samples which can be dissolved in water. This analysis achieved the required detection limit in the FSAP but could not meet the target detection limit. There were no notable issues with any of the tritium batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

3.3.4 Selenium-79

The ^{79}Se analysis was performed on a strong acid digest of all liner composite samples. The analysis achieved the target detection limit in the FSAP. No required detection limit was listed. No standard is currently available for ^{79}Se. A cold carrier is used to monitor recovery and is measured gravimetrically.

Batches 16105 and 16145: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batches 16188, 16194, and 16259: The preparation blanks for these batches demonstrated positive results below the quantitation limit, as did many of the samples. All results had very large counting errors and were below the target detection limit. Because of these factors, reanalysis was not required. The associated results have been flagged with a "B."

Batch 16409: The blank results displayed in Attachment 1 for sample S09V000509 (<1.51E-6 μCi/g) and S09V000666 (5.23E-6 μCi/g) are different from that in the batch report (<2.2E-6 μCi/g). This resulted from these samples being rejected and reanalyzed in a new batch

(16409), while the remaining samples in the original batch were reported from the original batch. Both batches share the same preparation blank, which has now been analyzed twice. The current Data Summary Report (Attachment 1) reports only one blank result; it is from the original batch. Additional programming is required to change this. The two blank results are essentially the same. Even though the original blank result for sample S09V000666 was positive, it had a counting uncertainty of 185%.

3.3.5 Carbon-14

The ^{14}C analysis was performed on a water leach of all liner composite samples. The 10-ft. to 12-ft. interval from core hole C6404 did not retrieve sufficient liner material to produce a sample for this analysis. The analysis achieved the required detection limit in the FSAP but exceeded the target detection limit. This analysis will only detect water soluble forms of ^{14}C. There were no notable issues with the batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

3.3.6 Nickel-63

The ^{63}Ni analysis was performed on a strong acid digest of all liner composite samples. The analysis achieved the required detection limit in the FSAP but exceeded the target detection limit of 30 pCi/g. Most samples had detection limits of between 50 pCi/g and 100 pCi/g.

Batches 15697, 16267, 16282, and 16392: There were no notable issues with these ^{63}Ni batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 16240: The preparation blank had a positive result slightly above the MDA with a counting error of 412%. All samples, except one, had results below the MDA. The sample result above the MDA was below the quantitation limit and has been flagged with a “B.” Because the results for the blank and the sample were below the quantitation limit, reanalysis was not performed.

Batch 16551: The blank result displayed in Attachment 1 for sample S09V000509 (<5.65E-5 μCi/g) is different from that in the batch report (<4.98E-6 μCi/g). This resulted from the sample being rejected and reanalyzed in a new batch (16551), while the remaining samples in the original batch were reported from the original batch. Both batches share the same preparation blank, which was analyzed twice. The current Data Summary Report (Attachment 1) reports only one blank result; it is from the original batch. Additional programming is required to change this. The two blank results are essentially the same.

3.3.7 Iodine-129

Analysis for ^{129}I was performed on an iodine specific fusion digest of all liner composite samples. The required and target detection limits in the SAP were met.

Batches 16203, 16246, and 16307: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 16468: The preparation blank result was above the quantitation limit but below the target detection limit. The customer contact agreed (see Attachment 5) that since the result was below the target detection limit, reanalysis was unnecessary. One of the samples in this batch had a result above the quantitation limit but below the target detection limit. This result has been flagged with a "B." The remaining sample results were nondetect.

Batch 16496: The preparation blank result was above the quantitation limit but below the target detection. Since the sample results were all nondetect, reanalysis was not required.

3.3.8 Americium-241, Curium-243/244, and Curium-242

Analysis for ^{241}Am, $^{243/244}$Cm, and ^{242}Cm was performed on a strong acid digest of all liner composite samples. For this analysis, there were no notable issues with any batches and all QC requirements in the FSAP, SAP, and the QAPP were met. The required detection limit in the SAP was met, and all but three samples met the target detection limit.

3.3.9 Plutonium-238 and Plutonium-239/240

Plutonium isotopic (^{238}Pu and $^{239/240}$Pu) analysis was performed on a strong acid digest of all liner composite samples. For this analysis, there were no notable issues with any batches and all QC requirements in the FSAP, SAP, and the QAPP were met. The required and target detection limits in the SAP were met

3.4 ORGANIC ANALYSES

3.4.1 Volatile Organic Analysis

The VOA was performed on all field samples by purge and trap. Field sampling, sample containers, and preservation followed SW846-5035. The soil samples were delivered in a freezer, in pre-weighed VOA vials with magnetic stir bars and approximately 5 g of sample. After receipt, the VOA samples were stored in a freezer. For each sample interval, an additional high level sample preserved in methanol was also received. These were not used because none of the results for the frozen samples were above the calibration range. The exact weight of the sample and the tare weight of the VOA vials were recorded by sampling personnel and delivered with the samples. Four liquid trip blank samples were also received and analyzed. The samples were preserved with either HCl or H_2SO_4 to a pH < 2.

The holding time for all samples is 14 days. All samples but two meet the required holding time. Sample B1YTB2 (S09V000410), a soil sample, exceeded the holding time requirement by 2 days. This was caused by a lack of facility resources (radiological control technicians), which was beyond the control of the analytical staff contractor at 222-S. The facility operator is addressing the issue by hiring additional facility support staff. Sample B1YY24 (S09V000493), a trip blank, was analyzed 1 day beyond the required holding time. This was due to an oversight by 222-S analytical personnel. The laboratory believes that the affect of the holding time exceedance on sample results is minimal. A study by the Department of Energy and others have

shown that exceedances of less than 2 weeks produce no statistical difference and only a few compounds are affected for up to 6 weeks (see Reference Section).

The VOA analysis met the target and required detection limits in the SAP with the following exceptions: for 2-nitropropane, one sample was slightly above the target detection limit; for cis-1,2-dichloroethene, trans-1,2-dichloroethene, m,p-xylene, o-xylene, and TCE, two samples were slightly above the target detection limits. These detection limit exceedances were caused by a less than 5 g aliquot in the VOA vial. The laboratory cannot adjust the amount of sample when following SW846-5035 and must analyze them as received.

Loss of Internal Standards, Spike Compounds, and Surrogates: During the VOA analysis of the C Farm soil samples, low recoveries of the internal standard and surrogates were frequently experienced. At times, the instrument produced no response at all for these monitoring compounds. The issue was extensively investigated and was isolated to only the C Farm soil samples. Liquid samples and laboratory prepared soil standards (using laboratory VOA vials and stir bars) were not affected. The C Farm soil samples were analyzed on different instruments, which eliminated instrumentation as the problem. The laboratory believes that this problem is related to the sample matrix and/or the oversized stir bars used by the client. Additionally, it was determined that some of the VOA vials provided by the client leaked around the cap during purging. The problem was determined to be some type of blockage that impeded purge flow. The laboratory eventually developed a technique that provided improved results. This technique consisted of lightly shaking the VOA vial while monitoring purge flow with an in-line flow meter. The laboratory has requested that the client discontinue the use of the large stir bar and use different VOA vials.

The purpose of the internal standard is to compensate for fluctuation and drift in instrument response. The instrument responses for spikes, surrogates, or compounds found in the sample are adjusted base on their closest internal standard. A complete loss of internal standard undoubtedly invalidates the sample results. However, low internal standard recoveries do not necessarily mean that the data is unusable. SW846 only specifies minimum internal standard recovery requirements for the CCV, not the samples. While there are no regulatory limits for internal standard recoveries in a sample, there are practical limitations to the amount of fluctuation that can be tolerated before quantitation is affected. Typically that value is around the limits specified for the CCV (-50 to +100% drift). The further that the sample internal standards are from the established CCV limit, the more likely the quantitation is adversely affected. When internal standard recoveries fall outside these limits, surrogate recoveries may be used to evaluate any adverse effects on quantitation. On all samples exhibiting low internal standard responses, associated surrogate recoveries were evaluated to determine if the loss had significant effect on the reported results. Based on this evaluation, the laboratory believes that the VOA results contained in this report are useable.

Samples and their associated MS and matrix spike duplicate (MSD) were initially analyzed together in a single analytical run. However, because of the frequent internal standard failures, many reanalyses were required. Due to the limited number of extra sample vials (five per sample), the reanalysis did not typically contain the original sample, MS, and MSD. Consequently, the analytical batches contained in this report have sample and associated QC results for different analytical runs, which were often on different days. The construction of

batches in this manner was necessary for the laboratory information management system to associate a sample and its MS/MSD pair. All information and data concerning the analysis and reanalysis are contained in the VOA section of Appendix B.

The discussion below of the individual batches will not contain additional information concerning the low recoveries of internal standards. Detailed information for each sample is contained Appendix B.

Batch 14157: The method blank contained 1,2-dichloroethane and acetone below the estimated quantitation limit. Since the sample results were below the MDL for these compounds, reanalysis is not required. The LCS demonstrated a high recovery for acetone, 1-butanol, 2-butanone, and methyl isobutyl ketone (MIBK). Since these compounds were non-detect in the sample, reanalysis is not required. Sample results have been flagged with an "a."

Batch 14180: Other than the previously discussed internal standard issue, there were no notable issues with this batch and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 15471: The RPD between the MS and MSD failed to meet the 30% requirement for acetone, 1-butanol, 2-butanone, and MIBK. Since the sample did not contain quantifiable amounts of these compounds, reanalysis was not necessary. However, the sample results were flagged with a "c" indicating a batch precision failure. The MS failed slightly high at 131% for 2-butanone. Since this compound was not detected above the quantitation level, reanalysis was not required. The sample was flagged with a "b."

Batch 15472: The second method blank contained acetone below the estimated quantitation limit. Since the associated sample did not contain acetone above the estimated quantitation limit, reanalysis is not required. A "B" flag has been applied to the sample result. Toluene was present in the second method blank below the estimated quantitation limit. Since the associated sample results were below the MDL, the data was not affected. The first LCS demonstrated a high recovery for 1,1-dichloroethene, MIBK, acetone, and 2-butanone. Since these compounds were not detected in the samples above the estimated quantitation limit, reanalysis is not required. Sample results have been flagged with an "a." The MS recovery for 1-butanol was above the 30% requirement and a "b" flag has been added to the associated results. Since this compound was not detected in the associated samples, reanalysis was not required. The CCV %D exceeded the ±20% requirement for trichlorofluoromethane, 1,1-dichloroethene, carbon disulfide, acetone, and 2-butanone. All were above the expected value. Since all compounds were either not detected or below the estimated quantitation limit, the results were not affected and reanalysis not required. The CCV met the 15% average %D requirement.

Batch 15474: The method blank contained acetone below the estimated quantitation limit. Since the associated sample did not contain acetone, reanalysis is not required. The CCV for acetone exceeded the 20% %D requirement. Since the CCV was above the calibration amount and the sample was nondetect, reanalysis was not required.

Batch 15476: The method blank contained acetone below the estimated quantitation limit. Since the associated sample did not contain acetone, reanalysis is not required.

Batch 15477: The method blank contained acetone below the estimated quantitation limit. Since the associated samples did not contain acetone above the estimated quantitation limit, reanalysis is not required. All acetone results were slightly above the MDL and have been flagged with a "B." The RPD between the MS and MSD exceeded the 30% requirement at 31% for 1-butanol. Since the samples were nondetect for this compound, reanalysis was not required. A "c" flag was added to the associated sample results. The CCV for acetone exceeded the 20% %D requirement. Since the CCV was above the calibration amount and the samples were below the estimated quantitation limit, reanalysis was not required.

Batch 15479: There were no notable issues with this liquid sample batch, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 15491: Other than the previously discussed internal standard issue, there were no notable issues with this batch and all QC requirements in the FSAP, SAP, and the QAPP were met. Since the client only required an MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6406 is in batch 15477.

Batch 15492: Other than the previously discussed internal standard issue, there were no notable issues with this batch and all QC requirements in the FSAP, SAP, and the QAPP were met. Since the client only required an MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6406 is in batch 15477, and the MS/MSD for core hole C6402 is in batch 15471.

Batch 15493: There were no notable issues with this liquid sample batch, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 15503: The method blank contained acetone below the estimated quantitation limit. Since associated samples did not contain acetone above the estimated quantitation limit, reanalysis is not required. Two samples contained acetone at slightly above the MDL and have been flagged with a "B." The method blank contained toluene below the estimated quantitation limit. Since associated samples did not contain toluene above the MDL, reanalysis was not required.

Batch 15525: The CCV %D for 1-butanol was slightly high at 20.6%. Since the sample did not contain 1-butanol above the MDL, the result was not adversely affected. Since the client only required an MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6404 is in batch 15674.

Batch 15671: The CCV associated with the field samples and the MSD for sample B1TY75 (S09V000125) had a %D of -23% for 1-butanol. This could indicate that positive results for 1-butanol could be biased low. A laboratory-defined "Y" flag has been applied to these results. 1-butanol was not detected in these samples. Additionally, the MSD was recovered at 90%, indicating that the low CCV had minimal affect on the results. The CCV associated with the MS/MSD for sample B1YT72 (S09V000124) and MS for sample B1YT75 (S09V000125) had a %D of -30% for 1-butanol. The recoveries for the field quality control samples were within the required 70% to 130%, indicating that the low CCV had minimal effect on the analysis results. The average %D was less than 15%, which meets the SW-846 requirement.

Batch 15673: The CCV %D exceeded the 20% limit for acetone. Acetone was recovered above the expected calibration value. This could indicate a high bias for acetone sample results. Since the sample result for acetone was below the estimated quantitation limit, reanalysis was not required and the data was not affected. The method blank contained acetone and toluene below the estimated quantitation limit. The sample contained acetone below the estimated quantitation limit and was nondetect for toluene. Since all results (blank and sample) were below the estimated quantitation limit, reanalysis was not required. Since the client only required an MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6400 is in batch 15503.

Batch 15674: The CCV had a %D at -21% for 1-butanol. This could indicate that positive results for 1-butanol could be biased low. A laboratory defined "Y" flag has been applied to these results. 1-butanol was not detected in these samples. The LCS and MS/MSD recoveries were within the required limits, indicating that the low CCV had minimal effect on the analysis results. The average %D was less than 15%, which meets the SW-846 requirement.

Batch15785: The LCS recoveries for 1-butanol, 2-butanone, MIBK, and acetone were above the required 130%. The sample did not contain these compounds above the MDL, so the results were not affected. The method blank contained toluene below the estimated quantitation limit. Since the associated sample did not contain toluene above the MDL, reanalysis was not required. The CCV %D for 1-butanol was slightly high at 20.1%. Since the sample did not contain 1-butanol above the MDL, the result was not adversely affected. Since the client only required and MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6404 is in batch 15674. The average %D was less than 15%, which meets the SW-846 requirement.

3.4.2 Semivolatile Organic Analysis

The semivolatile organic analysis (SVOA) was performed on methylene chloride extractions of all liner composite samples except B20XV5 and B20XW3. These samples were not analyzed based on the client's instructions. Each extract was analyzed twice using two separate calibration curves to provide calibrated results for all compounds listed in the FSAP and SAP. All holding times were met except for the extraction of sample B20XV9 (S09V000742). This was caused by failure to assign the test during log-in.

Ten of the twenty-two samples contained a low level of bis (2-ethylhexyl) phthalate, which was not detected above the MDL in the method blanks. Additionally, low levels of di-n-butylphthalate were detected in four samples and was present in the method blank associated with two of the samples. Low levels of phthalates may represent contamination of the samples during sampling and/or analysis, but environmental contamination could also be the source. If laboratory contamination is present, it will usually appear in the method blank. Due to the prevalence of low level phthalate contamination in the environment, it can be hard to determine the source of low level results. Equipment blanks can help isolate the source of phthalates, but no equipment blanks were analyzed with these samples. One possible source of phthalate could be the red plastic end caps used with the liners. It is the laboratory's opinion that the use of these end caps should be discontinued.

The SVOA analysis met the required and target detection limits with two exceptions:

- The adjusted MDLs for cyclohexanone were above the 0.5mg/kg target detection limit for most samples. This compound obtained detection limits between 0.5 mg/kg an 0.7 mg/kg. The adjusted MDLs for di-n-butyl-phthalate were above the target detection limit of 0.33 mg/kg. The analysis achieved a detection limit of between 0.5 mg/kg and 0.7 mg/kg for this compound.
- LCS, MS, and MSD recoveries were compared against the laboratory's statistical process control (SPC) limits, as required by SW-846. The use of SPC limits is allowed in the FSAP, SAP, and QAPP.

Batches 14181, 14528, 14529, and 15811: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 14169: The surrogate terphenyl-d14 was recovered below the laboratories SPC limits of 75% to 175% at 62%. It is the laboratory's opinion that this is not a particularly low recovery and the usability of the associated results was not affected. The SPC limits appear to be biased high. SPC limits are currently under review and will be updated. This bias is expected to be corrected. All other QC requirements were met.

Batch 14527: Di-n-butylphthalate was detected in the method blank below the quantitation limit. However, the blank result exceeded 5% of the associated sample results. These results have been flagged with a "B." Since the blank and sample results were below the quantitation limit, reanalysis was not required. No MS or MSD was analyzed with this batch. Since the client only required that an MS and MSD be analyzed once per core hole (see Attachment 5), this requirement was met in batch 14529. All other QC requirements were met.

Batch 14580: For two samples, the surrogate terphenyl-d14 was recovered below the laboratory's SPC limits of 75% to 175% at 64% and 58%. It is the laboratory's opinion that this is not a particularly low recovery and the usability of the associated results was not affected. The SPC limits appear to be biased high. SPC limits are currently under review and will be updated. This bias is expected to be corrected. All other QC requirements were met.

Batch 15509: All QC requirements were met. However, a large cyclohexene peak was detected during the second analysis of the samples. Since the TICs were reported from the 1st analysis only, this peak has not been reported. The laboratory believes that the cyclohexene was present in the methylene chloride used for the extraction.

3.4.3 Tentatively Identified Compounds

Unassigned peaks or TICs were treated as follows. Standards were obtained and analyzed for each secondary analyte identified in the SAP. This data was accumulated in the Hanford library. Following analysis, the largest TICs with instrument responses greater than 10% of the response of the nearest internal standard were evaluated and compared to the Hanford library. The estimated concentration of these TICs was calculated using measured response factors from the Hanford library compound list.

After comparison to the Hanford library, remaining unknowns were compared to the National Institute of Standards and Technology (NIST) 02, *HP Mass Spectral (compound) Libraries*. The estimated concentration of compounds identified from the NIST library was calculated based on an arbitrary response factor of 1.0. If the compounds were not identified as a result of this comparison, they were reported as "unknown." Summaries of the SVOA and VOA TICs from the field samples and method blanks are provided in Attachment 4. TICs found in the field samples and which were present in the associated batch method blank have been flagged with "B."

4.0 PROCEDURES

Table 2 lists the analytical procedures used for analysis of the C-Farm samples.

Table 2. Analytical Procedures.

Analysis	Preparation Method	Analysis Procedure
Inorganic Analyses		
Cyanide	LA-695-103, Rev. I-0, J-0 (SW-846 9010C)	LA-695-103, Rev. I-0, J-0 (SW-846 9014)
Sulfide	LA-361-101, Rev. D-0 (SW-846 9030B)	LA-361-101, Rev. D-0 (SW-846 9215)
pH	Direct	LA-212-105, Rev. G-0 (SW-846 9045D)
Mercury – Cold Vapor Atomic Absorption	LA-325-106, Rev. G-0 (SW-846 7470A, 7471A)	LA-325-106, Rev. G-0 (SW-846, 7470A, 7471A)
Ammonia – IC	LA-544-112, Rev. D-0	LA-533-101, Rev. O-0
Anions & Organic Acids – IC	LA-504-101, Rev. L-0	LA-533-115, Rev. J-0
Metals – ICP /AES	LA-505-163, Rev. F-0 (SW-846 3050B)	LA-505-161, Rev. I-0, J-0a (SW-846 6010C)
^{99}Tc, ^{126}Sn – ICP/MS	LA-505-163, Rev. F-0 (SW-846 3050B)	LA-506-102, Rev. E-0
Metals – ICP/MS	LA-505-163, Rev. F-0 (SW-846 3050B)	LA-506-103, Rev. A-0 (SW-846 6020A)
Actinides – ICP/MS	LA-505-163, Rev. F-0 (SW-846 3050B)	LA-506-102, Rev. E-0
Radiochemical Analyses		
GEA	Direct	LA-548-121, Rev. I-0
^{90}Sr – Separation/Beta counting	LA-544-101, Rev. F-0	LA-220-101, Rev. I-0
Tritium – LSC	LA-504-101, Rev. L-0	LA-218-114, Rev. F-0
^{14}C – LSC	LA-504-101, Rev. L-0	LA-348-104, Rev. H-0
^{79}Se – Separation/LSC	LA-544-101, Rev. F-0	LA-365-102, Rev. I-0
^{63}Ni – Separation/LSC	LA-544-101, Rev. F-0	LA-285-102, Rev. D-0
^{129}I – Separation/GEA	LA-544-101, Rev. F-0	LA-378-105, Rev. C-0
^{241}Am, $^{243/244,\ 242}$Cm – Separation/AEA	LA-544-101, Rev. F-0	LA-953-104, Rev. H-1
$^{239/240,\ 238}$Pu – Separation/AEA	LA-544-101 Rev. F-0	LA-953-104, Rev. H-1
Organic Analyses		
VOC – GC-MS	Direct	LA-523-118, Rev. G-0

Table 2. Analytical Procedures.

Analysis	Preparation Method	Analysis Procedure
SVOC – GC/MS	LA-523-138, Rev. F-0 (SW846-3540C)	LA-523-135, Rev. C-0

5.0 REFERENCES

ATL-MP-1011, 2008, *ATL Quality Assurance Project Plan for 222-S Laboratory*, Rev. 8 and Rev. 9, Advanced Technologies and Laboratories International, Inc., Richland, Washington.

NIST 02, 2002, *HP Mass Spectral Libraries*, July 2002 Release, Hewlett-Packard Company, Palo Alto, California.

SW-846, 1986, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods,* Third Edition, as amended, U.S. Environmental Protection Agency, Washington, D.C.

DASTM STP 1057, 1991, *Waste Testing and Quality Assurance: Third Volume, Holding Times of Volatile Organics in Water*, American Society for Testing and Materials, Philadelphia, Pennsylvania.

CONF-96071123-5, 1996, *A Confirmatory Holding Time Study for purgeable VOCs in Water Samples,* Oak Ridge National Laboratory, Tennessee.

RPP-PLAN-40564, 2009, *Field Sampling and Analysis Plan for Sites P and L at Waste Management Area,* Rev. 0, Washington River Protection Solutions, Inc.

RPP-PLAN-38777, 2008, *Sampling and Analysis Plan for Phase 2 Characterization of Vadose Zone Soil in Waste Management Area C*, Rev. 0, Washington River Protection Solutions, Inc.

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-013	PAGE 1 OF 2
COLLECTOR: Rosane, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND
SAMPLING LOCATION: C6392, I-003	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 pg 56	ACTUAL SAMPLE DEPTH: 14-15'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S20090160

SPECIAL HANDLING AND/OR STORAGE
7°C / 45°F

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C	
TYPE OF CONTAINER	aGs*	aGs*	
NO. OF CONTAINER(S)	5	3	
VOLUME	40mL	40mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B1YT69 / S09V000123	SOIL	4-14-09	1300	✓	✓								
~~+S09V000124~~	Filtered												
S09V000131													

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane, Larry Rosane	4-14-09/1515	T.W. Collock, T.W. Collock	4-14-09 1515

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

CRCL 2009 0160
ZB, Ref 1 Rta

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-015	PAGE 2 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C6392, I-003	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg56	ACTUAL SAMPLE DEPTH 14'-15'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-015	PAGE 1 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-003	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 56	ACTUAL SAMPLE DEPTH 14'-15'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

7°C/45°F

SPECIAL HANDLING AND/OR STORAGE
22252009 0160

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	~~2~~ 2 4-14-09
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1YT71/20090160	SOIL	4-14-09	1300	✓
S09V000148 → ZB				
S09V000149				

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne Larry Rosanne	4-14-09/1515	Tw Gllock	4-14-09 1515

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

only two liners were filled due to material

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-013	PAGE 2 OF 2
COLLECTOR Rosanne, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P	**DATA TURNAROUND**
SAMPLING LOCATION C6392, I-003	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002	**AIR QUALITY** ☐	75 Days / 75 Days
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 pg56	**ACTUAL SAMPLE DEPTH** 14'-15'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-016	PAGE 1 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-004	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 57	ACTUAL SAMPLE DEPTH 19.5'-21.5'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S20090160

SPECIAL HANDLING AND/OR STORAGE
28°F/46°F
-2°C/8°C

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C	
TYPE OF CONTAINER	aGs*	aGs*	
NO. OF CONTAINER(S)	5	3	
VOLUME	40mL	40mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B1YT72	SOIL	4-21-09	1041	✓	✓								
S09V000124 (Low)													
S09V000132 (High)													

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne - Larry Rosanne	4-21-09/1330	R Steele R/Steele	4-21-09 1330
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-016	PAGE 2 OF 2
COLLECTOR Rosane, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P **AIR QUALITY** ☐	**DATA TURNAROUND** 75 Days / 75 Days
SAMPLING LOCATION C6392, I-004	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-W-576-3 pg 57	**ACTUAL SAMPLE DEPTH** 19.5', 21.5'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-018	PAGE 1 OF 2
COLLECTOR Rosanne, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-004	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 57	ACTUAL SAMPLE DEPTH 19.5'-21.5'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S20090160

SPECIAL HANDLING AND/OR STORAGE
8°C/46°F

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1YT74	SOIL	4-21-09	1041	✓
S09V000152 (a)				
153 (b)				
154 (c)				

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne, Larry Rosanne	4-21-09/1330	R Steele	4.21.09 1330
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-018	PAGE 2 OF 2
COLLECTOR Rosane, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P	**DATA TURNAROUND**
SAMPLING LOCATION C6392, I-004	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002	**AIR QUALITY** ☐	**75 Days / 75 Days**
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 pg 57	**ACTUAL SAMPLE DEPTH** 19.5'-21.5'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-019	PAGE 1 OF 2
COLLECTOR: Rosawe, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C6392, I-005	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HUF-W-576-3 pg 59	ACTUAL SAMPLE DEPTH: 25'-27'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

22252009 0160

SPECIAL HANDLING AND/OR STORAGE
54°F / 34°F
12°C / 1°C

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C	
TYPE OF CONTAINER	aGs*	aGs*	
NO. OF CONTAINER(S)	5	3	
VOLUME	40mL	40mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B1YT75 GV ppr 4-22-09	SOIL	4-22-09	1000	✓	✓	
SOV9000125 (Lo)						
SOV9000133 (Hi) GV						
Lot #				814110	B907501V3	

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosawe Larry Rosawe	4-22-09 / 1313	TM Collock	4-22-09 1313

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-019	PAGE 2 OF 2
COLLECTOR Rosane, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-005	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 59	ACTUAL SAMPLE DEPTH 25'-27'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V09-002-021	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8P	DATA TURNAROUND
Rosanne, Rust	SYDNOR, HA	373-3967	WIDRIG, DL		
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**	**AIR QUALITY** ☐	75 Days / 75 Days
C6392, I-005	WMA C Sampling for CMS		V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
	HNF-N-576-3 pg 59	25'-27'	301483ES10	GOVERNMENT VEHICLE	
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
222-S Lab Operations					

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S2009016 0

SPECIAL HANDLING AND/OR STORAGE
12°C/54°F

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B1YT77	SOIL	4-22-09	1000
S09V000156			
S09V000158			
S09V000157			
LOT #			

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne, Larry Rosanne	4-22-09 1313	TM Collick	4-22-09 1313

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-021	PAGE 2 OF 2
COLLECTOR Rosane, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P **AIR QUALITY** ☐	**DATA TURNAROUND** 75 Days / 75 Days
SAMPLING LOCATION C6392, I-005	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 pg 59	**ACTUAL SAMPLE DEPTH** 25'-27'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V09-002-022	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8P	DATA TURNAROUND
Rosawe, Rust	SYDNOR, HA	373-3967	WIDRIG, DL	AIR QUALITY ☐	75 Days / 75 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**		
C6392, I-006	WMA C Sampling for CMS		V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
	HNF-2572-3 pg 61	~~HNF 10 57~~ 42-44' SAR 4-30-09	301483ES10	GOVERNMENT VEHICLE	
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
222-S Lab Operations					

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

2226 2009 0160

SPECIAL HANDLING AND/OR STORAGE
-1°C/22°C
30°F/72°F
RPR 9/28/09 ~~2009 0160~~

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C									
TYPE OF CONTAINER	aGs*	aGs*									
NO. OF CONTAINER(S)	5	3									
VOLUME	40mL	40mL									
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS									

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B1YT78	SOIL	4-30-09	1015	✓	✓								
509V000126	(Li)												
509V000134	(Hi)												

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosawe, Larry Rosawe	4-30-09/ 1510	Todd McGlock/	4/30/09 1510
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-022	PAGE 2 OF 2
COLLECTOR Rosane, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P **AIR QUALITY** ☐	**DATA TURNAROUND** 75 Days / 75 Days
SAMPLING LOCATION C6392, I-006	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-526-3 pg61	**ACTUAL SAMPLE DEPTH** 42'-44'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-024	PAGE 1 OF 2
COLLECTOR Roanne, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C6392, I-006	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg61	ACTUAL SAMPLE DEPTH 42'-44'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

SPECIAL HANDLING AND/OR STORAGE
222S20090160 22°C/72°F

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1YT80	SOIL	4-30-09	1015 ~~1015~~ 4-30-09	✓
S09V000160				
S09V000161				
S09V000162				

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane, Larry Rosane	4-30-09/ 1510	Tim Gollock Tim Gollock	4/30/09 1510
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-024	PAGE 2 OF 2
COLLECTOR Rosine, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P **AIR QUALITY** ☐	**DATA TURNAROUND** 75 Days / 75 Days
SAMPLING LOCATION C6392, I-006	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 pg 61	**ACTUAL SAMPLE DEPTH** 42'-44'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-025	PAGE 1 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-007	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 61	ACTUAL SAMPLE DEPTH 56'-58'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

SPECIAL HANDLING AND/OR STORAGE
222S20090160 -1°C/22°C 30°C/72°F

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C	
TYPE OF CONTAINER	aGs*	aGs*	
NO. OF CONTAINER(S)	5	3	
VOLUME	40mL	40mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B1YT81	SOIL	4-30-09	1415	✓	✓	
S09V000127	(L.)					
S09U000135	(H.)					
Lot #				B1F0110	B9075011V13	

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne Larry Rosanne	4-30-09/ 1510	Tim Mock Tim Mock	4/30/09 1510
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-025	PAGE 2 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-007	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg61	ACTUAL SAMPLE DEPTH 56'-58'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-027	PAGE 1 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-007	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-5 pg 61	ACTUAL SAMPLE DEPTH 56-58'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

SPECIAL HANDLING AND/OR STORAGE
222S20090160 22°C/72°F

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1YT83 164	SOIL	4-30-09	1415	✓
S09V000175				
S09V000165				
S09V000166				

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne, Larry Rosanne	4-30-09/1510	Tul Tech Tul Tech	4/30/09 1510
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-027	PAGE 2 OF 2
COLLECTOR Rosane Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-007	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-526-3 p61	ACTUAL SAMPLE DEPTH 56'-58'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-003-009	PAGE 1 OF 1
COLLECTOR Karen White	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 7P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6404, I-005TB	PROJECT DESIGNATION WMA C Sampling for CMS - QC Sampling		SAF NO. V09-003		
ICE CHEST NO.	FIELD LOGBOOK NO. 576-3 HNF-N-576 pg 44	ACTUAL SAMPLE DEPTH N/A	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S2009C345

SPECIAL HANDLING AND/OR STORAGE
13°C/55°F

PRESERVATION	HCl or H2SO4 to pH <2/Cool~4C
TYPE OF CONTAINER	aGs*
NO. OF CONTAINER(S)	3
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1YY23	WATER	5-18-09	07:30	✓
509V000377				

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM Karen White / [illegible] 5-18-09	DATE/TIME 1455	RECEIVED BY/STORED IN TM Gilliland / [illegible] 5-18-09	DATE/TIME 1455
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
(1)VOA - 8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

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

A-6003-618(01/06)

Appendix 5

Data Validation Supporting Documentation

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: WMA C			DATA PACKAGE: VSR10-013		
VALIDATOR: Carl Schloesslin		LAB: 222-S Laboratory		DATE: 4-28-2010	
			SDG: 20090160		
ANALYSES PERFORMED					
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270 X		SW-846 8270 (TCLP)

SAMPLES/MATRIX
Soil samples B1YT71, B1YT74, B1YT77, B1YT80, B1YT83

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? ..... Yes (No) N/A

Comments: None

2. INSTRUMENT TUNING AND CALIBRATION (Levels D and E)

GC/MS tuning/performance check acceptable? ..... Yes No (N/A)

Initial calibrations acceptable? ..... Yes No (N/A)

Continuing calibrations acceptable? ..... Yes No (N/A)

Standards traceable? ..... Yes No (N/A)

Standards expired? ..... Yes No (N/A)

Calculation check acceptable? ..... Yes No (N/A)

Comments:

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. BLANKS (Levels B, C, D, and E)

Calibration blanks analyzed? (Levels D, E) ..... Yes No N/A

Calibration blank results acceptable? (Levels D, E) ..... Yes No N/A

Laboratory blanks analyzed? ..... Yes No N/A

Laboratory blank results acceptable? ..... Yes No N/A

Field/trip blanks analyzed? (Levels C, D, E) ..... Yes No N/A

Field/trip blank results acceptable? (Levels C, D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: None

4. ACCURACY (Levels C, D, and E)

Surrogates/system monitoring compounds analyzed? ..... Yes No N/A

Surrogate/system monitoring compound recoveries acceptable? ..... Yes No N/A

Surrogates traceable? (Levels D, E) ..... Yes No N/A

Surrogates expired? (Levels D, E) ..... Yes No N/A

MS/MSD samples analyzed? ..... Yes No N/A

MS/MSD results acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards? (Levels D, E) ..... Yes No N/A

LCS/BSS samples analyzed? ..... Yes No N/A

LCS/BSS results acceptable? ..... Yes No N/A

Standards traceable? (Levels D, E) ..... Yes No N/A

Standards expired? (Levels D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Performance audit sample(s) analyzed? ..... Yes No N/A

Performance audit sample results acceptable? ..... Yes No N/A

Comments:

Batch 14169 surrogate terphenyl-d14 recoveries: MB 60%, LCS 63%, MS 65%, MSD 63%, B1YT77 62%
Batch 14169 LCS recoveries: 1,2,4-trichlorobenzene 69%; 1,4-dichlorobenzene 68%; 4-chloro-3-methylphenol 67%; 2-chlorophenol 65%; n-ninitrosodipropylamine 61%; phenol 67%; pentachlorophenol 61%.
Batch 14169 MS/MSD recoveries: 1,2,4-trichlorobenzene 60%/59%; 1,4-dichlorobenzene 57%/56%; 4-chloro-3-methylphenol 67%/66%; 2-chlorophenol 57%/56%; n-ninitrosodipropylamine 55%/55%; phenol 60%/59%; acenaphthene 64%/63%.

See additional comments sheet for more accuracy infractions.

GC/MS ORGANIC DATA VALIDATION CHECKLIST

5. PRECISION (Levels C, D, and E)

MS/MSD samples analyzed? ..... Yes No N/A

MS/MSD RPD values acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards expired? (Levels D, E) ..... Yes No N/A

Field duplicate RPD values acceptable? ..... Yes No N/A

Field split RPD values acceptable? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: None

6. SYSTEM PERFORMANCE (Levels D and E)

Internal standards analyzed? ..... Yes No N/A

Iinternal standard areas acceptable? ..... Yes No N/A

Internal standard retention times acceptable? ..... Yes No N/A

Standards traceable? ..... Yes No N/A

Standards expired? ..... Yes No N/A

Transcription/calculation errors? ..... Yes No N/A

Comments:

7. HOLDING TIMES (all levels)

Samples properly preserved? ..... Yes No N/A

Sample holding times acceptable? ..... Yes No N/A

Comments: None

GC/MS ORGANIC DATA VALIDATION CHECKLIST

8. COMPOUND IDENTIFICATION, QUANTITATION, AND DETECTION LIMITS (all levels)

Compound identification acceptable? (Levels D, E) ..... Yes No N/A

Compound quantitation acceptable? (Levels D, E) ..... Yes No N/A

Results reported for all requested analyses? ..... Yes No N/A

Results supported in the raw data? (Levels D, E) ..... Yes No N/A

Samples properly prepared? (Levels D, E) ..... Yes No N/A

Laboratory properly identified and coded all TIC? (Levels D, E) ..... Yes No N/A

Detection limits meet RDL? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments:

COC analyte monobutyl phosphate not reported.

MDLs > CRDLs [or Target Detection Limits (TDLs) when CRDLs not provided in the SAP].
Cyclohexanone TDL = 500 ug/kg - B1YT71 MDL = 526, B1YT74 MDL = 560, B1YT77 MDL = 705, B1YT80 MDL = 553, B1YT83 MDL = 569

9. SAMPLE CLEANUP (Levels D and E)

GPC cleanup performed? ..... Yes No N/A

GPC check performed? ..... Yes No N/A

GPC check recoveries acceptable? ..... Yes No N/A

GPC calibration performed? ..... Yes No N/A

GPC calibration check performed? ..... Yes No N/A

GPC calibration check retention times acceptable? ..... Yes No N/A

Check/calibration materials traceable? ..... Yes No N/A

Check/calibration materials Expired? ..... Yes No N/A

Analytical batch QC given similar cleanup? ..... Yes No N/A

Transcription/Calculation Errors? ..... Yes No N/A

Comments:

GC/MS ORGANIC DATA VALIDATION CHECKLIST

Comments (attach additional sheets as necessary):

Additional Accuracy Infractions

Batch 14181 LCS recoveries: 1,4-dichlorobenzene 69%; 2-chlorophenol 67%; n-ninitrosodipropylamine 66%; phenol 69%.
Batch 14181 MS/MSD recoveries: 1,2,4-trichlorobenzene 65%/67%; 1,4-dichlorobenzene 62%/62%; 2-chlorophenol 61%/62%; n-ninitrosodipropylamine 60%/61%; phenol 64%/67%.
Batch 14528 MS/MSD recoveries: n-ninitrosodipropylamine 69%/69%;

For all batches, pyridine, tributyl phosphate, 2-ethoxyethanol, cyclohexanone, n-nitrosomorpholine and isobutanol not represented in LCSs and MS/MSDs.

Appendix 6

Additional Documentation Requested By Client

LABCORE Completed Batch Report for Batch# 00014169

Analyst: Ojanen, Carol

Book#: SEE BENCHSHEET

Instrument: GCMSD5 (TUVOK) for SVOA

Method: SVOA 222S #2, LA-523-135 Rev/Mod C-0

Specification: C Farm WMA C

Prep Batch: 00013981

Batch Comment: C-Farm WMA C, SVOA, Sol, Prep. Batch 13981, Group 20090160

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1																
1	BLNK	S0904280002		0 0	O	1,2,4-Trichlorobenzene	SOLID		<7.7400E+02			774	ug/Kg			U
1	BLNK	S0904280002		0 0	O	1,2-Dichlorobenzene	SOLID		<1.0070E+03			1.01E+03	ug/Kg			U
1	BLNK	S0904280002		0 0	O	1,4-Dichlorobenzene	SOLID		<1.1330E+03			1.13E+03	ug/Kg			U
1	BLNK	S0904280002		0 0	O	2,4-Dinitrotoluene	SOLID		<3.8100E+02			381	ug/Kg			U
1	BLNK	S0904280002		0 0	O	2,4,5-Trichlorophenol	SOLID		<4.4000E+02			440	ug/Kg			U
1	BLNK	S0904280002		0 0	O	2,4,6-Trichlorophenol	SOLID		<4.9500E+02			495	ug/Kg			U
1	BLNK	S0904280002		0 0	O	2-Methylphenol	SOLID		<5.7500E+02			575	ug/Kg			U
1	BLNK	S0904280002		0 0	O	2-Nitrophenol	SOLID		<5.3700E+02			537	ug/Kg			U
1	BLNK	S0904280002		0 0	O	3 & 4 Methylphenol Total	SOLID		<5.1400E+02			514	ug/Kg			U
1	BLNK	S0904280002		0 0	O	Acenaphthene	SOLID		<1.7600E+02			176	ug/Kg			U
1	BLNK	S0904280002		0 0	O	Benzo(a)anthracene	SOLID		<3.7800E+02			378	ug/Kg			U
1	BLNK	S0904280002		0 0	O	Benzo(b)fluoranthene	SOLID		<4.8900E+02			489	ug/Kg			U
1	BLNK	S0904280002		0 0	O	Benzo(a)pyrene	SOLID		<4.1200E+02			412	ug/Kg			U
1	BLNK	S0904280002		0 0	O	bis(2-Ethylhexyl)phthalate	SOLID		<5.9020E+03			5.90E+03	ug/Kg			U
1	BLNK	S0904280002		0 0	O	Benzo(k)fluoranthene	SOLID		<3.9100E+02			391	ug/Kg			U
1	BLNK	S0904280002		0 0	O	Butylbenzylphthalate	SOLID		<5.0000E+02			500	ug/Kg			U
1	BLNK	S0904280002		0 0	O	4-Chloro-3-methylphenol	SOLID		<4.3200E+02			432	ug/Kg			U
1	BLNK	S0904280002		0 0	O	2-Chlorophenol	SOLID		<6.6500E+02			665	ug/Kg			U
1	BLNK	S0904280002		0 0	O	Chrysene	SOLID		<8.1400E+02			814	ug/Kg			U
1	BLNK	S0904280002		0 0	O	Dibenz(a,h)anthracene	SOLID		<5.1100E+02			511	ug/Kg			U
1	BLNK	S0904280002		0 0	O	Di-n-butylphthalate	SOLID		<5.6230E+03			5.62E+03	ug/Kg			U
1	BLNK	S0904280002		0 0	O	Di-n-octylphthalate	SOLID		<4.7700E+02			477	ug/Kg			U
1	BLNK	S0904280002		0 0	O	N-Nitrosodipropylamine	SOLID		<5.8100E+02			581	ug/Kg			U
1	BLNK	S0904280002		0 0	O	Fluoranthene	SOLID		<3.5400E+02			354	ug/Kg			U
1	BLNK	S0904280002		0 0	O	Hexachlorobutadiene	SOLID		<6.9700E+02			697	ug/Kg			U
1	BLNK	S0904280002		0 0	O	Hexachloroethane	SOLID		<1.1180E+03			1.12E+03	ug/Kg			U
1	BLNK	S0904280002		0 0	O	Indeno(1,2,3-cd)pyrene	SOLID		<5.1000E+02			510	ug/Kg			U
1	BLNK	S0904280002		0 0	O	Phenol	SOLID		<5.9400E+02			594	ug/Kg			U

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014169

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
1	BLNK	S0904280002		0 0	O	Naphthalene	SOLID		<6.2600E+02			626	ug/Kg			U
1	BLNK	S0904280002		0 0	O	Nitrobenzene	SOLID		<6.4600E+02			646	ug/Kg			U
1	BLNK	S0904280002		0 0	O	4-Nitrophenol	SOLID		<5.2600E+02			526	ug/Kg			U
1	BLNK	S0904280002		0 0	O	Pentachlorophenol	SOLID		<3.7500E+02			375	ug/Kg			U
1	BLNK	S0904280002		0 0	O	Pyrene	SOLID		<6.2900E+02			629	ug/Kg			U
1	BLNK	S0904280002		0 0	O	Pyridine	SOLID		<6.5000E+02			650	ug/Kg			U
1	BLNK	S0904280002		0 0	O	Tri-n-butylphosphate	SOLID		<1.0780E+03			1.08E+03	ug/Kg			U
2	BLNK	S0904280002		0 1	O	2,6 bis-4Methylphenol	SOLID		<2.3560E+03			2.36E+03	ug/Kg			U
2	BLNK	S0904280002		0 1	O	2-Ethoxyethanol	SOLID		<1.8240E+03			1.82E+03	ug/Kg			U
1	BLNK	S0904280002		0 0	O	Methylphenols, Total	SOLID		<1.0660E+03			1.07E+03	ug/Kg			U
2	BLNK	S0904280002		0 1	O	Cyclohexanone	SOLID		<5.5910E+03			5.59E+03	ug/Kg			U
2	BLNK	S0904280002		0 1	O	N-Nitrosomorpholine	SOLID		<1.9130E+03			1.91E+03	ug/Kg			U
2	BLNK	S0904280002		0 1	O	Isobutanol	SOLID		<4.6030E+03			4.60E+03	ug/Kg			U
1	BLNK	S0904280002		0 0	O	2-Fluorobiphenyl	SOLID	20000	1.2939E+04			494.81	ug/Kg	64.695	% Recovery	
1	BLNK	S0904280002		0 0	O	2-Fluorophenol	SOLID	40000	2.3455E+04			739	ug/Kg	58.638	% Recovery	
1	BLNK	S0904280002		0 0	O	Nitrobenzene-d5	SOLID	20000	1.2358E+04			680.7	ug/Kg	61.79	% Recovery	
1	BLNK	S0904280002		0 0	O	Phenol-d5	SOLID	40000	2.5154E+04			636.78	ug/Kg	62.885	% Recovery	
1	BLNK	S0904280002		0 0	O	2,4,6-Tribromophenol	SOLID	40000	2.3562E+04			589.07	ug/Kg	58.905	% Recovery	
1	BLNK	S0904280002		0 0	O	Terphenyl-d14	SOLID	20000	1.1987E+04			521.38	ug/Kg	59.935	% Recovery	
2	BLNK	S0904280002		0 1	O	Cyclohexane	SOLID		2025.5112				ug/Kg			JNT
2	BLNK	S0904280002		0 1	O	Cyclohexene	SOLID		396160.15				ug/Kg			JNT
2	BLNK	S0904280002		0 1	O	Trichloromethane	SOLID		25361.961				ug/Kg			JNT
1	BLNK	S0904280002		0 0	O	Unknown-1	SOLID		4066.8857				ug/Kg			JT
Sample Sequence 3																
3	LCS	S0904280003		0 0	O	1,2,4-Trichlorobenzene	SOLID	20000	1.3888E+04			774	ug/Kg	69.44	% Recovery	
3	LCS	S0904280003		0 0	O	1,4-Dichlorobenzene	SOLID	20000	1.3502E+04			1.13E+03	ug/Kg	67.51	% Recovery	
3	LCS	S0904280003		0 0	O	2,4-Dinitrotoluene	SOLID	20000	1.4018E+04			381	ug/Kg	70.09	% Recovery	
3	LCS	S0904280003		0 0	O	Acenaphthene	SOLID	20000	1.3937E+04			176	ug/Kg	69.685	% Recovery	
3	LCS	S0904280003		0 0	O	4-Chloro-3-methylphenol	SOLID	40000	2.6730E+04			432	ug/Kg	66.825	% Recovery	
3	LCS	S0904280003		0 0	O	2-Chlorophenol	SOLID	40000	2.5998E+04			665	ug/Kg	64.995	% Recovery	
3	LCS	S0904280003		0 0	O	N-Nitrosodipropylamine	SOLID	20000	1.2189E+04			581	ug/Kg	60.945	% Recovery	
3	LCS	S0904280003		0 0	O	Phenol	SOLID	40000	2.6921E+04			594	ug/Kg	67.302	% Recovery	
3	LCS	S0904280003		0 0	O	4-Nitrophenol	SOLID	40000	2.8163E+04			526	ug/Kg	70.408	% Recovery	
3	LCS	S0904280003		0 0	O	Pentachlorophenol	SOLID	40000	2.4462E+04			375	ug/Kg	61.155	% Recovery	
3	LCS	S0904280003		0 0	O	Pyrene	SOLID	20000	1.4076E+04			629	ug/Kg	70.38	% Recovery	
3	LCS	S0904280003		0 0	O	2-Fluorobiphenyl	SOLID	20000	1.2946E+04			494.81	ug/Kg	64.73	% Recovery	
3	LCS	S0904280003		0 0	O	2-Fluorophenol	SOLID	40000	2.3763E+04			739	ug/Kg	59.408	% Recovery	
3	LCS	S0904280003		0 0	O	Nitrobenzene-d5	SOLID	20000	1.2370E+04			680.7	ug/Kg	61.85	% Recovery	
3	LCS	S0904280003		0 0	O	Phenol-d5	SOLID	40000	2.4520E+04			636.78	ug/Kg	61.3	% Recovery	
3	LCS	S0904280003		0 0	O	2,4,6-Tribromophenol	SOLID	40000	2.4230E+04			589.07	ug/Kg	60.575	% Recovery	
3	LCS	S0904280003		0 0	O	Terphenyl-d14	SOLID	20000	1.2661E+04			521.38	ug/Kg	63.305	% Recovery	

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014169

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 4																
4	SAMPLE	S09V000181		0 0	O	1,2,4-Trichlorobenzene	SOLID	N/A	<9.7653E+01			97.653	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	1,2-Dichlorobenzene	SOLID	N/A	<1.2705E+02			127.05	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	1,4-Dichlorobenzene	SOLID	N/A	<1.4295E+02			142.95	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	2,4-Dinitrotoluene	SOLID	N/A	<4.8070E+01			48.07	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	2,4,5-Trichlorophenol	SOLID	N/A	<5.5513E+01			55.513	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	2,4,6-Trichlorophenol	SOLID	N/A	<6.2453E+01			62.453	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	2-Methylphenol	SOLID	N/A	<7.2546E+01			72.546	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	2-Nitrophenol	SOLID	N/A	<6.7752E+01			67.752	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	3 & 4 Methylphenol Total	SOLID	N/A	<6.4850E+01			64.85	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	Acenaphthene	SOLID	N/A	<2.2205E+01			22.205	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	Benzo(a)anthracene	SOLID	N/A	<4.7691E+01			47.691	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	Benzo(b)fluoranthene	SOLID	N/A	<6.1696E+01			61.696	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	Benzo(a)pyrene	SOLID	N/A	<5.1981E+01			51.981	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	bis(2-Ethylhexyl)phthalate	SOLID	N/A	<7.4464E+02			744.64	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	Benzo(k)fluoranthene	SOLID	N/A	<4.9331E+01			49.331	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	Butylbenzylphthalate	SOLID	N/A	<6.3084E+01			63.084	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	4-Chloro-3-methylphenol	SOLID	N/A	<5.4504E+01			54.504	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	2-Chlorophenol	SOLID	N/A	<8.3901E+01			83.901	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	Chrysene	SOLID	N/A	<1.0270E+02			102.7	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	Dibenz(a,h)anthracene	SOLID	N/A	<6.4471E+01			64.471	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	Di-n-butylphthalate	SOLID	N/A	<7.0944E+02			709.44	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	Di-n-octylphthalate	SOLID	N/A	<6.0182E+01			60.182	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	N-Nitrosodipropylamine	SOLID	N/A	<7.3303E+01			73.303	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	Fluoranthene	SOLID	N/A	<4.4663E+01			44.663	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	Hexachlorobutadiene	SOLID	N/A	<8.7938E+01			87.938	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	Hexachloroethane	SOLID	N/A	<1.4105E+02			141.05	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	Indeno(1,2,3-cd)pyrene	SOLID	N/A	<6.4345E+01			64.345	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	Phenol	SOLID	N/A	<7.4943E+01			74.943	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	Naphthalene	SOLID	N/A	<7.8981E+01			78.981	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	Nitrobenzene	SOLID	N/A	<8.1504E+01			81.504	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	4-Nitrophenol	SOLID	N/A	<6.6364E+01			66.364	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	Pentachlorophenol	SOLID	N/A	<4.7313E+01			47.313	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	Pyrene	SOLID	N/A	<7.9359E+01			79.359	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	Pyridine	SOLID	N/A	<8.2009E+01			82.009	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	Tri-n-butylphosphate	SOLID	N/A	<1.3601E+02			136.01	ug/Kg			U
5	SAMPLE	S09V000181		0 1	O	2,6 bis-4Methylphenol	SOLID	N/A	<2.9725E+02			297.25	ug/Kg			U
5	SAMPLE	S09V000181		0 1	O	2-Ethoxyethanol	SOLID	N/A	<2.3013E+02			230.13	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	Methylphenols, Total	SOLID	N/A	<1.3449E+02			134.49	ug/Kg			U

Units shown for QC (BLK/BKG) may not reflect the actual units.

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014169

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
5	SAMPLE	S09V000181		0 1	O	Cyclohexanone	SOLID	N/A	<7.0540E+02			705.4	ug/Kg			U
5	SAMPLE	S09V000181		0 1	O	N-Nitrosomorpholine	SOLID	N/A	<2.4136E+02			241.36	ug/Kg			U
5	SAMPLE	S09V000181		0 1	O	Isobutanol	SOLID	N/A	<5.8075E+02			580.75	ug/Kg			U
4	SAMPLE	S09V000181		0 0	O	2-Fluorobiphenyl	SOLID	2523.34	1.3023E+03			494.81	ug/Kg	51.61	% Recovery	
4	SAMPLE	S09V000181		0 0	O	2-Fluorophenol	SOLID	5046.681	2.3268E+03			739	ug/Kg	46.106	% Recovery	
4	SAMPLE	S09V000181		0 0	O	Nitrobenzene-d5	SOLID	2523.34	1.2557E+03			680.7	ug/Kg	49.763	% Recovery	
4	SAMPLE	S09V000181		0 0	O	Phenol-d5	SOLID	5046.681	2.5735E+03			636.78	ug/Kg	50.994	% Recovery	
4	SAMPLE	S09V000181		0 0	O	2,4,6-Tribromophenol	SOLID	5046.681	2.8879E+03			589.07	ug/Kg	57.224	% Recovery	
4	SAMPLE	S09V000181		0 0	O	Terphenyl-d14	SOLID	2523.34	1.5596E+03			521.38	ug/Kg	61.807	% Recovery	
4	SAMPLE	S09V000181		0 0	O	Unknown-1	SOLID		602.7122				ug/Kg			BJT
Sample Sequence 6																
6	MS	S0904280005	S09V000181	0 0	O	1,2,4-Trichlorobenzene	SOLID	2658.16	1.5864E+03			102.87	ug/Kg	59.68	% Recovery	
6	MS	S0904280005	S09V000181	0 0	O	1,4-Dichlorobenzene	SOLID	2658.16	1.5158E+03			150.58	ug/Kg	57.024	% Recovery	
6	MS	S0904280005	S09V000181	0 0	O	2,4-Dinitrotoluene	SOLID	2658.16	1.9195E+03			50.638	ug/Kg	72.212	% Recovery	
6	MS	S0904280005	S09V000181	0 0	O	Acenaphthene	SOLID	2658.16	1.6884E+03			23.392	ug/Kg	63.518	% Recovery	
6	MS	S0904280005	S09V000181	0 0	O	4-Chloro-3-methylphenol	SOLID	5316.321	3.5797E+03			57.416	ug/Kg	67.334	% Recovery	
6	MS	S0904280005	S09V000181	0 0	O	2-Chlorophenol	SOLID	5316.321	3.0187E+03			88.384	ug/Kg	56.782	% Recovery	
6	MS	S0904280005	S09V000181	0 0	O	N-Nitrosodipropylamine	SOLID	2658.16	1.4517E+03			77.22	ug/Kg	54.613	% Recovery	
6	MS	S0904280005	S09V000181	0 0	O	Phenol	SOLID	5316.321	3.1750E+03			78.947	ug/Kg	59.722	% Recovery	
6	MS	S0904280005	S09V000181	0 0	O	4-Nitrophenol	SOLID	5316.321	4.0336E+03			69.91	ug/Kg	75.872	% Recovery	
6	MS	S0904280005	S09V000181	0 0	O	Pentachlorophenol	SOLID	5316.321	3.7507E+03			49.841	ug/Kg	70.551	% Recovery	
6	MS	S0904280005	S09V000181	0 0	O	Pyrene	SOLID	2658.16	1.9339E+03			83.599	ug/Kg	72.753	% Recovery	
6	MS	S0904280005	S09V000181	0 0	O	2-Fluorobiphenyl	SOLID	2658.16	1.4751E+03			494.81	ug/Kg	55.493	% Recovery	
6	MS	S0904280005	S09V000181	0 0	O	2-Fluorophenol	SOLID	5316.321	2.7570E+03			739	ug/Kg	51.859	% Recovery	
6	MS	S0904280005	S09V000181	0 0	O	Nitrobenzene-d5	SOLID	2658.16	1.4347E+03			680.7	ug/Kg	53.973	% Recovery	
6	MS	S0904280005	S09V000181	0 0	O	Phenol-d5	SOLID	5316.321	2.9406E+03			636.78	ug/Kg	55.313	% Recovery	
6	MS	S0904280005	S09V000181	0 0	O	2,4,6-Tribromophenol	SOLID	5316.321	3.4723E+03			589.07	ug/Kg	65.314	% Recovery	
6	MS	S0904280005	S09V000181	0 0	O	Terphenyl-d14	SOLID	2658.16	1.7344E+03			521.38	ug/Kg	65.248	% Recovery	
Sample Sequence 7																
7	MSD	S0904280006	S09V000181	0 0	O	1,2,4-Trichlorobenzene	SOLID	2436.944	1.4334E+03			94.31	ug/Kg	58.82	% Recovery	
														1.4515	% RPD	
7	MSD	S0904280006	S09V000181	0 0	O	1,4-Dichlorobenzene	SOLID	2436.944	1.3758E+03			138.05	ug/Kg	56.456	% Recovery	J
														1.0011	% RPD	
7	MSD	S0904280006	S09V000181	0 0	O	2,4-Dinitrotoluene	SOLID	2436.944	1.7568E+03			46.424	ug/Kg	72.09	% Recovery	
														0.16909	% RPD	
7	MSD	S0904280006	S09V000181	0 0	O	Acenaphthene	SOLID	2436.944	1.5304E+03			21.445	ug/Kg	62.8	% Recovery	
														1.1368	% RPD	
7	MSD	S0904280006	S09V000181	0 0	O	4-Chloro-3-methylphenol	SOLID	4873.888	3.1940E+03			52.638	ug/Kg	65.533	% Recovery	
														2.7110	% RPD	
7	MSD	S0904280006	S09V000181	0 0	O	2-Chlorophenol	SOLID	4873.888	2.7178E+03			81.028	ug/Kg	55.762	% Recovery	

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LABCORE Completed Batch Report for Batch# 00014169

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
														1.8126	% RPD	
7	MSD	S0904280006	S09V000181	0 0	O	N-Nitrosodipropylamine	SOLID	2436.944	1.3331E+03			70.793	ug/Kg	54.704	% Recovery	
														0.16649	% RPD	
7	MSD	S0904280006	S09V000181	0 0	O	Phenol	SOLID	4873.888	2.8655E+03			72.377	ug/Kg	58.793	% Recovery	
														1.5677	% RPD	
7	MSD	S0904280006	S09V000181	0 0	O	4-Nitrophenol	SOLID	4873.888	3.6454E+03			64.092	ug/Kg	74.794	% Recovery	
														1.4310	% RPD	
7	MSD	S0904280006	S09V000181	0 0	O	Pentachlorophenol	SOLID	4873.888	3.3982E+03			45.693	ug/Kg	69.723	% Recovery	
														1.1805	% RPD	
7	MSD	S0904280006	S09V000181	0 0	O	Pyrene	SOLID	2436.944	1.7313E+03			76.642	ug/Kg	71.044	% Recovery	
														2.3770	% RPD	
7	MSD	S0904280006	S09V000181	0 0	O	2-Fluorobiphenyl	SOLID	2436.944	1.3618E+03			494.81	ug/Kg	55.881	% Recovery	
														0.69675	% RPD	
7	MSD	S0904280006	S09V000181	0 0	O	2-Fluorophenol	SOLID	4873.888	2.5031E+03			739	ug/Kg	51.357	% Recovery	
														0.97272	% RPD	
7	MSD	S0904280006	S09V000181	0 0	O	Nitrobenzene-d5	SOLID	2436.944	1.2875E+03			680.7	ug/Kg	52.833	% Recovery	
														2.1347	% RPD	
7	MSD	S0904280006	S09V000181	0 0	O	Phenol-d5	SOLID	4873.888	2.6425E+03			636.78	ug/Kg	54.217	% Recovery	
														2.0013	% RPD	
7	MSD	S0904280006	S09V000181	0 0	O	2,4,6-Tribromophenol	SOLID	4873.888	3.1763E+03			589.07	ug/Kg	65.17	% Recovery	
														0.22072	% RPD	
7	MSD	S0904280006	S09V000181	0 0	O	Terphenyl-d14	SOLID	2436.944	1.5407E+03			521.38	ug/Kg	63.223	% Recovery	
														3.1525	% RPD	

Comments Section:

Data Flagger Status:
Flagging Completed

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014169

Final Page for Batch# 00014169

Carol J. Opinen 9/23/09
Analyst Signature Date

Data Entry Signature 9/23/09
Date

Reviewer Signature 9/23/09
Date

QM Reviewer: Dell S Peterson 9/23/09

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014169

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0904280002	BLNK				
2	S0904280002	BLNK				
3	S0904280003	LCS				
4	S09V000181	SAMPLE		20090160	B1YT77	C Farm WMA C
5	S09V000181	SAMPLE		20090160	B1YT77	C Farm WMA C
6	S0904280005	MS	S09V000181			
7	S0904280006	MSD	S09V000181			

Units shown for QC (BLK/BKG) may not reflect the actual units.

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00013981

Analyst: Fabre, Martha

Book#: see Bench Sheet

Instrument: SOXHLET EXTRACTORS

Method: ORGANIC EXT.-SVOA SOLIDS, LA-523-138 Rev/Mod F-0

Specification: C Farm WMA C

Prep Batch:

Batch Comment: Vadose Zone: C Farm, SVOA Sol, Group # 20090160

Seq	Type	Sample#	Assoc. Sample RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
1	BLNK	S0904280002		O	Extraction Complete	SOLID		Complete							
2	LCS	S0904280003		O	Extraction Complete	SOLID		Complete					N/A		
3	SAMPLE	S09V000181		O	Extraction Complete	SOLID	N/A	Complete							
4	MS	S0904280005	S09V000181	O	Extraction Complete	SOLID		Complete					N/A		
5	MSD	S0904280006	S09V000181	O	Extraction Complete	SOLID		Complete					N/A		

Comments Section:

Data Flagger Status:
Flagger Not Run

Final Page for Batch# 00013981

Martha Fabre — 5-4-09
Analyst Signature **Date**

[illegible] — 5/4/09
Data Entry Signature **Date**

[illegible] — 5/4/09
Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed Batch Report for Batch# 00013981

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0904280002	BLNK				
2	S0904280003	LCS				
3	S09V000181	SAMPLE		20090160	B1YT77	C Farm WMA C
4	S0904280005	MS	S09V000181			
5	S0904280006	MSD	S09V000181			

Units shown for QC (BLK/BKG) may not reflect the actual units.

Comments:
Project: C Farm
Analytical Batch: 14109
Prep Batch: 13981

09043010.D BLANK bc 782 blank
Surrogate Failure:
Terphenyl-d14, Recovery: 60
Limits Range: 71 - 175

09043011.D LCS bc 783 LCS
Surrogate Failure:
Terphenyl-d14, Recovery: 63
Limits Range: 71 - 175

09043012.D SAMPLE bc 784 S09V000181-SAM
Surrogate Failure:
Terphenyl-d14, Recovery: 62
Limits Range: 71 - 175

09043013.D MS bc 785 S09V000181-MS
Surrogate Failure:
Terphenyl-d14, Recovery: 65
Limits Range: 71 - 175

09043014.D MSD bc 786 S09V000181-MSD
Surrogate Failure:
Terphenyl-d14, Recovery: 63
Limits Range: 71 - 175
Below the Limits of Quantitation:
1,4-Dichlorobenzene,
Concentration: 1375.8, LOQ: 1380.5
Result is flagged with a "J"

The following compounds were analyzed separately using a different calibration curve. They are highlighted on the LIMS Upload Report.

2,6-Bis(tetbutly)-4-methlyphenol
2-Ethoxyethanol
Cyclohexanone
Isobutylalcohol
n-Nitrosomorpholine

The non highlighted compounds were not entered into the LIMS and do not have the correct Adj. MDL or LOQ listed on this LIMS Upload Report.

SVOA BENCH SHEET

No PCBs

PROJECT:	Vadose Zone: C Farm	extraction **START** 4/28/2009	14:40
Batch Number	13981	extraction **FINISH** 4/29/09	08:37
Matrix	Solid	**Balance Used:** LE-BAL-026	checked cal ✓
Extraction Procedure:	LA-523-138, F-0		
Extraction Analyst:	MOF/M.O.F	Date sent to counting room	4-29-09
		Project Manager:	JR Ritenour

Sample number	*Parent Samp #*	*MASS*	*bar code #*	COMMENTS	final volume
1) BLANK	N/A	2g	782		2 mL MeCl2
2) LCS	N/A	2g	783		2 mL MeCl2
3)S09V000181 -SAM	S09V000173	15.852	784		2 mL MeCl2
4)S09V000181 -MS	S09V000173	15.048	785		2 mL MeCl2
5)S09V000181 -MSD	S09V000173	16.114	786		2 mL MeCl2
Samples split out for T/C analysis. Added 2.5 µl Int. Std. HNF-N-1893-85.01 CJD 5/21/09					
50:50 DMK:DCM			No Bar code	methylene chloride: Acetone mix	1/mL
check Std 2			788	made w 50:50 MeCl2:Acetone	1 mL MeCl2
check std	N/A		787	Amount of STD 20µL SURR 20µL	1 mL MeCl2
Comments & observations	Group # 20090160			~~Moisture~~ 4/28/09 ~~Samples~~ Dryer samples filled thimbles	

could not get as much as earlier batch

Samples split out and added 2.5µl I.S. HNF-N-1893-85.01 to each. Ran on Tuvok 4-30-09 CJD

Check stds split out and added 2.5µl of I.S. HNF-N-189-3-85.01 to ea. Ran on Tuvok 4-30-09 CJD

SURR NAME	VOLUME (mL)	ID NUMBER	CONC.	MATRIX SPIKE NAME	VOLUME (mL)	ID NUMBER	CONC.
SVOA B/N SURR	0.040	cat# 31024 lot# A058129	1000 ppm	B/N MATRIX SPIKE	0.040	cat# 31004 lot# A055381	1000 ppm
Date opened	4-28-09			Date opened	3-24-09		
ACID SURR	0.040	cat# 31025 lot# A060492	2000 ppm	ACID MATRIX SPIKE	0.040	cat# 31014 lot# A047360	2000 ppm
Date opened	4-28-09			Date opened	3-24-09		
Methylene Chloride lot#	L40408 EXP: 1/31/2010						

4/28/2009 10:32 AM

FILE: 13981 vadose zone C farm SVOA SOL.xls

LABCORE Completed Batch Report for Batch# 00014181

Analyst: Ojanen, Carol **Book#:**

Instrument: GCMSD5 (TUVOK) for SVOA

Method: SVOA 222S #2, LA-523-135 Rev/Mod C-0

Specification: C Farm WMA C

Prep Batch: 00013886

Batch Comment:

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 BLNK	S0904220028		0 0	O	1,2,4-Trichlorobenzene	SOLID		<7.7400E+02			774	ug/Kg			U
1 BLNK	S0904220028		0 0	O	1,2-Dichlorobenzene	SOLID		<1.0070E+03			1.01E+03	ug/Kg			U
1 BLNK	S0904220028		0 0	O	1,4-Dichlorobenzene	SOLID		<1.1330E+03			1.13E+03	ug/Kg			U
1 BLNK	S0904220028		0 0	O	2,4-Dinitrotoluene	SOLID		<3.8100E+02			381	ug/Kg			U
1 BLNK	S0904220028		0 0	O	2,4,5-Trichlorophenol	SOLID		<4.4000E+02			440	ug/Kg			U
1 BLNK	S0904220028		0 0	O	2,4,6-Trichlorophenol	SOLID		<4.9500E+02			495	ug/Kg			U
1 BLNK	S0904220028		0 0	O	2-Methylphenol	SOLID		<5.7500E+02			575	ug/Kg			U
1 BLNK	S0904220028		0 0	O	2-Nitrophenol	SOLID		<5.3700E+02			537	ug/Kg			U
1 BLNK	S0904220028		0 0	O	3 & 4 Methylphenol Total	SOLID		<5.1400E+02			514	ug/Kg			U
1 BLNK	S0904220028		0 0	O	Acenaphthene	SOLID		<1.7600E+02			176	ug/Kg			U
1 BLNK	S0904220028		0 0	O	Benzo(a)anthracene	SOLID		<3.7800E+02			378	ug/Kg			U
1 BLNK	S0904220028		0 0	O	Benzo(b)fluoranthene	SOLID		<4.8900E+02			489	ug/Kg			U
1 BLNK	S0904220028		0 0	O	Benzo(a)pyrene	SOLID		<4.1200E+02			412	ug/Kg			U
1 BLNK	S0904220028		0 0	O	bis(2-Ethylhexyl)phthalate	SOLID		<5.9020E+03			5.90E+03	ug/Kg			U
1 BLNK	S0904220028		0 0	O	Benzo(k)fluoranthene	SOLID		<3.9100E+02			391	ug/Kg			U
1 BLNK	S0904220028		0 0	O	Butylbenzylphthalate	SOLID		<5.0000E+02			500	ug/Kg			U
1 BLNK	S0904220028		0 0	O	4-Chloro-3-methylphenol	SOLID		<4.3200E+02			432	ug/Kg			U
1 BLNK	S0904220028		0 0	O	2-Chlorophenol	SOLID		<6.6500E+02			665	ug/Kg			U
1 BLNK	S0904220028		0 0	O	Chrysene	SOLID		<8.1400E+02			814	ug/Kg			U
1 BLNK	S0904220028		0 0	O	Dibenz(a,h)anthracene	SOLID		<5.1100E+02			511	ug/Kg			U
1 BLNK	S0904220028		0 0	O	Di-n-butylphthalate	SOLID		<5.6230E+03			5.62E+03	ug/Kg			U
1 BLNK	S0904220028		0 0	O	Di-n-octylphthalate	SOLID		<4.7700E+02			477	ug/Kg			U
1 BLNK	S0904220028		0 0	O	N-Nitrosodipropylamine	SOLID		<5.8100E+02			581	ug/Kg			U
1 BLNK	S0904220028		0 0	O	Fluoranthene	SOLID		<3.5400E+02			354	ug/Kg			U
1 BLNK	S0904220028		0 0	O	Hexachlorobutadiene	SOLID		<6.9700E+02			697	ug/Kg			U
1 BLNK	S0904220028		0 0	O	Hexachloroethane	SOLID		<1.1180E+03			1.12E+03	ug/Kg			U
1 BLNK	S0904220028		0 0	O	Indeno(1,2,3-cd)pyrene	SOLID		<5.1000E+02			510	ug/Kg			U
1 BLNK	S0904220028		0 0	O	Phenol	SOLID		<5.9400E+02			594	ug/Kg			U

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014181

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
1	BLNK	S0904220028		0 0	O	Naphthalene	SOLID		<6.2600E+02			626	ug/Kg			U
1	BLNK	S0904220028		0 0	O	Nitrobenzene	SOLID		<6.4600E+02			646	ug/Kg			U
1	BLNK	S0904220028		0 0	O	4-Nitrophenol	SOLID		<5.2600E+02			526	ug/Kg			U
1	BLNK	S0904220028		0 0	O	Pentachlorophenol	SOLID		<3.7500E+02			375	ug/Kg			U
1	BLNK	S0904220028		0 0	O	Pyrene	SOLID		<6.2900E+02			629	ug/Kg			U
1	BLNK	S0904220028		0 0	O	Pyridine	SOLID		<6.5000E+02			650	ug/Kg			U
1	BLNK	S0904220028		0 0	O	Tri-n-butylphosphate	SOLID		<1.0780E+03			1.08E+03	ug/Kg			U
2	BLNK	S0904220028		0 1	O	2,6 bis-4Methylphenol	SOLID		<2.3560E+03			2.36E+03	ug/Kg			U
2	BLNK	S0904220028		0 1	O	2-Ethoxyethanol	SOLID		<1.8240E+03			1.82E+03	ug/Kg			U
1	BLNK	S0904220028		0 0	O	Methylphenols, Total	SOLID		<1.0660E+03			1.07E+03	ug/Kg			U
2	BLNK	S0904220028		0 1	O	Cyclohexanone	SOLID		<5.5910E+03			5.59E+03	ug/Kg			U
2	BLNK	S0904220028		0 1	O	N-Nitrosomorpholine	SOLID		<1.9130E+03			1.91E+03	ug/Kg			U
2	BLNK	S0904220028		0 1	O	Isobutanol	SOLID		<4.6030E+03			4.60E+03	ug/Kg			U
1	BLNK	S0904220028		0 0	O	2-Fluorobiphenyl	SOLID	20000	1.4625E+04			494.81	ug/Kg	73.125	% Recovery	
1	BLNK	S0904220028		0 0	O	2-Fluorophenol	SOLID	40000	2.4400E+04			739	ug/Kg	61	% Recovery	
1	BLNK	S0904220028		0 0	O	Nitrobenzene-d5	SOLID	20000	1.2911E+04			680.7	ug/Kg	64.555	% Recovery	
1	BLNK	S0904220028		0 0	O	Phenol-d5	SOLID	40000	2.5940E+04			636.78	ug/Kg	64.85	% Recovery	
1	BLNK	S0904220028		0 0	O	2,4,6-Tribromophenol	SOLID	40000	2.7861E+04			589.07	ug/Kg	69.652	% Recovery	
1	BLNK	S0904220028		0 0	O	Terphenyl-d14	SOLID	20000	1.5270E+04			521.38	ug/Kg	76.35	% Recovery	
2	BLNK	S0904220028		0 1	O	Ethene, 1,2-dichloro-,	SOLID		3181.3065				ug/Kg			JNT
2	BLNK	S0904220028		0 1	O	Oxirane, trimethyl-	SOLID		2113.7298				ug/Kg			JNT
1	BLNK	S0904220028		0 0	O	Unknown-1	SOLID		5419.8563				ug/Kg			JT
Sample Sequence 3																
3	LCS	S0904220029		0 0	O	1,2,4-Trichlorobenzene	SOLID	20000	1.4485E+04			774	ug/Kg	72.425	% Recovery	
3	LCS	S0904220029		0 0	O	1,4-Dichlorobenzene	SOLID	20000	1.3700E+04			1.13E+03	ug/Kg	68.5	% Recovery	
3	LCS	S0904220029		0 0	O	2,4-Dinitrotoluene	SOLID	20000	1.6005E+04			381	ug/Kg	80.025	% Recovery	
3	LCS	S0904220029		0 0	O	Acenaphthene	SOLID	20000	1.5381E+04			176	ug/Kg	76.905	% Recovery	
3	LCS	S0904220029		0 0	O	4-Chloro-3-methylphenol	SOLID	40000	2.8971E+04			432	ug/Kg	72.428	% Recovery	
3	LCS	S0904220029		0 0	O	2-Chlorophenol	SOLID	40000	2.6741E+04			665	ug/Kg	66.852	% Recovery	
3	LCS	S0904220029		0 0	O	N-Nitrosodipropylamine	SOLID	20000	1.3147E+04			581	ug/Kg	65.735	% Recovery	
3	LCS	S0904220029		0 0	O	Phenol	SOLID	40000	2.7675E+04			594	ug/Kg	69.188	% Recovery	
3	LCS	S0904220029		0 0	O	4-Nitrophenol	SOLID	40000	3.1936E+04			526	ug/Kg	79.84	% Recovery	
3	LCS	S0904220029		0 0	O	Pentachlorophenol	SOLID	40000	3.0515E+04			375	ug/Kg	76.288	% Recovery	
3	LCS	S0904220029		0 0	O	Pyrene	SOLID	20000	1.6082E+04			629	ug/Kg	80.41	% Recovery	
3	LCS	S0904220029		0 0	O	2-Fluorobiphenyl	SOLID	20000	1.4680E+04			494.81	ug/Kg	73.4	% Recovery	
3	LCS	S0904220029		0 0	O	2-Fluorophenol	SOLID	40000	2.4516E+04			739	ug/Kg	61.29	% Recovery	
3	LCS	S0904220029		0 0	O	Nitrobenzene-d5	SOLID	20000	1.3576E+04			680.7	ug/Kg	67.88	% Recovery	
3	LCS	S0904220029		0 0	O	Phenol-d5	SOLID	40000	2.5511E+04			636.78	ug/Kg	63.778	% Recovery	
3	LCS	S0904220029		0 0	O	2,4,6-Tribromophenol	SOLID	40000	2.8044E+04			589.07	ug/Kg	70.11	% Recovery	
3	LCS	S0904220029		0 0	O	Terphenyl-d14	SOLID	20000	1.4813E+04			521.38	ug/Kg	74.065	% Recovery	
3	LCS	S0904220029		0 0	O	Unknown-1	SOLID		3990.8018				ug/Kg	N/A		BJT

Units shown for QC (BLK/BKG) may not reflect the actual units.

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014181

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 4															
4 SAMPLE	S09V000179		0 0	O	1,2,4-Trichlorobenzene	SOLID	N/A	<7.2874E+01			72.874	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	1,2-Dichlorobenzene	SOLID	N/A	<9.4812E+01			94.812	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	1,4-Dichlorobenzene	SOLID	N/A	<1.0668E+02			106.68	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	2,4-Dinitrotoluene	SOLID	N/A	<3.5872E+01			35.872	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	2,4,5-Trichlorophenol	SOLID	N/A	<4.1427E+01			41.427	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	2,4,6-Trichlorophenol	SOLID	N/A	<4.6606E+01			46.606	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	2-Methylphenol	SOLID	N/A	<5.4138E+01			54.138	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	2-Nitrophenol	SOLID	N/A	<5.0560E+01			50.56	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	3 & 4 Methylphenol Total	SOLID	N/A	<4.8395E+01			48.395	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	Acenaphthene	SOLID	N/A	<1.6571E+01			16.571	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	Benzo(a)anthracene	SOLID	N/A	<3.5590E+01			35.59	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	Benzo(b)fluoranthene	SOLID	N/A	<4.6041E+01			46.041	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	Benzo(a)pyrene	SOLID	N/A	<3.8791E+01			38.791	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	bis(2-Ethylhexyl)phthalate	SOLID	N/A	<5.5569E+02			555.69	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	Benzo(k)fluoranthene	SOLID	N/A	<3.6814E+01			36.814	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	Butylbenzylphthalate	SOLID	N/A	<4.7077E+01			47.077	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	4-Chloro-3-methylphenol	SOLID	N/A	<4.0674E+01			40.674	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	2-Chlorophenol	SOLID	N/A	<6.2612E+01			62.612	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	Chrysene	SOLID	N/A	<7.6641E+01			76.641	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	Dibenz(a,h)anthracene	SOLID	N/A	<4.8112E+01			48.112	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	Di-n-butylphthalate	SOLID	N/A	<5.2942E+02			529.42	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	Di-n-octylphthalate	SOLID	N/A	<4.4911E+01			44.911	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	N-Nitrosodipropylamine	SOLID	N/A	<5.4703E+01			54.703	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	Fluoranthene	SOLID	N/A	<3.3330E+01			33.33	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	Hexachlorobutadiene	SOLID	N/A	<6.5625E+01			65.625	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	Hexachloroethane	SOLID	N/A	<1.0526E+02			105.26	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	Indeno(1,2,3-cd)pyrene	SOLID	N/A	<4.8018E+01			48.018	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	Phenol	SOLID	N/A	<5.5927E+01			55.927	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	Naphthalene	SOLID	N/A	<5.8940E+01			58.94	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	Nitrobenzene	SOLID	N/A	<6.0823E+01			60.823	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	4-Nitrophenol	SOLID	N/A	<4.9525E+01			49.525	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	Pentachlorophenol	SOLID	N/A	<3.5307E+01			35.307	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	Pyrene	SOLID	N/A	<5.9222E+01			59.222	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	Pyridine	SOLID	N/A	<6.1200E+01			61.2	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	Tri-n-butylphosphate	SOLID	N/A	<1.0150E+02			101.5	ug/Kg			U
5 SAMPLE	S09V000179		0 1	O	2,6 bis-4Methylphenol	SOLID	N/A	<2.2182E+02			221.82	ug/Kg			U
5 SAMPLE	S09V000179		0 1	O	2-Ethoxyethanol	SOLID	N/A	<1.7174E+02			171.74	ug/Kg			U
4 SAMPLE	S09V000179		0 0	O	Methylphenols, Total	SOLID	N/A	<1.0037E+02			100.37	ug/Kg			U

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LABCORE Completed Batch Report for Batch# 00014181

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
5	SAMPLE	S09V000179		0 1	O	Cyclohexanone	SOLID	N/A	<5.2641E+02			526.41	ug/Kg			U
5	SAMPLE	S09V000179		0 1	O	N-Nitrosomorpholine	SOLID	N/A	<1.8011E+02			180.11	ug/Kg			U
5	SAMPLE	S09V000179		0 1	O	Isobutanol	SOLID	N/A	<4.3339E+02			433.39	ug/Kg			U
4	SAMPLE	S09V000179		0 0	O	2-Fluorobiphenyl	SOLID	1883.061	1.2607E+03			494.81	ug/Kg	66.95	% Recovery	
4	SAMPLE	S09V000179		0 0	O	2-Fluorophenol	SOLID	3766.123	2.0907E+03			739	ug/Kg	55.513	% Recovery	
4	SAMPLE	S09V000179		0 0	O	Nitrobenzene-d5	SOLID	1883.061	1.1064E+03			680.7	ug/Kg	58.755	% Recovery	
4	SAMPLE	S09V000179		0 0	O	Phenol-d5	SOLID	3766.123	2.2818E+03			636.78	ug/Kg	60.588	% Recovery	
4	SAMPLE	S09V000179		0 0	O	2,4,6-Tribromophenol	SOLID	3766.123	2.8084E+03			589.07	ug/Kg	74.57	% Recovery	
4	SAMPLE	S09V000179		0 0	O	Terphenyl-d14	SOLID	1883.061	1.4634E+03			521.38	ug/Kg	77.714	% Recovery	
4	SAMPLE	S09V000179		0 0	O	Unknown-1	SOLID		385.85862				ug/Kg			BJT
Sample Sequence 6																
6	SAMPLE	S09V000180		0 0	O	1,2,4-Trichlorobenzene	SOLID	N/A	<7.7509E+01			77.509	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	1,2-Dichlorobenzene	SOLID	N/A	<1.0084E+02			100.84	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	1,4-Dichlorobenzene	SOLID	N/A	<1.1346E+02			113.46	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	2,4-Dinitrotoluene	SOLID	N/A	<3.8153E+01			38.153	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	2,4,5-Trichlorophenol	SOLID	N/A	<4.4062E+01			44.062	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	2,4,6-Trichlorophenol	SOLID	N/A	<4.9569E+01			49.569	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	2-Methylphenol	SOLID	N/A	<5.7581E+01			57.581	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	2-Nitrophenol	SOLID	N/A	<5.3775E+01			53.775	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	3 & 4 Methylphenol Total	SOLID	N/A	<5.1472E+01			51.472	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	Acenaphthene	SOLID	N/A	<1.7625E+01			17.625	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	Benzo(a)anthracene	SOLID	N/A	<3.7853E+01			37.853	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	Benzo(b)fluoranthene	SOLID	N/A	<4.8969E+01			48.969	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	Benzo(a)pyrene	SOLID	N/A	<4.1258E+01			41.258	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	bis(2-Ethylhexyl)phthalate	SOLID	N/A	<5.9103E+02			591.03	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	Benzo(k)fluoranthene	SOLID	N/A	<3.9155E+01			39.155	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	Butylbenzylphthalate	SOLID	N/A	<5.0070E+01			50.07	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	4-Chloro-3-methylphenol	SOLID	N/A	<4.3261E+01			43.261	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	2-Chlorophenol	SOLID	N/A	<6.6593E+01			66.593	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	Chrysene	SOLID	N/A	<8.1514E+01			81.514	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	Dibenz(a,h)anthracene	SOLID	N/A	<5.1172E+01			51.172	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	Di-n-butylphthalate	SOLID	N/A	<5.6309E+02			563.09	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	Di-n-octylphthalate	SOLID	N/A	<4.7767E+01			47.767	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	N-Nitrosodipropylamine	SOLID	N/A	<5.8181E+01			58.181	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	Fluoranthene	SOLID	N/A	<3.5450E+01			35.45	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	Hexachlorobutadiene	SOLID	N/A	<6.9798E+01			69.798	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	Hexachloroethane	SOLID	N/A	<1.1196E+02			111.96	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	Indeno(1,2,3-cd)pyrene	SOLID	N/A	<5.1071E+01			51.071	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	Phenol	SOLID	N/A	<5.9483E+01			59.483	ug/Kg			U

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014181

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
6	SAMPLE	S09V000180		0 0	O	Naphthalene	SOLID	N/A	<6.2688E+01			62.688	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	Nitrobenzene	SOLID	N/A	<6.4691E+01			64.691	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	4-Nitrophenol	SOLID	N/A	<5.2674E+01			52.674	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	Pentachlorophenol	SOLID	N/A	<3.7553E+01			37.553	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	Pyrene	SOLID	N/A	<6.2988E+01			62.988	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	Pyridine	SOLID	N/A	<6.5091E+01			65.091	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	Tri-n-butylphosphate	SOLID	N/A	<1.0795E+02			107.95	ug/Kg			U
7	SAMPLE	S09V000180		0 1	O	2,6 bis-4Methylphenol	SOLID	N/A	<2.3593E+02			235.93	ug/Kg			U
7	SAMPLE	S09V000180		0 1	O	2-Ethoxyethanol	SOLID	N/A	<1.8266E+02			182.66	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	Methylphenols, Total	SOLID	N/A	<1.0675E+02			106.75	ug/Kg			U
7	SAMPLE	S09V000180		0 1	O	Cyclohexanone	SOLID	N/A	<5.5988E+02			559.88	ug/Kg			U
7	SAMPLE	S09V000180		0 1	O	N-Nitrosomorpholine	SOLID	N/A	<1.9157E+02			191.57	ug/Kg			U
7	SAMPLE	S09V000180		0 1	O	Isobutanol	SOLID	N/A	<4.6095E+02			460.95	ug/Kg			U
6	SAMPLE	S09V000180		0 0	O	2-Fluorobiphenyl	SOLID	2002.803	1.3875E+03			494.81	ug/Kg	69.278	% Recovery	
6	SAMPLE	S09V000180		0 0	O	2-Fluorophenol	SOLID	4005.607	2.2362E+03			739	ug/Kg	55.827	% Recovery	
6	SAMPLE	S09V000180		0 0	O	Nitrobenzene-d5	SOLID	2002.803	1.1835E+03			680.7	ug/Kg	59.092	% Recovery	
6	SAMPLE	S09V000180		0 0	O	Phenol-d5	SOLID	4005.607	2.4689E+03			636.78	ug/Kg	61.636	% Recovery	
6	SAMPLE	S09V000180		0 0	O	2,4,6-Tribromophenol	SOLID	4005.607	2.8608E+03			589.07	ug/Kg	71.42	% Recovery	
6	SAMPLE	S09V000180		0 0	O	Terphenyl-d14	SOLID	2002.803	1.5318E+03			521.38	ug/Kg	76.483	% Recovery	
6	SAMPLE	S09V000180		0 0	O	Unknown-1	SOLID		417.53909				ug/Kg			BJT
6	SAMPLE	S09V000180		0 0	O	Unknown-10	SOLID		1797.4929				ug/Kg			JT
6	SAMPLE	S09V000180		0 0	O	Unknown-11	SOLID		819.95505				ug/Kg			JT
6	SAMPLE	S09V000180		0 0	O	Unknown-12	SOLID		1801.0323				ug/Kg			JT
6	SAMPLE	S09V000180		0 0	O	Unknown-13	SOLID		1178.2727				ug/Kg			JT
6	SAMPLE	S09V000180		0 0	O	Unknown-14	SOLID		549.75909				ug/Kg			JT
6	SAMPLE	S09V000180		0 0	O	Unknown-15	SOLID		1099.0358				ug/Kg			JT
6	SAMPLE	S09V000180		0 0	O	Unknown-16	SOLID		1374.5467				ug/Kg			JT
6	SAMPLE	S09V000180		0 0	O	Unknown-17	SOLID		907.3936				ug/Kg			JT
6	SAMPLE	S09V000180		0 0	O	Unknown-18	SOLID		826.80558				ug/Kg			JT
6	SAMPLE	S09V000180		0 0	O	Unknown-19	SOLID		792.27459				ug/Kg			JT
6	SAMPLE	S09V000180		0 0	O	Unknown-2	SOLID		293.57245				ug/Kg			JT
6	SAMPLE	S09V000180		0 0	O	Unknown-20	SOLID		326.42479				ug/Kg			JT
6	SAMPLE	S09V000180		0 0	O	Unknown-3	SOLID		366.18708				ug/Kg			JT
6	SAMPLE	S09V000180		0 0	O	Unknown-4	SOLID		892.38998				ug/Kg			JT
6	SAMPLE	S09V000180		0 0	O	Unknown-5	SOLID		416.53638				ug/Kg			JT
6	SAMPLE	S09V000180		0 0	O	Unknown-6	SOLID		308.87969				ug/Kg			JT
6	SAMPLE	S09V000180		0 0	O	Unknown-7	SOLID		806.93331				ug/Kg			JT
6	SAMPLE	S09V000180		0 0	O	Unknown-8	SOLID		614.8391				ug/Kg			JT
6	SAMPLE	S09V000180		0 0	O	Unknown-9	SOLID		1490.7576				ug/Kg			JT
Sample Sequence 8																
8	MS	S0904220031	S09V000180	0 0	O	1,2,4-Trichlorobenzene	SOLID	2033.863	1.3314E+03			78.711	ug/Kg	65.462	% Recovery	
8	MS	S0904220031	S09V000180	0 0	O	1,4-Dichlorobenzene	SOLID	2033.863	1.2467E+03			115.22	ug/Kg	61.297	% Recovery	

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014181

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
8	MS	S0904220031	S09V000180	0	0	O	2,4-Dinitrotoluene	SOLID	2033.863	1.5632E+03			38.745	ug/Kg	76.859	% Recovery	
8	MS	S0904220031	S09V000180	0	0	O	Acenaphthene	SOLID	2033.863	1.4428E+03			17.898	ug/Kg	70.939	% Recovery	
8	MS	S0904220031	S09V000180	0	0	O	4-Chloro-3-methylphenol	SOLID	4067.727	2.9399E+03			43.931	ug/Kg	72.274	% Recovery	
8	MS	S0904220031	S09V000180	0	0	O	2-Chlorophenol	SOLID	4067.727	2.4954E+03			67.626	ug/Kg	61.346	% Recovery	
8	MS	S0904220031	S09V000180	0	0	O	N-Nitrosodipropylamine	SOLID	2033.863	1.2146E+03			59.084	ug/Kg	59.719	% Recovery	
8	MS	S0904220031	S09V000180	0	0	O	Phenol	SOLID	4067.727	2.6138E+03			60.406	ug/Kg	64.257	% Recovery	
8	MS	S0904220031	S09V000180	0	0	O	4-Nitrophenol	SOLID	4067.727	3.2101E+03			53.491	ug/Kg	78.916	% Recovery	
8	MS	S0904220031	S09V000180	0	0	O	Pentachlorophenol	SOLID	4067.727	3.1864E+03			38.135	ug/Kg	78.334	% Recovery	
8	MS	S0904220031	S09V000180	0	0	O	Pyrene	SOLID	2033.863	1.6236E+03			63.965	ug/Kg	79.828	% Recovery	
8	MS	S0904220031	S09V000180	0	0	O	2-Fluorobiphenyl	SOLID	2033.863	1.3386E+03			494.81	ug/Kg	65.816	% Recovery	
8	MS	S0904220031	S09V000180	0	0	O	2-Fluorophenol	SOLID	4067.727	2.2692E+03			739	ug/Kg	55.785	% Recovery	
8	MS	S0904220031	S09V000180	0	0	O	Nitrobenzene-d5	SOLID	2033.863	1.2076E+03			680.7	ug/Kg	59.375	% Recovery	
8	MS	S0904220031	S09V000180	0	0	O	Phenol-d5	SOLID	4067.727	2.3846E+03			636.78	ug/Kg	58.622	% Recovery	
8	MS	S0904220031	S09V000180	0	0	O	2,4,6-Tribromophenol	SOLID	4067.727	2.8630E+03			589.07	ug/Kg	70.383	% Recovery	
8	MS	S0904220031	S09V000180	0	0	O	Terphenyl-d14	SOLID	2033.863	1.4896E+03			521.38	ug/Kg	73.24	% Recovery	
Sample Sequence 9																	
9	MSD	S0904220032	S09V000180	0	0	O	1,2,4-Trichlorobenzene	SOLID	2024.189	1.3584E+03			78.336	ug/Kg	67.108	% Recovery	
															2.4832	% RPD	
9	MSD	S0904220032	S09V000180	0	0	O	1,4-Dichlorobenzene	SOLID	2024.189	1.2550E+03			114.67	ug/Kg	62	% Recovery	
															1.1403	% RPD	
9	MSD	S0904220032	S09V000180	0	0	O	2,4-Dinitrotoluene	SOLID	2024.189	1.6076E+03			38.561	ug/Kg	79.419	% Recovery	
															3.2762	% RPD	
9	MSD	S0904220032	S09V000180	0	0	O	Acenaphthene	SOLID	2024.189	1.5138E+03			17.813	ug/Kg	74.786	% Recovery	
															5.2798	% RPD	
9	MSD	S0904220032	S09V000180	0	0	O	4-Chloro-3-methylphenol	SOLID	4048.378	3.0065E+03			43.722	ug/Kg	74.264	% Recovery	
															2.7160	% RPD	
9	MSD	S0904220032	S09V000180	0	0	O	2-Chlorophenol	SOLID	4048.378	2.5272E+03			67.304	ug/Kg	62.425	% Recovery	
															1.7435	% RPD	
9	MSD	S0904220032	S09V000180	0	0	O	N-Nitrosodipropylamine	SOLID	2024.189	1.2423E+03			58.803	ug/Kg	61.373	% Recovery	
															2.7318	% RPD	
9	MSD	S0904220032	S09V000180	0	0	O	Phenol	SOLID	4048.378	2.6936E+03			60.118	ug/Kg	66.535	% Recovery	
															3.4834	% RPD	
9	MSD	S0904220032	S09V000180	0	0	O	4-Nitrophenol	SOLID	4048.378	3.2433E+03			53.236	ug/Kg	80.114	% Recovery	
															1.5066	% RPD	
9	MSD	S0904220032	S09V000180	0	0	O	Pentachlorophenol	SOLID	4048.378	3.2072E+03			37.954	ug/Kg	79.222	% Recovery	
															1.1272	% RPD	
9	MSD	S0904220032	S09V000180	0	0	O	Pyrene	SOLID	2024.189	1.6271E+03			63.661	ug/Kg	80.383	% Recovery	
															0.69284	% RPD	
9	MSD	S0904220032	S09V000180	0	0	O	2-Fluorobiphenyl	SOLID	2024.189	1.4008E+03			494.81	ug/Kg	69.203	% Recovery	

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014181

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
														5.0171	% RPD	
9	MSD	S0904220032	S09V000180	0 0	O	2-Fluorophenol	SOLID	4048.378	2.3304E+03			739	ug/Kg	57.564	% Recovery	
														3.1390	% RPD	
9	MSD	S0904220032	S09V000180	0 0	O	Nitrobenzene-d5	SOLID	2024.189	1.2517E+03			680.7	ug/Kg	61.837	% Recovery	
														4.0623	% RPD	
9	MSD	S0904220032	S09V000180	0 0	O	Phenol-d5	SOLID	4048.378	2.5010E+03			636.78	ug/Kg	61.778	% Recovery	
														5.2425	% RPD	
9	MSD	S0904220032	S09V000180	0 0	O	2,4,6-Tribromophenol	SOLID	4048.378	2.9596E+03			589.07	ug/Kg	73.106	% Recovery	
														3.7954	% RPD	
9	MSD	S0904220032	S09V000180	0 0	O	Terphenyl-d14	SOLID	2024.189	1.5059E+03			521.38	ug/Kg	74.395	% Recovery	
														1.5647	% RPD	

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00014181

Carol J. Quinn 6/19/09
Analyst Signature Date

Ann V. [illegible] 6/15/09
Data Entry Signature Date

[illegible] 6/17/09
Reviewer Signature Date

PM Reviewer: [illegible] 9/21/09

LABCORE Completed Batch Report for Batch# 00014181

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0904220028	BLNK				
2	S0904220028	BLNK				
3	S0904220029	LCS				
4	S09V000179	SAMPLE		20090160	B1YT71	C Farm WMA C
5	S09V000179	SAMPLE		20090160	B1YT71	C Farm WMA C
6	S09V000180	SAMPLE		20090160	B1YT74	C Farm WMA C
7	S09V000180	SAMPLE		20090160	B1YT74	C Farm WMA C
8	S0904220031	MS	S09V000180			
9	S0904220032	MSD	S09V000180			

4/28/2009 8:54:39AM
CompleteBatch Version 2.7.25
batchreports 2.7.25

LABCORE Completed Batch Report for Batch# 00013886

Analyst: Fabre, Martha

Book#: See Bench sheet

Instrument: SOXHLET EXTRACTORS

Method: ORGANIC EXT.-SVOA SOLIDS, LA-523-138 Rev/Mod F-0

Specification: C Farm WMA C

Prep Batch:

Batch Comment: C-Farm, sol SVOA, Grp 20090160

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
1	BLNK	S0904220028			O	Extraction Complete	SOLID		Complete							
2	LCS	S0904220029			O	Extraction Complete	SOLID		Complete					N/A		
3	SAMPLE	S09V000179			O	Extraction Complete	SOLID	N/A	Complete							
4	MS	S0904220031	S09V000180		O	Extraction Complete	SOLID		Complete					N/A		
5	MSD	S0904220032	S09V000180		O	Extraction Complete	SOLID		Complete					N/A		
6	SAMPLE	S09V000180			O	Extraction Complete	SOLID	N/A	Complete							

Comments Section:

Data Flagger Status:
Flagger Not Run

Final Page for Batch# 00013886

Martha Fabre 4-28-09
Analyst Signature Date

Martha Fabre 4-28-09
Data Entry Signature Date

Reviewer Signature 4/28/09 Date

LABCORE Completed Batch Report for Batch# 00013886

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0904220028	BLNK				
2	S0904220029	LCS				
3	S09V000179	SAMPLE		20090160	B1YT71	C Farm WMA C
4	S0904220031	MS	S09V000180			
5	S0904220032	MSD	S09V000180			
6	S09V000180	SAMPLE		20090160	B1YT74	C Farm WMA C

Units shown for QC (BLK/BKG) may not reflect the actual units.

Comments:
Preparation Batch#: 13886
Analytical Batch#: 13980
Project: Vadose Zone: C Farm

09042405.D LCS bc 776, LCS
Spike Compounds Out of Recovery Limits:
Phenol, Recovery: 69.19
Range: 70.00-130.00
Within SPC Limits : 25.3-127.6
2-Chlorophenol, Recovery: 66.85
Range: 70.00-130.00
Within SPC Limits: 0-137.9
1,4-Dichlorobenzene, Recovery: 68.50
Range: 70.00-130.00
Within SPC Limits: 0-129.4
N-Nitroso-di-n-propylamine, Recovery: 65.73
Range: 70.00-130.00
Within SPC Limits: 28.7-111.3

09042406.D SAMPLE bc 777, S09V000180-SAM
Many of the unknown compounds appear to be phthalates.

09042407.D MS bc 778, S09V000180-MS
Spike Compounds Out of Recovery Limits:
Phenol, Recovery: 64.26
Range: 70.00-130.00
Within SPL Limits: 25.3-127.6
2-Chlorophenol, Recovery: 61.35
Range: 70.00-130.00
Within SPC Limits: 0-137.9
1,4-Dichlorobenzene, Recovery: 61.30
Range: 70.00-130.00
Within SPC Limits: 0-129.4
N-Nitroso-di-n-propylamine, Recovery: 59.72
Range: 70.00-130.00
Within SPC Limits: 28.7-111.3
1,2,4-Trichlorobenzene, Recovery: 65.46
Range: 70.00-130.00
Within SPC Limits: 0-111.9

09042408.D MSD bc 779, S09V000180-MSD
Spike Compounds Out of Recovery Limits:
Phenol, Recovery: 66.54
Range: 70.00-130.00
Within SPL Limits: 25.3-127.6
2-Chlorophenol, Recovery: 62.43
Range: 70.00-130.00
Within SPC Limits: 0-137.9
1,4-Dichlorobenzene, Recovery: 62.00

Range: 70.00-130.00
Within SPC Limits: 0-129.4
N-Nitroso-di-n-propylamine, Recovery: 61.37
Range: 70.00-130.00
1,2,4-Trichlorobenzene, Recovery: 67.11
Range: 70.00-130.00
Within SPC Limits: 0-111.9

The following compounds were analyzed separately using a different calibration curve. They are highlighted on the LIMS Upload Report.

2,6-Bis(tetbutly)-4-methlyphenol
2-Ethoxyethanol
Cyclohexanone
Isobutylalcohol
n-Nitrosomorpholine

The non highlighted compounds were not entered into the LIMS and do not have the correct Adj. MDL or LOQ listed on this LIMS Upload Report.

SVOA BENCH SHEET

No PCBs

PROJECT:	Vadose Zone: C Farm	extraction START 4/22/2009	15:00
WL #	13886	extraction FINISH 4/23/2009	0849
Matrix	SOL	Balance Used: LE-BAL-016	cal check ok
Extraction Procedure:	LA-523-138, E-0		
Extraction Analyst:	MOF 4/22/09 M.O.F	Date sent to counting room	4-23-09
		Project Coordinator: 0	JR RITENOUR

Sample number	Parent Samp #	(g) MASS	bar code #	COMMENTS	final volume
1) BLANK	N/A	2g	775		2 mL MeCl2
2) LCS	N/A	2g	776		2 mL MeCl2
3)S09V000180-SAM	S09V000172	19.972	777		2 mL MeCl2
4)S09V000180-MS	S09V000172	19.667	778		2 mL MeCl2
5)S09V000180-MSD	S09V000172	19.761	779		2 mL MeCl2
6)S09V000179-SAM	S09V000171	21.242	780		2 mL MeCl2
Samples split out for T/C analysis + added 2.5µl I.S. HNF-N-1893-85.01. Ran on Tivok 5/21/09 CPD					
Samples split out + added 2.5µl I.S. HNF-N-1893-85.01. Ran on Tivok 4/24/09 CPD					
check std	N/A		781	Amount of STD 20µL SURR 20µL	1 mL MeCl2

Comments & observations

THE Siphon part of EXTRACTOR for SAMPLE S09V000180-SAM broke During DISMANTLE PROCESS - BELIEVE to have had MOST the SAMPLE IN the flask WITH MINIMAL LOSS if any. M.O.F. 4-24-09 m.o.f. 4-24-09

SURR NAME	VOLUME (mL)	ID NUMBER (mf 4-24-09)	CONC.	MATRIX SPIKE NAME	VOLUME (mL)	ID NUMBER	CONC.
SVOA B/N SURR	0.040	cat# 31024 lot# A058129	1000 ppm	B/N MATRIX SPIKE	0.040	cat# 31004 lot# A056381	1000 ppm
Date opened	3-24-09 exp 3/2015			Date opened	3-24-09	exp 9/12	
ACID SURR	0.040	cat# 31025 lot# A060492	2000 ppm	ACID MATRIX SPIKE	0.040	cat# 31014 lot# A047360	2000 ppm
Date opened	3-24-09	EXP 2/2012		Date opened	3-24-09	EXP 12/09	
Methylene Chloride lot#	G36400	12-31-09					

LABCORE Completed Batch Report for Batch# 00014528

Analyst: Ojanen, Carol **Book#:** SEE BENCHSHEET

Instrument: GCMSD5 (TUVOK) for SVOA

Method: SVOA 222S #2, LA-523-135 Rev/Mod C-0

Specification: C Farm WMA C

Prep Batch: 00014141

Batch Comment: C Farm Vadose, SVOA, Solid, Group # 20090160, Prep. batch # 00014141

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1																
1	BLNK	S0905050099		0 0	O	1,2,4-Trichlorobenzene	SOLID		<7.7400E+01			77.4	ug/Kg			U
1	BLNK	S0905050099		0 0	O	1,2-Dichlorobenzene	SOLID		<1.0070E+02			100.7	ug/Kg			U
1	BLNK	S0905050099		0 0	O	1,4-Dichlorobenzene	SOLID		<1.1330E+02			113.3	ug/Kg			U
1	BLNK	S0905050099		0 0	O	2,4-Dinitrotoluene	SOLID		<3.8100E+01			38.1	ug/Kg			U
1	BLNK	S0905050099		0 0	O	2,4,5-Trichlorophenol	SOLID		<4.4000E+01			44	ug/Kg			U
1	BLNK	S0905050099		0 0	O	2,4,6-Trichlorophenol	SOLID		<4.9500E+01			49.5	ug/Kg			U
1	BLNK	S0905050099		0 0	O	2-Methylphenol	SOLID		<5.7500E+01			57.5	ug/Kg			U
1	BLNK	S0905050099		0 0	O	2-Nitrophenol	SOLID		<5.3700E+01			53.7	ug/Kg			U
1	BLNK	S0905050099		0 0	O	3 & 4 Methylphenol Total	SOLID		<5.1400E+01			51.4	ug/Kg			U
1	BLNK	S0905050099		0 0	O	Acenaphthene	SOLID		<1.7600E+01			17.6	ug/Kg			U
1	BLNK	S0905050099		0 0	O	Benzo(a)anthracene	SOLID		<3.7800E+01			37.8	ug/Kg			U
1	BLNK	S0905050099		0 0	O	Benzo(b)fluoranthene	SOLID		<4.8900E+01			48.9	ug/Kg			U
1	BLNK	S0905050099		0 0	O	Benzo(a)pyrene	SOLID		<4.1200E+01			41.2	ug/Kg			U
1	BLNK	S0905050099		0 0	O	bis(2-Ethylhexyl)phthalate	SOLID		<5.9020E+02			590.2	ug/Kg			U
1	BLNK	S0905050099		0 0	O	Benzo(k)fluoranthene	SOLID		<3.9100E+01			39.1	ug/Kg			U
1	BLNK	S0905050099		0 0	O	Butylbenzylphthalate	SOLID		<5.0000E+01			50	ug/Kg			U
1	BLNK	S0905050099		0 0	O	4-Chloro-3-methylphenol	SOLID		<4.3200E+01			43.2	ug/Kg			U
1	BLNK	S0905050099		0 0	O	2-Chlorophenol	SOLID		<6.6500E+01			66.5	ug/Kg			U
1	BLNK	S0905050099		0 0	O	Chrysene	SOLID		<8.1400E+01			81.4	ug/Kg			U
1	BLNK	S0905050099		0 0	O	Dibenz(a,h)anthracene	SOLID		<5.1100E+01			51.1	ug/Kg			U
1	BLNK	S0905050099		0 0	O	Di-n-butylphthalate	SOLID		<5.6230E+02			562.3	ug/Kg			U
1	BLNK	S0905050099		0 0	O	Di-n-octylphthalate	SOLID		<4.7700E+01			47.7	ug/Kg			U
1	BLNK	S0905050099		0 0	O	N-Nitrosodipropylamine	SOLID		<5.8100E+01			58.1	ug/Kg			U
1	BLNK	S0905050099		0 0	O	Fluoranthene	SOLID		<3.5400E+01			35.4	ug/Kg			U
1	BLNK	S0905050099		0 0	O	Hexachlorobutadiene	SOLID		<6.9700E+01			69.7	ug/Kg			U
1	BLNK	S0905050099		0 0	O	Hexachloroethane	SOLID		<1.1180E+02			111.8	ug/Kg			U
1	BLNK	S0905050099		0 0	O	Indeno(1,2,3-cd)pyrene	SOLID		<5.1000E+01			51	ug/Kg			U
1	BLNK	S0905050099		0 0	O	Phenol	SOLID		<5.9400E+01			59.4	ug/Kg			U

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014528

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
1	BLNK	S0905050099		0 0	O	Naphthalene	SOLID		<6.2600E+01			62.6	ug/Kg			U
1	BLNK	S0905050099		0 0	O	Nitrobenzene	SOLID		<6.4600E+01			64.6	ug/Kg			U
1	BLNK	S0905050099		0 0	O	4-Nitrophenol	SOLID		<5.2600E+01			52.6	ug/Kg			U
1	BLNK	S0905050099		0 0	O	Pentachlorophenol	SOLID		<3.7500E+01			37.5	ug/Kg			U
1	BLNK	S0905050099		0 0	O	Pyrene	SOLID		<6.2900E+01			62.9	ug/Kg			U
1	BLNK	S0905050099		0 0	O	Pyridine	SOLID		<6.5000E+01			65	ug/Kg			U
1	BLNK	S0905050099		0 0	O	Tri-n-butylphosphate	SOLID		<1.0780E+02			107.8	ug/Kg			U
2	BLNK	S0905050099		0 1	O	2,6 bis-4Methylphenol	SOLID		<2.3560E+02			235.6	ug/Kg			U
2	BLNK	S0905050099		0 1	O	2-Ethoxyethanol	SOLID		<1.8240E+02			182.4	ug/Kg			U
1	BLNK	S0905050099		0 0	O	Methylphenols, Total	SOLID		<1.0660E+02			106.6	ug/Kg			U
2	BLNK	S0905050099		0 1	O	Cyclohexanone	SOLID		<5.5910E+02			559.1	ug/Kg			U
2	BLNK	S0905050099		0 1	O	N-Nitrosomorpholine	SOLID		<1.9130E+02			191.3	ug/Kg			U
2	BLNK	S0905050099		0 1	O	Isobutanol	SOLID		<4.6030E+02			460.3	ug/Kg			U
1	BLNK	S0905050099		0 0	O	2-Fluorobiphenyl	SOLID	2000	2.1031E+03			494.81	ug/Kg	105.16	% Recovery	
1	BLNK	S0905050099		0 0	O	2-Fluorophenol	SOLID	4000	3.4813E+03			739	ug/Kg	87.032	% Recovery	
1	BLNK	S0905050099		0 0	O	Nitrobenzene-d5	SOLID	2000	1.8270E+03			680.7	ug/Kg	91.35	% Recovery	
1	BLNK	S0905050099		0 0	O	Phenol-d5	SOLID	4000	3.6475E+03			636.78	ug/Kg	91.188	% Recovery	
1	BLNK	S0905050099		0 0	O	2,4,6-Tribromophenol	SOLID	4000	3.5848E+03			589.07	ug/Kg	89.62	% Recovery	
1	BLNK	S0905050099		0 0	O	Terphenyl-d14	SOLID	2000	2.0965E+03			521.38	ug/Kg	104.82	% Recovery	
2	BLNK	S0905050099		0 1	O	Cyclohexene	SOLID		36551.539				ug/Kg			JNT
2	BLNK	S0905050099		0 1	O	Ethene, 1,2-dichloro-,	SOLID		300.15598				ug/Kg			JNT
2	BLNK	S0905050099		0 1	O	Trichloromethane	SOLID		2078.8204				ug/Kg			JNT
1	BLNK	S0905050099		0 0	O	Unknown-1	SOLID		561.57487				ug/Kg			JT
Sample Sequence 3																
3	LCS	S0905050100		0 0	O	1,2,4-Trichlorobenzene	SOLID	2000	1.7417E+03			77.4	ug/Kg	87.085	% Recovery	
3	LCS	S0905050100		0 0	O	1,4-Dichlorobenzene	SOLID	2000	1.7012E+03			113.3	ug/Kg	85.06	% Recovery	
3	LCS	S0905050100		0 0	O	2,4-Dinitrotoluene	SOLID	2000	1.8175E+03			38.1	ug/Kg	90.875	% Recovery	
3	LCS	S0905050100		0 0	O	Acenaphthene	SOLID	2000	1.9402E+03			17.6	ug/Kg	97.01	% Recovery	
3	LCS	S0905050100		0 0	O	4-Chloro-3-methylphenol	SOLID	4000	3.4059E+03			43.2	ug/Kg	85.148	% Recovery	
3	LCS	S0905050100		0 0	O	2-Chlorophenol	SOLID	4000	3.4214E+03			66.5	ug/Kg	85.535	% Recovery	
3	LCS	S0905050100		0 0	O	N-Nitrosodipropylamine	SOLID	2000	1.5576E+03			58.1	ug/Kg	77.88	% Recovery	
3	LCS	S0905050100		0 0	O	Phenol	SOLID	4000	3.4561E+03			59.4	ug/Kg	86.402	% Recovery	
3	LCS	S0905050100		0 0	O	4-Nitrophenol	SOLID	4000	3.5920E+03			52.6	ug/Kg	89.8	% Recovery	
3	LCS	S0905050100		0 0	O	Pentachlorophenol	SOLID	4000	3.5537E+03			37.5	ug/Kg	88.842	% Recovery	
3	LCS	S0905050100		0 0	O	Pyrene	SOLID	2000	1.8658E+03			62.9	ug/Kg	93.29	% Recovery	
3	LCS	S0905050100		0 0	O	2-Fluorobiphenyl	SOLID	2000	2.0208E+03			494.81	ug/Kg	101.04	% Recovery	
3	LCS	S0905050100		0 0	O	2-Fluorophenol	SOLID	4000	3.4280E+03			739	ug/Kg	85.7	% Recovery	
3	LCS	S0905050100		0 0	O	Nitrobenzene-d5	SOLID	2000	1.7771E+03			680.7	ug/Kg	88.855	% Recovery	
3	LCS	S0905050100		0 0	O	Phenol-d5	SOLID	4000	3.5406E+03			636.78	ug/Kg	88.515	% Recovery	
3	LCS	S0905050100		0 0	O	2,4,6-Tribromophenol	SOLID	4000	3.7171E+03			589.07	ug/Kg	92.928	% Recovery	
3	LCS	S0905050100		0 0	O	Terphenyl-d14	SOLID	2000	2.0794E+03			521.38	ug/Kg	103.97	% Recovery	

Units shown for QC (BLK/BKG) may not reflect the actual units.

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LABCORE Completed Batch Report for Batch# 00014528

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 4															
4 SAMPLE	S09V000182		0 0	O	1,2,4-Trichlorobenzene	SOLID	N/A	<7.6512E+01			76.512	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	1,2-Dichlorobenzene	SOLID	N/A	<9.9545E+01			99.545	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	1,4-Dichlorobenzene	SOLID	N/A	<1.1200E+02			112	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	2,4-Dinitrotoluene	SOLID	N/A	<3.7663E+01			37.663	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	2,4,5-Trichlorophenol	SOLID	N/A	<4.3495E+01			43.495	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	2,4,6-Trichlorophenol	SOLID	N/A	<4.8932E+01			48.932	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	2-Methylphenol	SOLID	N/A	<5.6841E+01			56.841	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	2-Nitrophenol	SOLID	N/A	<5.3084E+01			53.084	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	3 & 4 Methylphenol Total	SOLID	N/A	<5.0811E+01			50.811	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	Acenaphthene	SOLID	N/A	<1.7398E+01			17.398	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	Benzo(a)anthracene	SOLID	N/A	<3.7367E+01			37.367	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	Benzo(b)fluoranthene	SOLID	N/A	<4.8339E+01			48.339	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	Benzo(a)pyrene	SOLID	N/A	<4.0728E+01			40.728	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	bis(2-Ethylhexyl)phthalate	SOLID	N/A	5.0495E+03			583.43	ug/Kg			J
4 SAMPLE	S09V000182		0 0	O	Benzo(k)fluoranthene	SOLID	N/A	<3.8652E+01			38.652	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	Butylbenzylphthalate	SOLID	N/A	<4.9427E+01			49.427	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	4-Chloro-3-methylphenol	SOLID	N/A	<4.2705E+01			42.705	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	2-Chlorophenol	SOLID	N/A	<6.5737E+01			65.737	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	Chrysene	SOLID	N/A	<8.0467E+01			80.467	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	Dibenz(a,h)anthracene	SOLID	N/A	<5.0514E+01			50.514	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	Di-n-butylphthalate	SOLID	N/A	<5.5585E+02			555.85	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	Di-n-octylphthalate	SOLID	N/A	<4.7153E+01			47.153	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	N-Nitrosodipropylamine	SOLID	N/A	<5.7434E+01			57.434	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	Fluoranthene	SOLID	N/A	<3.4994E+01			34.994	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	Hexachlorobutadiene	SOLID	N/A	<6.8901E+01			68.901	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	Hexachloroethane	SOLID	N/A	<1.1052E+02			110.52	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	Indeno(1,2,3-cd)pyrene	SOLID	N/A	<5.0415E+01			50.415	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	Phenol	SOLID	N/A	<5.8719E+01			58.719	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	Naphthalene	SOLID	N/A	<6.1882E+01			61.882	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	Nitrobenzene	SOLID	N/A	<6.3859E+01			63.859	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	4-Nitrophenol	SOLID	N/A	<5.1997E+01			51.997	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	Pentachlorophenol	SOLID	N/A	<3.7070E+01			37.07	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	Pyrene	SOLID	N/A	<6.2179E+01			62.179	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	Pyridine	SOLID	N/A	<6.4255E+01			64.255	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	Tri-n-butylphosphate	SOLID	N/A	<1.0656E+02			106.56	ug/Kg			U
5 SAMPLE	S09V000182		0 1	O	2,6 bis-4Methylphenol	SOLID	N/A	<2.3290E+02			232.9	ug/Kg			U
5 SAMPLE	S09V000182		0 1	O	2-Ethoxyethanol	SOLID	N/A	<1.8031E+02			180.31	ug/Kg			U
4 SAMPLE	S09V000182		0 0	O	Methylphenols, Total	SOLID	N/A	<1.0538E+02			105.38	ug/Kg			U

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LABCORE Completed Batch Report for Batch# 00014528

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
5	SAMPLE	S09V000182		0 1	O	Cyclohexanone	SOLID	N/A	<5.5269E+02			552.69	ug/Kg			U
5	SAMPLE	S09V000182		0 1	O	N-Nitrosomorpholine	SOLID	N/A	<1.8911E+02			189.11	ug/Kg			U
5	SAMPLE	S09V000182		0 1	O	Isobutanol	SOLID	N/A	<4.5502E+02			455.02	ug/Kg			U
4	SAMPLE	S09V000182		0 0	O	2-Fluorobiphenyl	SOLID	1977.066	1.5876E+03			494.81	ug/Kg	80.301	% Recovery	
4	SAMPLE	S09V000182		0 0	O	2-Fluorophenol	SOLID	3954.132	2.6763E+03			739	ug/Kg	67.684	% Recovery	
4	SAMPLE	S09V000182		0 0	O	Nitrobenzene-d5	SOLID	1977.066	1.3644E+03			680.7	ug/Kg	69.011	% Recovery	
4	SAMPLE	S09V000182		0 0	O	Phenol-d5	SOLID	3954.132	2.8864E+03			636.78	ug/Kg	72.997	% Recovery	
4	SAMPLE	S09V000182		0 0	O	2,4,6-Tribromophenol	SOLID	3954.132	3.5694E+03			589.07	ug/Kg	90.27	% Recovery	
4	SAMPLE	S09V000182		0 0	O	Terphenyl-d14	SOLID	1977.066	2.0290E+03			521.38	ug/Kg	102.63	% Recovery	
4	SAMPLE	S09V000182		0 0	O	Ethanol, 2-(2-ethoxyet	SOLID		213.96722				ug/Kg			JNT
4	SAMPLE	S09V000182		0 0	O	Unknown-1	SOLID		651.74646				ug/Kg			BJT
4	SAMPLE	S09V000182		0 0	O	Unknown-10	SOLID		915.23964				ug/Kg			JT
4	SAMPLE	S09V000182		0 0	O	Unknown-11	SOLID		584.29613				ug/Kg			JT
4	SAMPLE	S09V000182		0 0	O	Unknown-12	SOLID		782.3305				ug/Kg			JT
4	SAMPLE	S09V000182		0 0	O	Unknown-13	SOLID		450.93555				ug/Kg			JT
4	SAMPLE	S09V000182		0 0	O	Unknown-14	SOLID		562.31493				ug/Kg			JT
4	SAMPLE	S09V000182		0 0	O	Unknown-15	SOLID		442.66658				ug/Kg			JT
4	SAMPLE	S09V000182		0 0	O	Unknown-2	SOLID		245.32402				ug/Kg			JT
4	SAMPLE	S09V000182		0 0	O	Unknown-3	SOLID		226.03803				ug/Kg			JT
4	SAMPLE	S09V000182		0 0	O	Unknown-4	SOLID		459.90951				ug/Kg			JT
4	SAMPLE	S09V000182		0 0	O	Unknown-5	SOLID		810.85293				ug/Kg			JT
4	SAMPLE	S09V000182		0 0	O	Unknown-6	SOLID		626.25872				ug/Kg			JT
4	SAMPLE	S09V000182		0 0	O	Unknown-7	SOLID		741.79078				ug/Kg			JT
4	SAMPLE	S09V000182		0 0	O	Unknown-8	SOLID		935.62061				ug/Kg			JT
4	SAMPLE	S09V000182		0 0	O	Unknown-9	SOLID		1373.1714				ug/Kg			JT
Sample Sequence 6																
6	SAMPLE	S09V000183		0 0	O	1,2,4-Trichlorobenzene	SOLID	N/A	<7.8779E+01			78.779	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	1,2-Dichlorobenzene	SOLID	N/A	<1.0249E+02			102.49	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	1,4-Dichlorobenzene	SOLID	N/A	<1.1532E+02			115.32	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	2,4-Dinitrotoluene	SOLID	N/A	<3.8779E+01			38.779	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	2,4,5-Trichlorophenol	SOLID	N/A	<4.4784E+01			44.784	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	2,4,6-Trichlorophenol	SOLID	N/A	<5.0382E+01			50.382	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	2-Methylphenol	SOLID	N/A	<5.8524E+01			58.524	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	2-Nitrophenol	SOLID	N/A	<5.4656E+01			54.656	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	3 & 4 Methylphenol Total	SOLID	N/A	<5.2316E+01			52.316	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	Acenaphthene	SOLID	N/A	<1.7913E+01			17.913	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	Benzo(a)anthracene	SOLID	N/A	<3.8473E+01			38.473	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	Benzo(b)fluoranthene	SOLID	N/A	<4.9771E+01			49.771	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	Benzo(a)pyrene	SOLID	N/A	<4.1934E+01			41.934	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	bis(2-Ethylhexyl)phthalate	SOLID	N/A	<6.0071E+02			600.71	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	Benzo(k)fluoranthene	SOLID	N/A	<3.9796E+01			39.796	ug/Kg			U

9/22/09

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014528

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
6	SAMPLE	S09V000183		0 0	O	Butylbenzylphthalate	SOLID	N/A	<5.0891E+01			50.891	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	4-Chloro-3-methylphenol	SOLID	N/A	<4.3969E+01			43.969	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	2-Chlorophenol	SOLID	N/A	<6.7684E+01			67.684	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	Chrysene	SOLID	N/A	<8.2850E+01			82.85	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	Dibenz(a,h)anthracene	SOLID	N/A	<5.2010E+01			52.01	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	Di-n-butylphthalate	SOLID	N/A	<5.7232E+02			572.32	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	Di-n-octylphthalate	SOLID	N/A	<4.8550E+01			48.55	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	N-Nitrosodipropylamine	SOLID	N/A	<5.9135E+01			59.135	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	Fluoranthene	SOLID	N/A	<3.6031E+01			36.031	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	Hexachlorobutadiene	SOLID	N/A	<7.0941E+01			70.941	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	Hexachloroethane	SOLID	N/A	<1.1379E+02			113.79	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	Indeno(1,2,3-cd)pyrene	SOLID	N/A	<5.1908E+01			51.908	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	Phenol	SOLID	N/A	<6.0458E+01			60.458	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	Naphthalene	SOLID	N/A	<6.3715E+01			63.715	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	Nitrobenzene	SOLID	N/A	<6.5751E+01			65.751	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	4-Nitrophenol	SOLID	N/A	<5.3537E+01			53.537	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	Pentachlorophenol	SOLID	N/A	<3.8168E+01			38.168	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	Pyrene	SOLID	N/A	<6.4020E+01			64.02	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	Pyridine	SOLID	N/A	<6.6158E+01			66.158	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	Tri-n-butylphosphate	SOLID	N/A	<1.0972E+02			109.72	ug/Kg			U
7	SAMPLE	S09V000183		0 1	O	2,6 bis-4Methylphenol	SOLID	N/A	<2.3980E+02			239.8	ug/Kg			U
7	SAMPLE	S09V000183		0 1	O	2-Ethoxyethanol	SOLID	N/A	<1.8565E+02			185.65	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	Methylphenols, Total	SOLID	N/A	<1.0850E+02			108.5	ug/Kg			U
7	SAMPLE	S09V000183		0 1	O	Cyclohexanone	SOLID	N/A	<5.6906E+02			569.06	ug/Kg			U
7	SAMPLE	S09V000183		0 1	O	N-Nitrosomorpholine	SOLID	N/A	<1.9471E+02			194.71	ug/Kg			U
7	SAMPLE	S09V000183		0 1	O	Isobutanol	SOLID	N/A	<4.6850E+02			468.5	ug/Kg			U
6	SAMPLE	S09V000183		0 0	O	2-Fluorobiphenyl	SOLID	2035.623	1.9388E+03			494.81	ug/Kg	95.244	% Recovery	
6	SAMPLE	S09V000183		0 0	O	2-Fluorophenol	SOLID	4071.246	3.0532E+03			739	ug/Kg	74.994	% Recovery	
6	SAMPLE	S09V000183		0 0	O	Nitrobenzene-d5	SOLID	2035.623	1.6025E+03			680.7	ug/Kg	78.723	% Recovery	
6	SAMPLE	S09V000183		0 0	O	Phenol-d5	SOLID	4071.246	3.3060E+03			636.78	ug/Kg	81.204	% Recovery	
6	SAMPLE	S09V000183		0 0	O	2,4,6-Tribromophenol	SOLID	4071.246	3.6988E+03			589.07	ug/Kg	90.852	% Recovery	
6	SAMPLE	S09V000183		0 0	O	Terphenyl-d14	SOLID	2035.623	2.1909E+03			521.38	ug/Kg	107.63	% Recovery	
6	SAMPLE	S09V000183		0 0	O	Unknown-1	SOLID		577.65729				ug/Kg			BJT
6	SAMPLE	S09V000183		0 0	O	Unknown-2	SOLID		246.37236				ug/Kg			JT
6	SAMPLE	S09V000183		0 0	O	Unknown-3	SOLID		315.21372				ug/Kg			JT
6	SAMPLE	S09V000183		0 0	O	Unknown-4	SOLID		518.52604				ug/Kg			JT
6	SAMPLE	S09V000183		0 0	O	Unknown-5	SOLID		371.50335				ug/Kg			JT
6	SAMPLE	S09V000183		0 0	O	Unknown-6	SOLID		272.16995				ug/Kg			JT
6	SAMPLE	S09V000183		0 0	O	Unknown-7	SOLID		251.67701				ug/Kg			JT
6	SAMPLE	S09V000183		0 0	O	Unknown-8	SOLID		500.78381				ug/Kg			JT
6	SAMPLE	S09V000183		0 0	O	Unknown-9	SOLID		433.16877				ug/Kg			JT

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014528

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 8															
8 MS	S0905050102	S09V000183	0 0	O	1,2,4-Trichlorobenzene	SOLID	2034.277	1.5329E+03			78.727	ug/Kg	75.354	% Recovery	
8 MS	S0905050102	S09V000183	0 0	O	1,4-Dichlorobenzene	SOLID	2034.277	1.4504E+03			115.24	ug/Kg	71.298	% Recovery	
8 MS	S0905050102	S09V000183	0 0	O	2,4-Dinitrotoluene	SOLID	2034.277	1.8534E+03			38.753	ug/Kg	91.109	% Recovery	
8 MS	S0905050102	S09V000183	0 0	O	Acenaphthene	SOLID	2034.277	1.7974E+03			17.902	ug/Kg	88.356	% Recovery	
8 MS	S0905050102	S09V000183	0 0	O	4-Chloro-3-methylphenol	SOLID	4068.555	3.4546E+03			43.94	ug/Kg	84.91	% Recovery	
8 MS	S0905050102	S09V000183	0 0	O	2-Chlorophenol	SOLID	4068.555	3.0072E+03			67.64	ug/Kg	73.913	% Recovery	
8 MS	S0905050102	S09V000183	0 0	O	N-Nitrosodipropylamine	SOLID	2034.277	1.4088E+03			59.096	ug/Kg	69.253	% Recovery	
8 MS	S0905050102	S09V000183	0 0	O	Phenol	SOLID	4068.555	3.0753E+03			60.418	ug/Kg	75.587	% Recovery	
8 MS	S0905050102	S09V000183	0 0	O	4-Nitrophenol	SOLID	4068.555	3.8567E+03			53.502	ug/Kg	94.793	% Recovery	
8 MS	S0905050102	S09V000183	0 0	O	Pentachlorophenol	SOLID	4068.555	3.9403E+03			38.143	ug/Kg	96.848	% Recovery	
8 MS	S0905050102	S09V000183	0 0	O	Pyrene	SOLID	2034.277	1.7989E+03			63.978	ug/Kg	88.429	% Recovery	
8 MS	S0905050102	S09V000183	0 0	O	2-Fluorobiphenyl	SOLID	2034.277	1.8400E+03			494.81	ug/Kg	90.45	% Recovery	
8 MS	S0905050102	S09V000183	0 0	O	2-Fluorophenol	SOLID	4068.555	3.0938E+03			739	ug/Kg	76.042	% Recovery	
8 MS	S0905050102	S09V000183	0 0	O	Nitrobenzene-d5	SOLID	2034.277	1.5899E+03			680.7	ug/Kg	78.156	% Recovery	
8 MS	S0905050102	S09V000183	0 0	O	Phenol-d5	SOLID	4068.555	3.2293E+03			636.78	ug/Kg	79.372	% Recovery	
8 MS	S0905050102	S09V000183	0 0	O	2,4,6-Tribromophenol	SOLID	4068.555	4.0028E+03			589.07	ug/Kg	98.384	% Recovery	
8 MS	S0905050102	S09V000183	0 0	O	Terphenyl-d14	SOLID	2034.277	2.0263E+03			521.38	ug/Kg	99.608	% Recovery	
Sample Sequence 9															
9 MSD	S0905050103	S09V000183	0 0	O	1,2,4-Trichlorobenzene	SOLID	1975.991	1.4888E+03			76.471	ug/Kg	75.344	% Recovery	
													0.013272	% RPD	
9 MSD	S0905050103	S09V000183	0 0	O	1,4-Dichlorobenzene	SOLID	1975.991	1.4252E+03			111.94	ug/Kg	72.126	% Recovery	
													1.1546	% RPD	
9 MSD	S0905050103	S09V000183	0 0	O	2,4-Dinitrotoluene	SOLID	1975.991	1.7665E+03			37.643	ug/Kg	89.398	% Recovery	
													1.8958	% RPD	
9 MSD	S0905050103	S09V000183	0 0	O	Acenaphthene	SOLID	1975.991	1.7188E+03			17.389	ug/Kg	86.984	% Recovery	
													1.5650	% RPD	
9 MSD	S0905050103	S09V000183	0 0	O	4-Chloro-3-methylphenol	SOLID	3951.983	3.3053E+03			42.681	ug/Kg	83.636	% Recovery	
													1.5118	% RPD	
9 MSD	S0905050103	S09V000183	0 0	O	2-Chlorophenol	SOLID	3951.983	2.9099E+03			65.702	ug/Kg	73.631	% Recovery	
													0.38226	% RPD	
9 MSD	S0905050103	S09V000183	0 0	O	N-Nitrosodipropylamine	SOLID	1975.991	1.3662E+03			57.403	ug/Kg	69.14	% Recovery	
													0.16330	% RPD	
9 MSD	S0905050103	S09V000183	0 0	O	Phenol	SOLID	3951.983	2.9774E+03			58.687	ug/Kg	75.339	% Recovery	
													0.32864	% RPD	
9 MSD	S0905050103	S09V000183	0 0	O	4-Nitrophenol	SOLID	3951.983	3.6605E+03			51.969	ug/Kg	92.624	% Recovery	
													2.3146	% RPD	
9 MSD	S0905050103	S09V000183	0 0	O	Pentachlorophenol	SOLID	3951.983	3.8531E+03			37.05	ug/Kg	97.498	% Recovery	
													0.66891	% RPD	

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014528

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
9	MSD	S0905050103	S09V000183	0 0	O	Pyrene	SOLID	1975.991	1.7964E+03			62.145	ug/Kg	90.911	% Recovery	
														2.7679	% RPD	
9	MSD	S0905050103	S09V000183	0 0	O	2-Fluorobiphenyl	SOLID	1975.991	1.7711E+03			494.81	ug/Kg	89.631	% Recovery	
														0.90959	% RPD	
9	MSD	S0905050103	S09V000183	0 0	O	2-Fluorophenol	SOLID	3951.983	2.8677E+03			739	ug/Kg	72.564	% Recovery	
														4.6808	% RPD	
9	MSD	S0905050103	S09V000183	0 0	O	Nitrobenzene-d5	SOLID	1975.991	1.4764E+03			680.7	ug/Kg	74.717	% Recovery	
														4.4992	% RPD	
9	MSD	S0905050103	S09V000183	0 0	O	Phenol-d5	SOLID	3951.983	3.0292E+03			636.78	ug/Kg	76.65	% Recovery	
														3.4893	% RPD	
9	MSD	S0905050103	S09V000183	0 0	O	2,4,6-Tribromophenol	SOLID	3951.983	3.7515E+03			589.07	ug/Kg	94.927	% Recovery	
														3.5766	% RPD	
9	MSD	S0905050103	S09V000183	0 0	O	Terphenyl-d14	SOLID	1975.991	2.0182E+03			521.38	ug/Kg	102.14	% Recovery	
														2.5101	% RPD	

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00014528

Carol J. Ojanen 6/18/09
Analyst Signature Date

6/18/09
Data Entry Signature Date

6/18/09
Reviewer Signature Date

P M: Gerald V Peterson 9/21/09

LABCORE Completed Batch Report for Batch# 00014528

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0905050099	BLNK				
2	S0905050099	BLNK				
3	S0905050100	LCS				
4	S09V000182	SAMPLE		20090160	B1YT80	C Farm WMA C
5	S09V000182	SAMPLE		20090160	B1YT80	C Farm WMA C
6	S09V000183	SAMPLE		20090160	B1YT83	C Farm WMA C
7	S09V000183	SAMPLE		20090160	B1YT83	C Farm WMA C
8	S0905050102	MS	S09V000183			
9	S0905050103	MSD	S09V000183			

5/19/2009 8:59:35AM
CompleteBatch Version 2.7.25
batchreports 2.7.26

LABCORE Completed Batch Report for Batch# 00014141

Analyst: Fabre, Martha **Book#:** SEE BENCH SHEET
Instrument: SOXHLET EXTRACTORS
Method: ORGANIC EXT.-SVOA SOLIDS, LA-523-138 Rev/Mod F-0
Specification: C Farm WMA C
Prep Batch: N/A
Batch Comment: Vadose C FArm, SVOA sol, Group # 20090160

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
1	BLNK	S0905050099			O	Extraction Complete	SOLID		Complete							
2	LCS	S0905050100			O	Extraction Complete	SOLID		Complete					N/A		
3	SAMPLE	S09V000182			O	Extraction Complete	SOLID	N/A	Complete							
4	MS	S0905050102	S09V000183		O	Extraction Complete	SOLID		Complete					N/A		
5	MSD	S0905050103	S09V000183		O	Extraction Complete	SOLID		Complete					N/A		
6	SAMPLE	S09V000183			O	Extraction Complete	SOLID	N/A	Complete							

Comments Section:

Data Flagger Status:
Flagger Not Run

Final Page for Batch# 00014141

Martha Fabre 5-19-09 — Analyst Signature — Date
Martha Fabre 5-19-09 — Data Entry Signature — Date
[illegible] 5/20/09 — Reviewer Signature — Date

Units shown for OC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014141

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0905050099	BLNK				
2	S0905050100	LCS				
3	S09V000182	SAMPLE		20090160	B1YT80	C Farm WMA C
4	S0905050102	MS	S09V000183			
5	S0905050103	MSD	S09V000183			
6	S09V000183	SAMPLE		20090160	B1YT83	C Farm WMA C

SVOA BENCH SHEET

No PCBs

PROJECT:	Vadose C Farm	extraction START 5/5/2009 15:00	
Batch Number	14141	extraction FINISH 5/6/09 8:47	
Matrix	Solid	Balance Used: LE-BAL-026 cal checked ok	
Extraction Procedure:	LA-523-138, F-0		
Extraction Analyst:	MOF/M.O.F	Date sent to counting room 5-6-09	
		Project Manager: JR Ritenour	

Sample number	Parent Samp #	(g) MASS	bar code #	COMMENTS	final volume
1) BLANK	N/A	20	789		2 mL MeCl2
2) LCS	N/A	20	790		2 mL MeCl2
3)S09V000183-SAM	S09V000175	19.650	791		2 mL MeCl2
4)S09V000183-MS	S09V000175	19.663	792		2 mL MeCl2
5)S09V000183-MSD	S09V000175	20.243	793	20.343	2 mL MeCl2
6)S09V000182-SAM	S09V000174	20.232	794	Much corser grain size than 183	2 mL MeCl2
Samples were split out. Added 2.5µl Int. Std				HNF-N-~~489~~-1893-T-92.01 and run on Tuvok. CJD 5-12-09	5-12-09
Samples were split out for T/C analysis. Added I.S. HNF-N-1893-92.01 & run on Tuvok. CJD					5/21/09
check std	N/A		795	Amount of STD .020 SURR .020 mL	1 mL MeCl2

Comments & observations

SAMPLE S09V000182 TURNED LIGHT YELLOW IN COLOR AFTER BLOW DOWN. M.O.F 5-6-09

SURR NAME	VOLUME (mL)	ID NUMBER	CONC.	MATRIX SPIKE NAME	VOLUME (mL)	ID NUMBER	CONC.
SVOA B/N SURR	0.040	cat# 31024 lot# A058129	1000 ppm	B/N MATRIX SPIKE	0.040	cat# 31004 lot# A055381	1000 ppm
Date opened	4-28-09			Date opened	3-24-09		
ACID SURR	0.040	cat# 31025 lot# A060492	2000 ppm	ACID MATRIX SPIKE	0.040	cat# 31014 lot# A047360	2000 ppm
Date opened	4-28-09			Date opened	3-24-09		
Methylene Chloride lot#	G40408 EXP: 1/31/2010						

Date: 28 April 2010
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: WMA C
Subject: Inorganics - Sample Data Group (SDG) 20090160

INTRODUCTION

This memorandum presents the results of data validation for SDG 20090160 prepared by 222-S Laboratory. A list of samples validated along with the analytical methods is provided in the following table.

Sample ID	Sample Date	Media	Validation Level	Analytical Methods
B1YT71	4/14/2009	Soil	C	See note 1
B1YT74	4/21/2009	Soil	C	See note 1
B1YT77	4/22/2009	Soil	C	See note 1
B1YT80	4/30/2009	Soil	C	See note 1
B1YT83	4/30/2009	Soil	C	See note 1

1 – 6010C (ICP-AES); 6020A (ICP-MS, including metals, fission products and actinides); 7471A (CVAA Hg)

Data validation was conducted in accordance with the CHPRC validation statement of work and the Field Sampling and Analysis Plan for Sites P and L at Waste Management Area C, RPP-PLAN-40564, Rev. 0 (SAP). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Documentation Requested By Client

DATA QUALITY OBJECTIVES

- **Holding Times and Sample Preservation**

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The holding time requirement for ICP metals are analysis within 180 days of sample collection, and the holding time requirement for mercury is analysis within 28 days of sample collection. Sample preservation for all analytes requires chilling to 4 degrees Celsius.

The samples were analyzed within the prescribed holding times and properly preserved with the following exceptions.

For ICP-MS metals analysis, all samples were analyzed beyond the holding time but within 2X the holding time. All associated sample results should be qualified as estimates and flagged "UJ" for non-detects and "J" for detects. See the table in Appendix 2 for a listing of all affected sample results.

For CVAA analysis, samples B1YT80 and B1YT83 were analyzed beyond the holding time but within 2X the holding time. The Hg results for these two samples were non-detects and should be qualified as estimates and flagged "UJ."

- **Blanks**

The blank data results are reviewed to assess the extent of contamination introduced through sampling, sample preparation, and analysis.

Laboratory Blanks

All laboratory blank results were acceptable with the following exceptions.

For ICP-AES batch 16229, the Ca laboratory blank result was > the method detection limit (MDL). The associated sample result was a detect >5X the blank result and should not be qualified.

For ICP-MS batch 16341, the Sn-117 laboratory blank result was > the MDL. The associated sample results were non-detects and should not be qualified.

For ICP-MS batch 15762, the Th-232 laboratory blank result was > the MDL. The associated sample results were detects >5X the blank result and should not be qualified.

For ICP-MS batch 16171, the Th-232, U-235 and U-238 laboratory blank results were > the MDLs. The associated sample results were detects >5X the blank results and should not be qualified.

For ICP-MS batch 16927, the Ag, Cd, Tl and Ni laboratory blank results were > the MDLs. The Ag results for samples B1YT71, B1YT74, B1YT77 and B1YT80 were detects <5X the blank result and should be qualified as non-detect estimates and flagged "UJ." The Cd results for samples B1YT74, B1YT77 and B1YT80 were detects <5X the blank result and should be qualified as non-detect estimates and flagged "UJ." The Tl result for sample B1YT80 was a detect <5X the blank result and should be qualified as a non-detect estimate and flagged "UJ." The Cd, Tl and Ni results for the remaining samples were detects >5X the blank results and should not be qualified for the blank infractions.

For ICP-MS batch 17063, the Tl laboratory blank result was > the MDL. The Tl result for sample B1YT83 was a detect <5X the blank result and should be qualified as a non-detect estimate and flagged "UJ."

For ICP-MS batch 17222, the Se laboratory blank result was > the MDL. The associated sample result was a non-detect and should not be qualified for the blank infraction.

Trip Blanks

No trip blanks were submitted for analysis.

Field Blanks

No field blanks were submitted for analysis.

Equipment Blanks

No equipment blanks were submitted for analysis.

- **Accuracy**

Accuracy is evaluated by reviewing matrix spike sample results and laboratory control sample results. According to the SAP, the laboratory control sample accuracy limits are 80% to 120%, and the matrix spike sample accuracy limits are 75% to 125%. The limits for reported analytes not listed in the SAP are specified by the DV procedure.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Samples

All MS/MSD recoveries were acceptable with the following exceptions.

For ICP-AES batch 15041, the Si MS recovery was > the upper acceptance limit, and the Ta MS recovery was < the lower acceptance limit but ≥30%. The Si results for samples B1YT71, B1YT74, B1YT77 and B1YT80, and the Ta result for sample B1YT71 were detects and should be qualified as estimates and flagged "J." Ta was not reported or required for samples B1YT74, B1YT77 and B1YT80.

Laboratory Control Samples (LCSs)

All LCS recoveries were acceptable with the following exception.

For ICP-MS batch 16341, the Sn-117 LCS recovery was > the upper acceptance limit. The Sn-117 and Sn-126 (Sn-126 represented by Sn-117) sample results were non-detects and should not be qualified.

- **Precision**

Precision is evaluated by reviewing MS/MSD results, laboratory duplicate sample results, field duplicate sample results, and field split sample results. These QC results provide information on the laboratory reproducibility and whether sampling activities are adequate to acquire consistent sample results. According to the SAP, the relative percent difference (RPD) limits are ±30%.

The limits for reported analytes not listed in the SAP are specified by the DV procedure. When duplicate RPDs exceed the limits and have associated results <5X the SAP required detection limits (or <5X the target detection limits when required detection limits are not provided) with differences <2X the required/target detection limits no precision infraction occurred.

MS/MSD Samples

All MS/MSD RPD values were acceptable.

Laboratory Duplicate Samples

All laboratory duplicate results were acceptable.

Field Duplicate Samples

No field duplicates were submitted for analysis.

Field Split Samples

No field splits were submitted for analysis.

- **Detection Limits**

Reported MDLs are compared against the contractually required detection limits (CRDLs) to ensure that laboratory detection limits meet the required criteria.

All reported sample MDLs were below the CRDLs [or Target Detection Limits (TDLs) when CRDLs were not provided in the SAP] with the following exceptions. Note, the following lists associated non-detected sample results only since MDLs > CRDLs/TDLs are not an issue for detected results.

For sample B1YT71, the Mo, U and Se MDLs were > the CRDLs.
For samples B1YT74, B1YT77, B1YT80 and B1YT83 the U and Se MDLs were > the CRDLs.

- **Completeness**

SDG 20090160 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Multiple minor deficiencies leading to qualification of sample results as estimates occurred. See the table in Appendix 2 for a listing of all affected sample results.

REFERENCES

HNF-20433, Rev. 0, *Data Validation Procedure for Chemical Analyses*, June 2004.

RPP-PLAN-40564, Rev. 0, *Field Sampling and Analysis Plan for Sites P and L at Waste Management Area C*, March 2009.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers that may be applied by data validators in compliance with the CHPRC statement of work are as follows:

- **U** — The constituent was analyzed for and was not detected. The data should be considered usable for decision-making purposes.

- **UJ** — The constituent was analyzed for and was not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the MDL. The data should be considered usable for decision-making purposes.

- **J** — Indicates the constituent was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **UR** — Indicates the constituent was analyzed for and not detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

- **R** — Indicates the constituent was analyzed for and detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

Appendix 2

Summary of Data Qualification

Inorganic Data Qualification Summary			
SDG: 20090160	Reviewer: AQA	Project: WMA C	Page 1 of 2
Analyte(s)	**Qualifier**	**Samples Affected**	**Reason**
Si	J	B1YT71, B1YT74, B1YT77, B1YT80	High MS recovery
Ta	J	B1YT71	High MS recovery
Ag	UJ	B1YT71, B1YT74, B1YT77, B1YT80	Laboratory blank contamination and analysis beyond the holding time but within 2X the holding time
Ag	UJ	B1YT83	Analysis beyond the holding time but within 2X the holding time
Cd	UJ	B1YT74, B1YT77, B1YT80	Laboratory blank contamination and analysis beyond the holding time but within 2X the holding time
Cd	J	B1YT71, B1YT83	Analysis beyond the holding time but within 2X the holding time
Tl	UJ	B1YT80, B1YT83	Laboratory blank contamination and analysis beyond the holding time but within 2X the holding time
Tl	J	B1YT71, B1YT74, B1YT77	Analysis beyond the holding time but within 2X the holding time
As, Co, Pb, V & Ni	J	B1YT71, B1YT74, B1YT77, B1YT80, B1YT83	Analysis beyond the holding time but within 2X the holding time
Cr	J	B1YT71, B1YT74, B1YT77, B1YT80	Analysis beyond the holding time but within 2X the holding time
Sb	J	B1YT71	Analysis beyond the holding time but within 2X the holding time
Sb	UJ	B1YT74, B1YT77, B1YT80, B1YT83	Analysis beyond the holding time but within 2X the holding time

Inorganic Data Qualification Summary			
SDG: 20090160	Reviewer: AQA	Project: WMA C	Page 2 of 2
Analyte(s)	**Qualifier**	**Samples Affected**	**Reason**
Se	UJ	B1YT71, B1YT74, B1YT77, B1YT80, B1YT83	Analysis beyond the holding time but within 2X the holding time
Hg	UJ	B1YT80, B1YT83	Analysis beyond the holding time but within 2X the holding time

Comments: None

Appendix 3

Annotated Laboratory Reports

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT71
Sample Depth: 14-15

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000171			%WATERA	%WATER APD	%	n/a	n/a	9.120	n/a	n/a	n/a	n/a	n/a	n/a	
S09V000171			57-12-5	Cyanide	ug/g	108	<0.0370	<4.77	<4.82	n/a	n/a	102	4.77	n/a	U
S09V000171			10198-40-0	Cobalt-60	uCi/g	103	<2.35E-07	8.33E-07	n/a	n/a	n/a	n/a	2.40E-07	15.31	
S09V000171			14234-35-6	Antimony-125	uCi/g	n/a	<6.05E-07	1.12E-06	n/a	n/a	n/a	n/a	8.63E-07	40.05	J
S09V000171			10045-97-3	Cesium-137	uCi/g	108	<2.89E-07	7.31E-05	n/a	n/a	n/a	n/a	2.89E-07	6.25	
S09V000171			14683-23-9	Europium-152	uCi/g	n/a	<1.20E-06	<1.28E-06	n/a	n/a	n/a	n/a	1.28E-06	n/a	U
S09V000171			15585-10-1	Europium-154	uCi/g	n/a	<7.88E-07	<8.85E-07	n/a	n/a	n/a	n/a	8.85E-07	n/a	U
S09V000171			14391-16-3	Europium-155	uCi/g	n/a	<4.64E-07	<7.81E-07	n/a	n/a	n/a	n/a	7.81E-07	n/a	U
S09V000171			7439-97-6	Mercury	ug/g	100	<1.00E-04	<0.0175	<0.0201	n/a	n/a	97.3	0.0175	n/a	U
S09V000171			15046-84-1	Iodine-129	uCi/g	91.4	<2.74E-07	<2.38E-07	n/a	n/a	n/a	n/a	2.38E-07	n/a	U
S09V000171			PH	pH	unitless	n/a	n/a	10.1	10.1	10.1	0.396	n/a	0.0100	n/a	
S09V000171			18496-25-8	Sulfide	ug/g	107	<0.180	32.2	32.1	32.15	0.142	113	7.61	n/a	J
S09V000179		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	72.4	<774	<72.9	n/a	n/a	n/a	n/a	72.9	n/a	U
S09V000179		O	95-50-1	1,2-Dichlorobenzene	ug/kg	n/a	<1.01E+03	<94.8	n/a	n/a	n/a	n/a	94.8	n/a	U
S09V000179		O	106-46-7	1,4-Dichlorobenzene	ug/kg	68.5	<1.13E+03	<107	n/a	n/a	n/a	n/a	107	n/a	U
S09V000179		O	121-14-2	2,4-Dinitrotoluene	ug/kg	80.0	<381	<35.9	n/a	n/a	n/a	n/a	35.9	n/a	U
S09V000179		O	95-95-4	2,4,5-Trichlorophenol	ug/kg	n/a	<440	<41.4	n/a	n/a	n/a	n/a	41.4	n/a	U
S09V000179		O	88-06-2	2,4,6-Trichlorophenol	ug/kg	n/a	<495	<46.6	n/a	n/a	n/a	n/a	46.6	n/a	U
S09V000179		O	95-48-7	2-Methylphenol	ug/kg	n/a	<575	<54.1	n/a	n/a	n/a	n/a	54.1	n/a	U
S09V000179		O	88-75-5	2-Nitrophenol	ug/kg	n/a	<537	<50.6	n/a	n/a	n/a	n/a	50.6	n/a	U
S09V000179		O	108-39-4M	Cresol (m & p)	ug/kg	n/a	<514	<48.4	n/a	n/a	n/a	n/a	48.4	n/a	U
S09V000179		O	83-32-9	Acenaphthene	ug/kg	76.9	<176	<16.6	n/a	n/a	n/a	n/a	16.6	n/a	U
S09V000179		O	56-55-3	Benzo(a)anthracene	ug/kg	n/a	<378	<35.6	n/a	n/a	n/a	n/a	35.6	n/a	U
S09V000179		O	205-99-2	Benzo(b)fluoranthene	ug/kg	n/a	<489	<46.0	n/a	n/a	n/a	n/a	46.0	n/a	U
S09V000179		O	50-32-8	Benzo(a)pyrene	ug/kg	n/a	<412	<38.8	n/a	n/a	n/a	n/a	38.8	n/a	U
S09V000179		O	117-81-7	Bis(2-ethylhexyl) phthalate	ug/kg	n/a	<5.90E+03	<556	n/a	n/a	n/a	n/a	556	n/a	U
S09V000179		O	207-08-9	Benzo(k)fluoranthene	ug/kg	n/a	<391	<36.8	n/a	n/a	n/a	n/a	36.8	n/a	U
S09V000179		O	85-68-7	Butylbenzylphthalate	ug/kg	n/a	<500	<47.1	n/a	n/a	n/a	n/a	47.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated
B - Found in Blank
X - Comment
U - Less Than Detection Limit
a - LCS Outside Range
Y - Comment
c - RPD Outside Range
b - MS/MSD Outside Range
e - SERDIL Outside Range

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT71
Sample Depth: 14-15

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000179		O	59-50-7	4-Chloro-3-methylphenol	ug/kg	72.4	<432	<40.7	n/a	n/a	n/a	n/a	40.7	n/a	U
S09V000179		O	95-57-8	2-Chlorophenol	ug/kg	66.9	<665	<62.6	n/a	n/a	n/a	n/a	62.6	n/a	U
S09V000179		O	218-01-9	Chrysene	ug/kg	n/a	<814	<76.6	n/a	n/a	n/a	n/a	76.6	n/a	U
S09V000179		O	53-70-3	Dibenz[a,h]anthracene	ug/kg	n/a	<511	<48.1	n/a	n/a	n/a	n/a	48.1	n/a	U
S09V000179		O	84-74-2	Di-n-butylphthalate	ug/kg	n/a	<5.62E+03	<529	n/a	n/a	n/a	n/a	529	n/a	U
S09V000179		O	117-84-0	Di-n-octylphthalate	ug/kg	n/a	<477	<44.9	n/a	n/a	n/a	n/a	44.9	n/a	U
S09V000179		O	621-64-7	N-Nitroso-di-n-dipropylamine	ug/kg	65.7	<581	<54.7	n/a	n/a	n/a	n/a	54.7	n/a	U
S09V000179		O	206-44-0	Fluoranthene	ug/kg	n/a	<354	<33.3	n/a	n/a	n/a	n/a	33.3	n/a	U
S09V000179		O	87-68-3	Hexachlorobutadiene	ug/kg	n/a	<697	<65.6	n/a	n/a	n/a	n/a	65.6	n/a	U
S09V000179		O	67-72-1	Hexachloroethane	ug/kg	n/a	<1.12E+03	<105	n/a	n/a	n/a	n/a	105	n/a	U
S09V000179		O	193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	n/a	<510	<48.0	n/a	n/a	n/a	n/a	48.0	n/a	U
S09V000179		O	108-95-2	Phenol	ug/kg	69.2	<594	<55.9	n/a	n/a	n/a	n/a	55.9	n/a	U
S09V000179		O	91-20-3	Naphthalene	ug/kg	n/a	<626	<58.9	n/a	n/a	n/a	n/a	58.9	n/a	U
S09V000179		O	98-95-3	Nitrobenzene	ug/kg	n/a	<646	<60.8	n/a	n/a	n/a	n/a	60.8	n/a	U
S09V000179		O	100-02-7	4-Nitrophenol	ug/kg	79.5	<526	<49.5	n/a	n/a	n/a	n/a	49.5	n/a	U
S09V000179		O	87-86-5	Pentachlorophenol	ug/kg	76.3	<375	<35.3	n/a	n/a	n/a	n/a	35.3	n/a	U
S09V000179		O	129-00-0	Pyrene	ug/kg	80.4	<629	<59.2	n/a	n/a	n/a	n/a	59.2	n/a	U
S09V000179		O	110-86-1	Pyridine	ug/kg	n/a	<650	<61.2	n/a	n/a	n/a	n/a	61.2	n/a	U
S09V000179		O	126-73-8	Tributyl phosphate	ug/kg	n/a	<1.08E+03	<102	n/a	n/a	n/a	n/a	102	n/a	U
S09V000179		O	128-37-0	BHT	ug/kg	n/a	<2.36E+03	<222	n/a	n/a	n/a	n/a	222	n/a	U
S09V000179		O	110-80-5	2-Ethoxyethanol	ug/kg	n/a	<1.82E+03	<172	n/a	n/a	n/a	n/a	172	n/a	U
S09V000179		O	1319-77-3	Total Methylphenols	ug/kg	n/a	<1.07E+03	<100	n/a	n/a	n/a	n/a	100	n/a	U
S09V000179		O	108-94-1	Cyclohexanone	ug/kg	n/a	<5.59E+03	<526	n/a	n/a	n/a	n/a	526	n/a	U
S09V000179		O	59-89-2	N-Nitrosomorpholine	ug/kg	n/a	<1.91E+03	<180	n/a	n/a	n/a	n/a	180	n/a	U
S09V000179		O	78-83-1	Isobutanol	ug/kg	n/a	<4.60E+03	<433	n/a	n/a	n/a	n/a	433	n/a	U
S09V000187		W	14762-75-5	Carbon-14	uCi/g	98.6	<3.65E-07	<5.45E-05	<8.56E-05	n/a	n/a	98.3	5.45E-05	n/a	U
S09V000187		W	10028-17-8	Tritium	uCi/g	92.2	<3.28E-04	<4.15E-04	<3.07E-04	n/a	n/a	93.4	4.15E-04	n/a	U
S09V000195		A	7429-90-5	Aluminum	ug/g	93.0	<0.0300	7.80E+03	7.49E+03	7645	4.07	233	30.3	n/a	

NA = Not Analyzed, ND = Not Detected

J - Estimated
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X - Comment
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a - LCS Outside Range
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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT71
Sample Depth: 14-15

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000195		A	7440-39-3	Barium		ug/g	99.0	<3.00E-03	77.1	73.7	75.4	4.51	94.8	3.03	n/a	
S09V000195		A	7440-41-7	Beryllium		ug/g	103	<1.00E-03	<1.01	<1.01	n/a	n/a	97.0	1.01	n/a	U
S09V000195		A	7440-70-2	Calcium		ug/g	93.0	<0.0500	1.18E+04	1.11E+04	11450	6.19	128	50.5	n/a	
S09V000195		A	7440-50-8	Copper		ug/g	97.0	<5.00E-03	12.5	13.7	13.1	8.71	93.4	5.05	n/a	J
S09V000195		A	7439-89-6	Iron		ug/g	96.5	<5.00E-03	2.51E+04	2.39E+04	24500	5.16	-70.4	5.05	n/a	
S09V000195		A	7440-09-7	Potassium		ug/g	88.8	<0.500	1.27E+03	1.19E+03	1230	6.65	85.3	505	n/a	J
S09V000195		A	7439-91-0	Lanthanum		ug/g	99.7	<3.00E-03	13.8	11.9	12.85	14.9	94.4	3.03	n/a	J
S09V000195		A	7439-93-2	Lithium		ug/g	100	<3.00E-03	8.30	7.71	8.005	7.31	93.1	3.03	n/a	J
S09V000195		A	7439-95-4	Magnesium		ug/g	92.2	<0.0500	6.21E+03	5.97E+03	6090	3.86	84.9	50.5	n/a	
S09V000195		A	7439-96-5	Manganese		ug/g	96.4	<3.00E-03	369	348	358.5	5.91	89.1	3.03	n/a	
S09V000195		A	7439-98-7	Molybdenum		ug/g	97.0	<0.0200	<20.2	<20.2	n/a	n/a	90.7	20.2	n/a	U
S09V000195		A	7440-23-5	Sodium		ug/g	96.4	<0.100	1.93E+03	1.91E+03	1920	1.02	107	101	n/a	
S09V000195		A	7440-00-8	Neodymium		ug/g	n/a	<0.0100	21.2	20.6	20.9	2.71	96.1	10.1	n/a	J
S09V000195		A	7723-14-0	Phosphorus		ug/g	94.8	<0.0500	984	921	952.5	6.68	84.6	50.5	n/a	
S09V000195		A	7440-05-3	Palladium		ug/g	88.7	<0.100	132	<101	n/a	n/a	78.9	101	n/a	J
S09V000195		A	7440-21-3	Silicon	J	ug/g	88.3	<0.0300	1.63E+03	1.51E+03	1570	7.26	311	30.3	n/a	b
S09V000195		A	7440-24-6	Strontium		ug/g	98.8	<3.00E-03	32.3	30.9	31.6	4.38	94.0	3.03	n/a	
S09V000195		A	7440-25-7	Tantalum	J	ug/g	97.8	<0.0500	58.6	<50.4	n/a	n/a	41.6	50.5	n/a	J
S09V000195		A	7440-32-6	Titanium		ug/g	96.1	<5.00E-03	1.96E+03	1.87E+03	1915	4.44	87.6	5.05	n/a	
S09V000195		A	7440-61-1	Uranium		ug/g	103	<0.100	<101	<101	n/a	n/a	97.2	101	n/a	U
S09V000195		A	7440-65-5	Yttrium		ug/g	96.0	<2.00E-03	10.9	10.5	10.7	3.92	92.6	2.02	n/a	J
S09V000195		A	7440-66-6	Zinc		ug/g	92.4	<5.00E-03	48.6	45.3	46.95	6.85	84.9	5.05	n/a	
S09V000195		A	7440-67-7	Zirconium		ug/g	93.8	<5.00E-03	17.3	15.8	16.55	8.88	88.8	5.05	n/a	J
S09V000195		A	14269-63-7	Thorium-230		ug/g	n/a	<3.50E-07	<7.07E-05	<7.06E-05	n/a	n/a	n/a	7.07E-05	n/a	U
S09V000195		A	TH-232	Thorium-232		ug/g	102	3.14E-05	3.62	3.22	3.42	11.8	99.7	1.72E-03	n/a	
S09V000195		A	13968-55-3	Uranium-233		ug/g	n/a	<5.00E-07	1.35E-04	1.35E-04	.000135	0.245	n/a	1.01E-04	n/a	J
S09V000195		A	13966-29-5	Uranium-234		ug/g	n/a	<2.50E-07	9.98E-05	1.16E-04	.0001079	14.8	n/a	5.05E-05	n/a	J
S09V000195		A	15117-96-1	Uranium-235		ug/g	101	<5.50E-07	0.0117	0.0151	.0134	25.2	104	1.11E-04	n/a	

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT71
Sample Depth: 14-15

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000195		A	13982-70-2	Uranium-236		ug/g	n/a	<2.00E-07	6.06E-04	7.03E-04	.0006545	14.9	n/a	4.04E-05	n/a	
S09V000195		A	13994-20-2	Neptunium-237		ug/g	112	<2.65E-06	2.07E-03	1.28E-03	.001675	47.5	109	5.35E-04	n/a	BJ
S09V000195		A	U-238	Uranium-238		ug/g	102	<2.75E-05	1.46	1.84	1.65	23.3	104	5.56E-03	n/a	
S09V000195		A	7440-22-4	Silver	UJ	ug/g	107	2.07E-04	0.137	0.134	.1355	2.17	107	0.0323	n/a	BJ
S09V000195		A	7440-38-2	Arsenic	J	ug/g	114	<8.40E-04	5.62	5.70	5.66	1.44	113	0.170	n/a	
S09V000195		A	7440-48-4	Cobalt	J	ug/g	110	<4.00E-04	8.96	9.66	9.31	7.47	109	0.808	n/a	
S09V000195		A	7440-43-9	Cadmium	J	ug/g	106	7.01E-05	0.125	0.120	.1225	3.53	106	0.0121	n/a	B
S09V000195		A	7440-47-3	Chromium	J	ug/g	110	<2.80E-03	8.23	8.12	8.175	1.29	109	0.566	n/a	
S09V000195		A	7439-92-1	Lead	J	ug/g	116	<6.20E-04	7.74	7.75	7.745	0.162	110	0.125	n/a	
S09V000195		A	7440-36-0	Antimony	J	ug/g	110	<8.80E-04	0.184	0.187	.1855	1.38	103	0.178	n/a	J
S09V000195		A	7782-49-2	Selenium	UJ	ug/g	112	<1.22E-03	<0.246	<0.246	n/a	n/a	110	0.246	n/a	U
S09V000195		A	7440-28-0	Thallium	J	ug/g	111	6.92E-05	0.0941	0.100	.09705	6.40	109	0.0121	n/a	BJ
S09V000195		A	7440-62-2	Vanadium	J	ug/g	113	<4.80E-04	60.2	61.1	60.65	1.46	109	0.970	n/a	
S09V000195		A	7440-02-0	Nickel	J	ug/g	109	3.20E-04	12.3	10.2	11.25	18.7	106	0.485	n/a	
S09V000203		E	CM-243/244	Curium-243/244		uCi/g	n/a	<4.01E-07	<4.60E-07	n/a	n/a	n/a	n/a	4.60E-07	n/a	U
S09V000203		E	14596-10-2	Americium-241		uCi/g	102	<1.00E-06	2.20E-06	n/a	n/a	n/a	n/a	1.15E-06	12.87	
S09V000203		E	15510-73-3	Curium-242		uCi/g	n/a	<4.01E-07	<4.60E-07	n/a	n/a	n/a	n/a	4.60E-07	n/a	U
S09V000203		E	13981-37-8	Nickel-63		uCi/g	85.5	<6.14E-05	<6.85E-05	n/a	n/a	n/a	n/a	6.85E-05	n/a	U
S09V000203		E	PU-239/240	Plutonium-239/240		uCi/g	96.1	<7.24E-07	1.07E-05	n/a	n/a	n/a	n/a	1.10E-06	6.9	
S09V000203		E	13981-16-3	Plutonium-238		uCi/g	n/a	<7.24E-07	<1.10E-06	n/a	n/a	n/a	n/a	1.10E-06	n/a	U
S09V000203		E	15758-45-9	Selenium-79		uCi/g	n/a	<3.20E-06	2.50E-06	n/a	n/a	n/a	n/a	1.50E-06	4309.52	J
S09V000203		E	SR-89/90	Strontium-89/90		uCi/g	99.9	<1.56E-06	1.20E-04	n/a	n/a	n/a	n/a	2.36E-06	8.5	
S09V000211		A	14133-76-7	Technetium-99		ug/g	104	<6.00E-06	1.40E-03	<1.22E-03	n/a	n/a	100	1.21E-03	n/a	J
S09V000211		A	SN-117	Tin-117		ug/g	142	9.07E-04	<0.0445	<0.0447	n/a	n/a	86.7	0.0445	n/a	Ua
S09V000211		A	15832-50-5	Tin-126		ug/g	n/a	<4.00E-06	<8.09E-04	<8.13E-04	n/a	n/a	n/a	8.09E-04	n/a	U
S09V000219		S	14798-03-9	Ammonium		ug/g	99.1	<0.0120	4.03	4.54	4.285	11.8	95.7	0.470	n/a	J
S09V001330		W	16984-48-8	Fluoride		ug/g	97.1	<1.81E-03	4.76	3.15	3.955	40.8	101	0.0199	n/a	Bc
S09V001330		W	666-14-8	Glycolate		ug/g	99.8	<9.37E-03	<0.116	<0.116	n/a	n/a	102	0.116	n/a	U

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT74
Sample Depth: 19.5-21.5

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000172			%WATERA	%WATER-APD	%	n/a	n/a	6.600	n/a	n/a	n/a	n/a	n/a	n/a	
S09V000172			57-12-5	Cyanide	ug/g	108	<0.0370	<4.67	n/a	n/a	n/a	n/a	4.67	n/a	U
S09V000172			10198-40-0	Cobalt-60	uCi/g	103	<2.35E-07	6.26E-07	n/a	n/a	n/a	n/a	2.05E-07	18.79	
S09V000172			14234-35-6	Antimony-125	uCi/g	n/a	<6.05E-07	<6.99E-07	n/a	n/a	n/a	n/a	6.99E-07	n/a	U
S09V000172			10045-97-3	Cesium-137	uCi/g	108	<2.89E-07	6.31E-06	n/a	n/a	n/a	n/a	3.26E-07	7.66	
S09V000172			14683-23-9	Europium-152	uCi/g	n/a	<1.20E-06	<1.19E-06	n/a	n/a	n/a	n/a	1.19E-06	n/a	U
S09V000172			15585-10-1	Europium-154	uCi/g	n/a	<7.88E-07	2.28E-06	n/a	n/a	n/a	n/a	8.08E-07	8.41	
S09V000172			14391-16-3	Europium-155	uCi/g	n/a	<4.04E-07	8.18E-07	n/a	n/a	n/a	n/a	4.95E-07	33.17	J
S09V000172			7439-97-6	Mercury	ug/g	100	<1.00E-04	<0.0205	n/a	n/a	n/a	n/a	0.0205	n/a	U
S09V000172			15046-84-1	Iodine-129	uCi/g	91.4	<2.74E-07	<2.02E-07	n/a	n/a	n/a	n/a	2.02E-07	n/a	U
S09V000172			PH	pH	unitless	n/a	7.99	10.3	10.3	10.3	0.291	n/a	0.0100	n/a	
S09V000172			18496-25-8	Sulfide	ug/g	93.1	<0.180	10.3	7.96	9.13	26.0	81.9	5.24	n/a	J
S09V000180		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	72.4	<774	<77.5	n/a	n/a	n/a	65.5	77.5	n/a	U
S09V000180		O	95-50-1	1,2-Dichlorobenzene	ug/kg	n/a	<1.01E+03	<101	n/a	n/a	n/a	n/a	101	n/a	U
S09V000180		O	106-46-7	1,4-Dichlorobenzene	ug/kg	68.5	<1.13E+03	<113	n/a	n/a	n/a	61.3	113	n/a	U
S09V000180		O	121-14-2	2,4-Dinitrotoluene	ug/kg	80.0	<381	<38.2	n/a	n/a	n/a	76.9	38.2	n/a	U
S09V000180		O	95-95-4	2,4,5-Trichlorophenol	ug/kg	n/a	<440	<44.1	n/a	n/a	n/a	n/a	44.1	n/a	U
S09V000180		O	88-06-2	2,4,6-Trichlorophenol	ug/kg	n/a	<495	<49.6	n/a	n/a	n/a	n/a	49.6	n/a	U
S09V000180		O	95-48-7	2-Methylphenol	ug/kg	n/a	<575	<57.6	n/a	n/a	n/a	n/a	57.6	n/a	U
S09V000180		O	88-75-5	2-Nitrophenol	ug/kg	n/a	<537	<53.8	n/a	n/a	n/a	n/a	53.8	n/a	U
S09V000180		O	108-39-4M	Cresol (m & p)	ug/kg	n/a	<514	<51.5	n/a	n/a	n/a	n/a	51.5	n/a	U
S09V000180		O	83-32-9	Acenaphthene	ug/kg	76.9	<176	<17.6	n/a	n/a	n/a	70.9	17.6	n/a	U
S09V000180		O	56-55-3	Benzo(a)anthracene	ug/kg	n/a	<378	<37.9	n/a	n/a	n/a	n/a	37.9	n/a	U
S09V000180		O	205-99-2	Benzo(b)fluoranthene	ug/kg	n/a	<489	<49.0	n/a	n/a	n/a	n/a	49.0	n/a	U
S09V000180		O	50-32-8	Benzo(a)pyrene	ug/kg	n/a	<412	<41.3	n/a	n/a	n/a	n/a	41.3	n/a	U
S09V000180		O	117-81-7	Bis(2-ethylhexyl) phthalate	ug/kg	n/a	<5.90E+03	<591	n/a	n/a	n/a	n/a	591	n/a	U
S09V000180		O	207-08-9	Benzo(k)fluoranthene	ug/kg	n/a	<391	<39.2	n/a	n/a	n/a	n/a	39.2	n/a	U
S09V000180		O	85-68-7	Butylbenzylphthalate	ug/kg	n/a	<500	<50.1	n/a	n/a	n/a	n/a	50.1	n/a	U

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT74
Sample Depth: 19.5-21.5

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000180		O	59-50-7	4-Chloro-3-methylphenol	ug/kg	72.4	<432	<43.3	n/a	n/a	n/a	72.3	43.3	n/a	U
S09V000180		O	95-57-8	2-Chlorophenol	ug/kg	66.9	<665	<66.6	n/a	n/a	n/a	61.3	66.6	n/a	U
S09V000180		O	218-01-9	Chrysene	ug/kg	n/a	<814	<81.5	n/a	n/a	n/a	n/a	81.5	n/a	U
S09V000180		O	53-70-3	Dibenz[a,h]anthracene	ug/kg	n/a	<511	<51.2	n/a	n/a	n/a	n/a	51.2	n/a	U
S09V000180		O	84-74-2	Di-n-butylphthalate	ug/kg	n/a	<5.62E+03	<563	n/a	n/a	n/a	n/a	563	n/a	U
S09V000180		O	117-84-0	Di-n-octylphthalate	ug/kg	n/a	<477	<47.8	n/a	n/a	n/a	n/a	47.8	n/a	U
S09V000180		O	621-64-7	N-Nitroso-di-n-dipropylamine	ug/kg	65.7	<581	<58.2	n/a	n/a	n/a	59.7	58.2	n/a	U
S09V000180		O	206-44-0	Fluoranthene	ug/kg	n/a	<354	<35.4	n/a	n/a	n/a	n/a	35.4	n/a	U
S09V000180		O	87-68-3	Hexachlorobutadiene	ug/kg	n/a	<697	<69.8	n/a	n/a	n/a	n/a	69.8	n/a	U
S09V000180		O	67-72-1	Hexachloroethane	ug/kg	n/a	<1.12E+03	<112	n/a	n/a	n/a	n/a	112	n/a	U
S09V000180		O	193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	n/a	<510	<51.1	n/a	n/a	n/a	n/a	51.1	n/a	U
S09V000180		O	108-95-2	Phenol	ug/kg	69.2	<594	<59.5	n/a	n/a	n/a	64.3	59.5	n/a	U
S09V000180		O	91-20-3	Naphthalene	ug/kg	n/a	<626	<62.7	n/a	n/a	n/a	n/a	62.7	n/a	U
S09V000180		O	98-95-3	Nitrobenzene	ug/kg	n/a	<646	<64.7	n/a	n/a	n/a	n/a	64.7	n/a	U
S09V000180		O	100-02-7	4-Nitrophenol	ug/kg	79.9	<526	<52.7	n/a	n/a	n/a	78.9	52.7	n/a	U
S09V000180		O	87-86-5	Pentachlorophenol	ug/kg	76.3	<375	<37.6	n/a	n/a	n/a	78.3	37.6	n/a	U
S09V000180		O	129-00-0	Pyrene	ug/kg	80.4	<629	<63.0	n/a	n/a	n/a	79.8	63.0	n/a	U
S09V000180		O	110-86-1	Pyridine	ug/kg	n/a	<650	<65.1	n/a	n/a	n/a	n/a	65.1	n/a	U
S09V000180		O	126-73-8	Tributyl phosphate	ug/kg	n/a	<1.08E+03	<108	n/a	n/a	n/a	n/a	108	n/a	U
S09V000180		O	128-37-0	BHT	ug/kg	n/a	<2.36E+03	<236	n/a	n/a	n/a	n/a	236	n/a	U
S09V000180		O	110-80-5	2-Ethoxyethanol	ug/kg	n/a	<1.82E+03	<183	n/a	n/a	n/a	n/a	183	n/a	U
S09V000180		O	1319-77-3	Total Methylphenols	ug/kg	n/a	<1.07E+03	<107	n/a	n/a	n/a	n/a	107	n/a	U
S09V000180		O	108-94-1	Cyclohexanone	ug/kg	n/a	<5.59E+03	<560	n/a	n/a	n/a	n/a	560	n/a	U
S09V000180		O	59-89-2	N-Nitrosomorpholine	ug/kg	n/a	<1.91E+03	<192	n/a	n/a	n/a	n/a	192	n/a	U
S09V000180		O	78-83-1	Isobutanol	ug/kg	n/a	<4.60E+03	<461	n/a	n/a	n/a	n/a	461	n/a	U
S09V000188		W	14762-75-5	Carbon-14	uCi/g	98.6	<3.65E-07	<6.45E-05	n/a	n/a	n/a	n/a	6.45E-05	n/a	U
S09V000188		W	10028-17-8	Tritium	uCi/g	92.2	<3.28E-04	<4.36E-04	n/a	n/a	n/a	n/a	4.36E-04	n/a	U
S09V000196		A	7429-90-5	Aluminum	ug/g	93.0	<0.0300	4.90E+03	n/a	n/a	n/a	n/a	6.04	n/a	

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT74
Sample Depth: 19.5-21.5

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000196		A	7440-39-3	Barium	ug/g	99.0	<3.00E-03	65.8	n/a	n/a	n/a	n/a	0.604	n/a	
S09V000196		A	7440-41-7	Beryllium	ug/g	103	<1.00E-03	<0.201	n/a	n/a	n/a	n/a	0.201	n/a	U
S09V000196		A	7440-70-2	Calcium	ug/g	93.0	<0.0500	5.17E+03	n/a	n/a	n/a	n/a	10.1	n/a	
S09V000196		A	7440-45-1	Cerium	ug/g	102	<0.0300	19.8	n/a	n/a	n/a	n/a	6.04	n/a	J
S09V000196		A	7440-50-8	Copper	ug/g	97.0	<5.00E-03	12.6	n/a	n/a	n/a	n/a	1.01	n/a	
S09V000196		A	7440-53-1	Europium	ug/g	97.2	<5.00E-03	1.43	n/a	n/a	n/a	n/a	1.01	n/a	J
S09V000196		A	7439-89-6	Iron	ug/g	96.5	<5.00E-03	1.78E+04	n/a	n/a	n/a	n/a	1.01	n/a	
S09V000196		A	7440-09-7	Potassium	ug/g	88.8	<0.500	921	n/a	n/a	n/a	n/a	101	n/a	J
S09V000196		A	7439-91-0	Lanthanum	ug/g	99.7	<3.00E-03	8.45	n/a	n/a	n/a	n/a	0.604	n/a	
S09V000196		A	7439-93-2	Lithium	ug/g	100	<3.00E-03	6.12	n/a	n/a	n/a	n/a	0.604	n/a	
S09V000196		A	7439-95-4	Magnesium	ug/g	92.2	<0.0500	3.37E+03	n/a	n/a	n/a	n/a	10.1	n/a	
S09V000196		A	7439-96-5	Manganese	ug/g	96.4	<3.00E-03	274	n/a	n/a	n/a	n/a	0.604	n/a	
S09V000196		A	7439-98-7	Molybdenum	ug/g	97.0	<0.0200	<4.03	n/a	n/a	n/a	n/a	4.03	n/a	U
S09V000196		A	7440-23-5	Sodium	ug/g	96.4	<0.100	1.12E+03	n/a	n/a	n/a	n/a	20.1	n/a	
S09V000196		A	7440-00-8	Neodymium	ug/g	n/a	<0.0100	15.2	n/a	n/a	n/a	n/a	2.01	n/a	J
S09V000196		A	7723-14-0	Phosphorus	ug/g	94.8	<0.0500	625	n/a	n/a	n/a	n/a	10.1	n/a	
S09V000196		A	7704-34-9	Sulfur	ug/g	91.7	<0.100	48.0	n/a	n/a	n/a	n/a	20.1	n/a	J
S09V000196		A	7440-21-3	Silicon J	ug/g	88.3	<0.0300	1.41E+03	n/a	n/a	n/a	n/a	6.04	n/a	b
S09V000196		A	7440-31-5	Tin	ug/g	93.0	<0.0300	13.0	n/a	n/a	n/a	n/a	6.04	n/a	J
S09V000196		A	7440-24-6	Strontium	ug/g	98.8	<3.00E-03	25.9	n/a	n/a	n/a	n/a	0.604	n/a	
S09V000196		A	7440-32-6	Titanium	ug/g	96.1	<5.00E-03	1.47E+03	n/a	n/a	n/a	n/a	1.01	n/a	
S09V000196		A	7440-61-1	Uranium	ug/g	103	<0.100	<20.1	n/a	n/a	n/a	n/a	20.1	n/a	U
S09V000196		A	7440-65-5	Yttrium	ug/g	96.0	<2.00E-03	7.52	n/a	n/a	n/a	n/a	0.403	n/a	
S09V000196		A	7440-66-6	Zinc	ug/g	92.4	<5.00E-03	33.6	n/a	n/a	n/a	n/a	1.01	n/a	
S09V000196		A	7440-67-7	Zirconium	ug/g	93.8	<5.00E-03	11.9	n/a	n/a	n/a	n/a	1.01	n/a	
S09V000196		A	14269-63-7	Thorium-230	ug/g	n/a	<3.50E-07	<7.05E-05	n/a	n/a	n/a	n/a	7.05E-05	n/a	U
S09V000196		A	TH-232	Thorium-232	ug/g	102	3.14E-05	2.37	n/a	n/a	n/a	n/a	1.71E-03	n/a	
S09V000196		A	13968-55-3	Uranium-233	ug/g	n/a	<5.00E-07	1.05E-04	n/a	n/a	n/a	n/a	1.01E-04	n/a	J

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT74
Sample Depth: 19.5-21.5

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000196		A	13966-29-5	Uranium-234		ug/g	n/a	<2.50E-07	6.80E-05	n/a	n/a	n/a	n/a	5.03E-05	n/a	J
S09V000196		A	15117-96-1	Uranium-235		ug/g	101	<5.50E-07	0.0107	n/a	n/a	n/a	n/a	1.11E-04	n/a	
S09V000196		A	13982-70-2	Uranium-236		ug/g	n/a	<2.00E-07	3.84E-04	n/a	n/a	n/a	n/a	4.03E-05	n/a	J
S09V000196		A	13994-20-2	Neptunium-237		ug/g	112	<2.65E-06	5.59E-04	n/a	n/a	n/a	n/a	5.33E-04	n/a	BJ
S09V000196		A	U-238	Uranium-238		ug/g	102	<2.75E-05	1.38	n/a	n/a	n/a	n/a	5.54E-03	n/a	
S09V000196		A	7440-22-4	Silver	UJ	ug/g	107	2.07E-04	0.118	n/a	n/a	n/a	n/a	0.0322	n/a	BJ
S09V000196		A	7440-38-2	Arsenic	J	ug/g	114	<8.40E-04	3.06	n/a	n/a	n/a	n/a	0.169	n/a	
S09V000196		A	7440-48-4	Cobalt	J	ug/g	110	<4.00E-04	7.15	n/a	n/a	n/a	n/a	0.805	n/a	J
S09V000196		A	7440-43-9	Cadmium	UJ	ug/g	106	7.01E-05	0.0671	n/a	n/a	n/a	n/a	0.0121	n/a	BJ
S09V000196		A	7440-47-3	Chromium	J	ug/g	110	<2.80E-03	9.34	n/a	n/a	n/a	n/a	0.564	n/a	
S09V000196		A	7439-92-1	Lead	J	ug/g	116	<6.20E-04	4.26	n/a	n/a	n/a	n/a	0.125	n/a	
S09V000196		A	7440-36-0	Antimony	UJ	ug/g	110	<8.80E-04	<0.177	n/a	n/a	n/a	n/a	0.177	n/a	U
S09V000196		A	7782-49-2	Selenium	UJ	ug/g	112	<1.22E-03	<0.246	n/a	n/a	n/a	n/a	0.246	n/a	U
S09V000196		A	7440-28-0	Thallium	J	ug/g	111	6.92E-05	0.0727	n/a	n/a	n/a	n/a	0.0121	n/a	BJ
S09V000196		A	7440-62-2	Vanadium	J	ug/g	113	<4.80E-04	55.8	n/a	n/a	n/a	n/a	0.966	n/a	
S09V000196		A	7440-02-0	Nickel	J	ug/g	109	3.20E-04	9.58	n/a	n/a	n/a	n/a	0.483	n/a	
~~S09V000204~~		~~E~~	~~CM-243/244~~	~~Curium-243/244~~		~~uCi/g~~	~~n/a~~	~~<4.01E-07~~	~~<3.90E-07~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~3.90E-07~~	~~n/a~~	~~U~~
S09V000204		E	14596-10-2	Americium-241		uCi/g	102	<1.00E-06	1.39E-06	n/a	n/a	n/a	n/a	9.73E-07	16.21	
S09V000204		E	15510-73-3	Curium-242		uCi/g	n/a	<4.01E-07	<3.90E-07	n/a	n/a	n/a	n/a	3.90E-07	n/a	U
S09V000204		E	13981-37-8	Nickel-63		uCi/g	85.5	<6.14E-05	<6.91E-05	n/a	n/a	n/a	n/a	6.91E-05	n/a	U
S09V000204		E	PU-239/240	Plutonium-239/240		uCi/g	96.1	<7.24E-07	<6.77E-07	n/a	n/a	n/a	n/a	6.77E-07	n/a	U
S09V000204		E	13981-16-3	Plutonium-238		uCi/g	n/a	<7.24E-07	<6.77E-07	n/a	n/a	n/a	n/a	6.77E-07	n/a	U
S09V000204		E	15756-45-9	Selenium-79		uCi/g	n/a	<3.20E-06	<3.10E-06	n/a	n/a	n/a	n/a	3.10E-06	n/a	U
~~S09V000204~~		~~E~~	~~SR-89/90~~	~~Strontium-89/90~~		~~uCi/g~~	~~99.9~~	~~<1.56E-06~~	~~2.87E-05~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~2.32E-06~~	~~20.89~~	
S09V000212		A	14133-76-7	Technetium-99		ug/g	104	<6.00E-06	2.66E-03	n/a	n/a	n/a	n/a	1.20E-03	n/a	J
S09V000212		A	SN-117	Tin-117		ug/g	142	9.07E-04	<0.0439	n/a	n/a	n/a	n/a	0.0439	n/a	Ua
S09V000212		A	15832-50-5	Tin-126		ug/g	n/a	<4.00E-06	<7.97E-04	n/a	n/a	n/a	n/a	7.97E-04	n/a	U
~~S09V000220~~		~~S~~	~~14798-03-9~~	~~Ammonium~~		~~ug/g~~	~~99.1~~	~~<0.0126~~	~~<0.479~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.479~~	~~n/a~~	~~U~~

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT77
Sample Depth: 25-27

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000173			%WATERA	%WATER-APD	%	n/a	n/a	9.136	n/a	n/a	n/a	n/a	n/a	n/a	
S09V000173			57-12-5	Cyanide	ug/g	108	<0.0370	<5.01	n/a	n/a	n/a	n/a	5.01	n/a	U
S09V000173			10198-40-0	Cobalt-60	uCi/g	103	<2.35E-07	<2.60E-07	<2.47E-07	n/a	n/a	n/a	2.60E-07	n/a	U
S09V000173			14234-35-6	Antimony-125	uCi/g	n/a	<6.05E-07	<6.87E-07	<6.36E-07	n/a	n/a	n/a	6.87E-07	n/a	U
S09V000173			10045-97-3	Cesium-137	uCi/g	108	<2.89E-07	1.31E-06	1.37E-06	.00000134	4.69	n/a	4.03E-07	20.88	
S09V000173			14683-23-9	Europium-152	uCi/g	n/a	<1.20E-06	<1.25E-06	<1.24E-06	n/a	n/a	n/a	1.25E-06	n/a	U
S09V000173			15585-10-1	Europium-154	uCi/g	n/a	<7.88E-07	<8.67E-07	<7.97E-07	n/a	n/a	n/a	8.67E-07	n/a	U
S09V000173			14391-16-3	Europium-155	uCi/g	n/a	<4.84E-07	<5.11E-07	<4.86E-07	n/a	n/a	n/a	5.11E-07	n/a	U
S09V000173			7439-97-6	Mercury	ug/g	100	<1.00E-04	<0.0221	n/a	n/a	n/a	n/a	0.0221	n/a	U
S09V000173			15046-84-1	Iodine-129	uCi/g	91.4	<2.74E-07	<1.92E-07	<2.13E-07	n/a	n/a	n/a	1.92E-07	n/a	U
S09V000173			PH	pH	unitless	n/a	7.99	10.1	n/a	n/a	n/a	n/a	0.0100	n/a	
S09V000173			18496-25-8	Sulfide	ug/g	93.1	<0.180	<5.25	n/a	n/a	n/a	n/a	5.25	n/a	U
S09V000181		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	69.4	<774	<97.7	n/a	n/a	n/a	59.7	97.7	n/a	U
S09V000181		O	95-50-1	1,2-Dichlorobenzene	ug/kg	n/a	<1.01E+03	<127	n/a	n/a	n/a	n/a	127	n/a	U
S09V000181		O	106-46-7	1,4-Dichlorobenzene	ug/kg	67.5	<1.13E+03	<143	n/a	n/a	n/a	57.0	143	n/a	U
S09V000181		O	121-14-2	2,4-Dinitrotoluene	ug/kg	70.1	<381	<48.1	n/a	n/a	n/a	72.2	48.1	n/a	U
S09V000181		O	95-95-4	2,4,5-Trichlorophenol	ug/kg	n/a	<440	<55.5	n/a	n/a	n/a	n/a	55.5	n/a	U
S09V000181		O	88-06-2	2,4,6-Trichlorophenol	ug/kg	n/a	<495	<62.5	n/a	n/a	n/a	n/a	62.5	n/a	U
S09V000181		O	95-48-7	2-Methylphenol	ug/kg	n/a	<575	<72.5	n/a	n/a	n/a	n/a	72.5	n/a	U
S09V000181		O	88-75-5	2-Nitrophenol	ug/kg	n/a	<537	<67.8	n/a	n/a	n/a	n/a	67.8	n/a	U
S09V000181		O	108-39-4M	Cresol (m & p)	ug/kg	n/a	<514	<64.8	n/a	n/a	n/a	n/a	64.8	n/a	U
S09V000181		O	83-32-9	Acenaphthene	ug/kg	69.7	<176	<22.2	n/a	n/a	n/a	63.5	22.2	n/a	U
S09V000181		O	56-55-3	Benzo(a)anthracene	ug/kg	n/a	<378	<47.7	n/a	n/a	n/a	n/a	47.7	n/a	U
S09V000181		O	205-99-2	Benzo(b)fluoranthene	ug/kg	n/a	<489	<61.7	n/a	n/a	n/a	n/a	61.7	n/a	U
S09V000181		O	50-32-8	Benzo(a)pyrene	ug/kg	n/a	<412	<52.0	n/a	n/a	n/a	n/a	52.0	n/a	U
S09V000181		O	117-81-7	Bis(2-ethylhexyl) phthalate	ug/kg	n/a	<5.90E+03	<745	n/a	n/a	n/a	n/a	745	n/a	U
S09V000181		O	207-08-9	Benzo(k)fluoranthene	ug/kg	n/a	<391	<49.3	n/a	n/a	n/a	n/a	49.3	n/a	U
S09V000181		O	85-68-7	Butylbenzylphthalate	ug/kg	n/a	<500	<63.1	n/a	n/a	n/a	n/a	63.1	n/a	U

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT77
Sample Depth: 25-27

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S09V000181~~		~~O~~	~~59-50-7~~	~~4-Chloro-3-methylphenol~~	~~ug/kg~~	~~66.8~~	~~<432~~	~~<54.5~~	~~n/a~~	~~n/a~~	~~n/a~~	~~67.8~~	~~54.5~~	~~n/a~~	~~U~~
S09V000181		O	95-57-8	2-Chlorophenol	ug/kg	65.0	<665	<83.9	n/a	n/a	n/a	56.8	83.9	n/a	U
S09V000181		O	218-01-9	Chrysene	ug/kg	n/a	<814	<103	n/a	n/a	n/a	n/a	103	n/a	U
S09V000181		O	53-70-3	Dibenz[a,h]anthracene	ug/kg	n/a	<511	<64.5	n/a	n/a	n/a	n/a	64.5	n/a	U
S09V000181		O	84-74-2	Di-n-butylphthalate	ug/kg	n/a	<5.62E+03	<709	n/a	n/a	n/a	n/a	709	n/a	U
S09V000181		O	117-84-0	Di-n-octylphthalate	ug/kg	n/a	<477	<60.2	n/a	n/a	n/a	n/a	60.2	n/a	U
S09V000181		O	621-64-7	N-Nitroso-di-n-dipropylamine	ug/kg	60.9	<581	<73.3	n/a	n/a	n/a	54.6	73.3	n/a	U
S09V000181		O	206-44-0	Fluoranthene	ug/kg	n/a	<354	<44.7	n/a	n/a	n/a	n/a	44.7	n/a	U
S09V000181		O	87-68-3	Hexachlorobutadiene	ug/kg	n/a	<697	<87.9	n/a	n/a	n/a	n/a	87.9	n/a	U
S09V000181		O	67-72-1	Hexachloroethane	ug/kg	n/a	<1.12E+03	<141	n/a	n/a	n/a	n/a	141	n/a	U
S09V000181		O	193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	n/a	<510	<64.3	n/a	n/a	n/a	n/a	64.3	n/a	U
S09V000181		O	108-95-2	Phenol	ug/kg	67.3	<594	<74.9	n/a	n/a	n/a	59.7	74.9	n/a	U
S09V000181		O	91-20-3	Naphthalene	ug/kg	n/a	<626	<79.0	n/a	n/a	n/a	n/a	79.0	n/a	U
S09V000181		O	98-95-3	Nitrobenzene	ug/kg	n/a	<646	<81.5	n/a	n/a	n/a	n/a	81.5	n/a	U
S09V000181		O	100-02-7	4-Nitrophenol	ug/kg	70.4	<526	<66.4	n/a	n/a	n/a	75.9	66.4	n/a	U
S09V000181		O	87-86-5	Pentachlorophenol	ug/kg	61.2	<375	<47.3	n/a	n/a	n/a	70.6	47.3	n/a	U
S09V000181		O	129-00-0	Pyrene	ug/kg	70.4	<629	<79.4	n/a	n/a	n/a	72.8	79.4	n/a	U
S09V000181		O	110-86-1	Pyridine	ug/kg	n/a	<650	<82.0	n/a	n/a	n/a	n/a	82.0	n/a	U
S09V000181		O	126-73-8	Tributyl phosphate	ug/kg	n/a	<1.08E+03	<136	n/a	n/a	n/a	n/a	136	n/a	U
S09V000181		O	128-37-0	BHT	ug/kg	n/a	<2.36E+03	<297	n/a	n/a	n/a	n/a	297	n/a	U
S09V000181		O	110-80-5	2-Ethoxyethanol	ug/kg	n/a	<1.82E+03	<230	n/a	n/a	n/a	n/a	230	n/a	U
S09V000181		O	1319-77-3	Total Methylphenols	ug/kg	n/a	<1.07E+03	<134	n/a	n/a	n/a	n/a	134	n/a	U
S09V000181		O	108-94-1	Cyclohexanone	ug/kg	n/a	<5.59E+03	<705	n/a	n/a	n/a	n/a	705	n/a	U
S09V000181		O	59-89-2	N-Nitrosomorpholine	ug/kg	n/a	<1.91E+03	<241	n/a	n/a	n/a	n/a	241	n/a	U
S09V000181		O	78-83-1	Isobutanol	ug/kg	n/a	<4.60E+03	<581	n/a	n/a	n/a	n/a	581	n/a	U
S09V000189		W	14762-75-5	Carbon-14	uCi/g	98.6	<3.65E-07	<5.67E-05	n/a	n/a	n/a	n/a	5.67E-05	n/a	U
~~S09V000189~~		~~W~~	~~10028-17-8~~	~~Tritium~~	~~uCi/g~~	~~92.2~~	~~<8.28E-04~~	~~<3.14E-04~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~3.14E-04~~	~~n/a~~	~~U~~
S09V000197		A	7429-90-5	Aluminum	ug/g	93.0	<0.0300	6.39E+03	n/a	n/a	n/a	n/a	6.02	n/a	

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT77
Sample Depth: 25-27

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000197		A	7440-39-3	Barium		ug/g	99.0	<3.00E-03	79.2	n/a	n/a	n/a	n/a	0.602	n/a	
S09V000197		A	7440-41-7	Beryllium		ug/g	103	<1.00E-03	0.217	n/a	n/a	n/a	n/a	0.201	n/a	J
S09V000197		A	7440-70-2	Calcium		ug/g	93.0	<0.0500	7.22E+03	n/a	n/a	n/a	n/a	10.0	n/a	
S09V000197		A	7440-45-1	Cerium		ug/g	102	<0.0300	15.3	n/a	n/a	n/a	n/a	6.02	n/a	J
S09V000197		A	7440-50-8	Copper		ug/g	97.0	<5.00E-03	8.96	n/a	n/a	n/a	n/a	1.00	n/a	J
S09V000197		A	7440-53-1	Europium		ug/g	97.2	<5.00E-03	1.45	n/a	n/a	n/a	n/a	1.00	n/a	J
S09V000197		A	7439-89-6	Iron		ug/g	96.5	<5.00E-03	1.43E+04	n/a	n/a	n/a	n/a	1.00	n/a	
S09V000197		A	7440-09-7	Potassium		ug/g	88.8	<0.500	1.27E+03	n/a	n/a	n/a	n/a	100	n/a	
S09V000197		A	7439-91-0	Lanthanum		ug/g	99.7	<3.00E-03	6.27	n/a	n/a	n/a	n/a	0.602	n/a	
S09V000197		A	7439-93-2	Lithium		ug/g	100	<3.00E-03	8.31	n/a	n/a	n/a	n/a	0.602	n/a	
S09V000197		A	7439-95-4	Magnesium		ug/g	92.2	<0.0500	4.15E+03	n/a	n/a	n/a	n/a	10.0	n/a	
S09V000197		A	7439-96-5	Manganese		ug/g	96.4	<3.00E-03	285	n/a	n/a	n/a	n/a	0.602	n/a	
S09V000197		A	7439-98-7	Molybdenum		ug/g	97.0	<0.0200	<4.01	n/a	n/a	n/a	n/a	4.01	n/a	U
S09V000197		A	7440-23-5	Sodium		ug/g	96.4	<0.100	225	n/a	n/a	n/a	n/a	20.1	n/a	
S09V000197		A	7440-00-8	Neodymium		ug/g	n/a	<0.0100	11.7	n/a	n/a	n/a	n/a	2.01	n/a	J
S09V000197		A	7723-14-0	Phosphorus		ug/g	94.8	<0.0500	464	n/a	n/a	n/a	n/a	10.0	n/a	
S09V000197		A	7704-34-9	Sulfur		ug/g	91.7	<0.100	39.6	n/a	n/a	n/a	n/a	20.1	n/a	J
S09V000197		A	7440-21-3	Silicon	J	ug/g	88.3	<0.0300	2.33E+03	n/a	n/a	n/a	n/a	6.02	n/a	b
S09V000197		A	7440-24-6	Strontium		ug/g	98.8	<3.00E-03	33.1	n/a	n/a	n/a	n/a	0.602	n/a	
S09V000197		A	7440-32-6	Titanium		ug/g	96.1	<5.00E-03	918	n/a	n/a	n/a	n/a	1.00	n/a	
S09V000197		A	7440-61-1	Uranium		ug/g	103	<0.100	<20.1	n/a	n/a	n/a	n/a	20.1	n/a	U
S09V000197		A	7440-65-5	Yttrium		ug/g	96.0	<2.00E-03	5.05	n/a	n/a	n/a	n/a	0.401	n/a	
S09V000197		A	7440-66-6	Zinc		ug/g	92.4	<5.00E-03	31.8	n/a	n/a	n/a	n/a	1.00	n/a	
S09V000197		A	7440-67-7	Zirconium		ug/g	93.8	<5.00E-03	7.51	n/a	n/a	n/a	n/a	1.00	n/a	J
S09V000197		A	14269-63-7	Thorium-230		ug/g	n/a	<3.50E-07	<7.02E-05	n/a	n/a	n/a	n/a	7.02E-05	n/a	U
S09V000197		A	TH-232	Thorium-232		ug/g	102	3.14E-05	1.92	n/a	n/a	n/a	n/a	1.71E-03	n/a	
S09V000197		A	13968-55-3	Uranium-233		ug/g	n/a	<5.00E-07	<1.00E-04	n/a	n/a	n/a	n/a	1.00E-04	n/a	U
S09V000197		A	13966-29-5	Uranium-234		ug/g	n/a	<2.50E-07	<5.02E-05	n/a	n/a	n/a	n/a	5.02E-05	n/a	U

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U - Less Than Detection Limit
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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT77
Sample Depth: 25-27

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000197		A	15117-96-1	Uranium-235		ug/g	101	<5.50E-07	3.56E-03	n/a	n/a	n/a	n/a	1.10E-04	n/a	
S09V000197		A	13982-70-2	Uranium-236		ug/g	n/a	<2.00E-07	5.50E-05	n/a	n/a	n/a	n/a	4.01E-05	n/a	J
S09V000197		A	13994-20-2	Neptunium-237		ug/g	112	<2.65E-06	<5.32E-04	n/a	n/a	n/a	n/a	5.32E-04	n/a	U
S09V000197		A	U-238	Uranium-238		ug/g	102	<2.75E-05	0.495	n/a	n/a	n/a	n/a	5.52E-03	n/a	
S09V000197		A	7440-22-4	Silver	UJ	ug/g	107	2.07E-04	0.0903	n/a	n/a	n/a	n/a	0.0321	n/a	BJ
S09V000197		A	7440-38-2	Arsenic	J	ug/g	114	<8.40E-04	2.22	n/a	n/a	n/a	n/a	0.169	n/a	
S09V000197		A	7440-48-4	Cobalt	J	ug/g	110	<4.00E-04	6.35	n/a	n/a	n/a	n/a	0.803	n/a	J
S09V000197		A	7440-43-9	Cadmium	UJ	ug/g	106	7.01E-05	0.0618	n/a	n/a	n/a	n/a	0.0120	n/a	BJ
S09V000197		A	7440-47-3	Chromium	J	ug/g	110	<2.80E-03	15.1	n/a	n/a	n/a	n/a	0.562	n/a	
S09V000197		A	7439-92-1	Lead	J	ug/g	116	<6.20E-04	3.62	n/a	n/a	n/a	n/a	0.124	n/a	
S09V000197		A	7440-36-0	Antimony	UJ	ug/g	110	<8.80E-04	<0.177	n/a	n/a	n/a	n/a	0.177	n/a	U
S09V000197		A	7782-49-2	Selenium	UJ	ug/g	112	<1.22E-03	<0.245	n/a	n/a	n/a	n/a	0.245	n/a	U
S09V000197		A	7440-28-0	Thallium	J	ug/g	111	6.92E-05	0.0797	n/a	n/a	n/a	n/a	0.0120	n/a	BJ
S09V000197		A	7440-62-2	Vanadium	J	ug/g	113	<4.80E-04	37.7	n/a	n/a	n/a	n/a	0.963	n/a	
S09V000197		A	7440-02-0	Nickel	J	ug/g	109	3.20E-04	30.6	n/a	n/a	n/a	n/a	0.482	n/a	
S09V000205		E	CM-243/244	Curium-243/244		uCi/g	n/a	<4.01E-07	<3.95E-07	<3.97E-07	n/a	n/a	n/a	3.95E-07	n/a	U
S09V000205		E	14596-10-2	Americium-241		uCi/g	102	<1.00E-06	<9.88E-07	<9.92E-07	n/a	n/a	n/a	9.88E-07	n/a	U
S09V000205		E	15510-73-3	Curium-242		uCi/g	n/a	<4.01E-07	<3.95E-07	<3.97E-07	n/a	n/a	n/a	3.95E-07	n/a	U
S09V000205		E	13981-37-8	Nickel-63		uCi/g	85.5	<6.14E-05	<5.48E-05	<6.76E-05	n/a	n/a	n/a	5.48E-05	n/a	U
S09V000205		E	PU-239/240	Plutonium-239/240		uCi/g	96.1	<7.24E-07	<6.15E-07	<5.49E-07	n/a	n/a	n/a	6.15E-07	n/a	U
S09V000205		E	13981-16-3	Plutonium-238		uCi/g	n/a	<7.24E-07	<6.15E-07	<5.49E-07	n/a	n/a	n/a	6.15E-07	n/a	U
S09V000205		E	15758-45-9	Selenium-79		uCi/g	n/a	<3.20E-06	1.97E-06	<1.57E-06	n/a	n/a	n/a	1.72E-06	-378.63	J
S09V000205		E	SR-89/90	Strontium-89/90		uCi/g	99.9	<1.56E-06	3.88E-06	3.49E-06	.000000685	10.4	n/a	3.85E-06	122.25	J
S09V000213		A	14133-76-7	Technetium-99		ug/g	104	<6.00E-06	<1.21E-03	n/a	n/a	n/a	n/a	1.21E-03	n/a	U
S09V000213		A	SN-117	Tin-117		ug/g	142	9.07E-04	<0.0445	n/a	n/a	n/a	n/a	0.0445	n/a	Ua
S09V000213		A	15832-50-5	Tin-126		ug/g	n/a	<4.00E-06	<8.09E-04	n/a	n/a	n/a	n/a	8.09E-04	n/a	U
S09V000221		S	14798-03-9	Ammonium		ug/g	99.1	<0.0120	<0.476	n/a	n/a	n/a	n/a	0.476	n/a	U
S09V001332		W	16984-48-8	Fluoride		ug/g	97.1	<1.61E-03	1.87	n/a	n/a	n/a	n/a	0.0199	n/a	e

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT80
Sample Depth: 42-44

<5
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S09V000174~~			~~%WATERA~~	~~%WATER-APD~~	~~%~~	~~n/a~~	~~n/a~~	~~5.458~~	~~5.652~~	~~5.5525~~	~~3.504~~	~~n/a~~	~~n/a~~	~~n/a~~	
S09V000174			57-12-5	Cyanide	ug/g	108	<0.0370	<4.46	<4.55	n/a	n/a	94.3	4.46	n/a	U
S09V000174			10198-40-0	Cobalt-60	uCi/g	99.1	<3.66E-07	<4.38E-07	n/a	n/a	n/a	n/a	4.38E-07	n/a	U
S09V000174			14234-35-6	Antimony-125	uCi/g	n/a	<8.57E-07	<1.09E-06	n/a	n/a	n/a	n/a	1.09E-06	n/a	U
S09V000174			10045-97-3	Cesium-137	uCi/g	104	<5.59E-07	1.64E-06	n/a	n/a	n/a	n/a	6.47E-07	27.15	
S09V000174			14683-23-9	Europium-152	uCi/g	n/a	<1.70E-06	<2.07E-06	n/a	n/a	n/a	n/a	2.07E-06	n/a	U
S09V000174			15585-10-1	Europium-154	uCi/g	n/a	<1.19E-06	<1.38E-06	n/a	n/a	n/a	n/a	1.38E-06	n/a	U
~~S09V000174~~			~~14391-16-3~~	~~Europium-155~~	~~uCi/g~~	~~n/a~~	~~<9.66E-07~~	~~<1.04E-06~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~1.04E-06~~	~~n/a~~	~~U~~
S09V000174			7439-97-6	Mercury UJ	ug/g	108	<1.00E-04	<0.0100	n/a	n/a	n/a	n/a	0.0100	n/a	U
~~S09V000174~~			~~15046-84-1~~	~~Iodine-129~~	~~uCi/g~~	~~91.4~~	~~<2.74E-07~~	~~<1.95E-07~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~1.95E-07~~	~~n/a~~	~~U~~
S09V000174			PH	pH	unitless	n/a	n/a	9.02	9.00	9.01	0.222	n/a	0.0100	n/a	
S09V000174			18496-25-8	Sulfide	ug/g	98.2	<0.180	14.6	10.1	12.35	35.7	89.3	5.25	n/a	J
S09V000182		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	87.1	<77.4	<76.5	n/a	n/a	n/a	n/a	76.5	n/a	U
S09V000182		O	95-50-1	1,2-Dichlorobenzene	ug/kg	n/a	<101	<99.5	n/a	n/a	n/a	n/a	99.5	n/a	U
S09V000182		O	106-46-7	1,4-Dichlorobenzene	ug/kg	85.1	<113	<112	n/a	n/a	n/a	n/a	112	n/a	U
S09V000182		O	121-14-2	2,4-Dinitrotoluene	ug/kg	90.9	<38.1	<37.7	n/a	n/a	n/a	n/a	37.7	n/a	U
S09V000182		O	95-95-4	2,4,5-Trichlorophenol	ug/kg	n/a	<44.0	<43.5	n/a	n/a	n/a	n/a	43.5	n/a	U
S09V000182		O	88-06-2	2,4,6-Trichlorophenol	ug/kg	n/a	<49.5	<48.9	n/a	n/a	n/a	n/a	48.9	n/a	U
S09V000182		O	95-48-7	2-Methylphenol	ug/kg	n/a	<57.5	<56.8	n/a	n/a	n/a	n/a	56.8	n/a	U
S09V000182		O	88-75-5	2-Nitrophenol	ug/kg	n/a	<53.7	<53.1	n/a	n/a	n/a	n/a	53.1	n/a	U
S09V000182		O	108-39-4M	Cresol (m & p)	ug/kg	n/a	<51.4	<50.8	n/a	n/a	n/a	n/a	50.8	n/a	U
S09V000182		O	83-32-9	Acenaphthene	ug/kg	97.0	<17.6	<17.4	n/a	n/a	n/a	n/a	17.4	n/a	U
S09V000182		O	56-55-3	Benzo(a)anthracene	ug/kg	n/a	<37.8	<37.4	n/a	n/a	n/a	n/a	37.4	n/a	U
S09V000182		O	205-99-2	Benzo(b)fluoranthene	ug/kg	n/a	<48.9	<48.3	n/a	n/a	n/a	n/a	48.3	n/a	U
S09V000182		O	50-32-8	Benzo(a)pyrene	ug/kg	n/a	<41.2	<40.7	n/a	n/a	n/a	n/a	40.7	n/a	U
S09V000182		O	117-81-7	Bis(2-ethylhexyl) phthalate	ug/kg	n/a	<590	5.05E+03	n/a	n/a	n/a	n/a	583	n/a	J
S09V000182		O	207-08-9	Benzo(k)fluoranthene	ug/kg	n/a	<39.1	<38.7	n/a	n/a	n/a	n/a	38.7	n/a	U
~~S09V000182~~		~~O~~	~~85-68-7~~	~~Butylbenzylphthalate~~	~~ug/kg~~	~~n/a~~	~~<50.0~~	~~<49.4~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~49.4~~	~~n/a~~	~~U~~

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT80
Sample Depth: 42-44

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000182		O	59-50-7	4-Chloro-3-methylphenol	ug/kg	85.1	<43.2	<42.7	n/a	n/a	n/a	n/a	42.7	n/a	U
S09V000182		O	95-57-8	2-Chlorophenol	ug/kg	85.5	<66.5	<65.7	n/a	n/a	n/a	n/a	65.7	n/a	U
S09V000182		O	218-01-9	Chrysene	ug/kg	n/a	<81.4	<80.5	n/a	n/a	n/a	n/a	80.5	n/a	U
S09V000182		O	53-70-3	Dibenz[a,h]anthracene	ug/kg	n/a	<51.1	<50.5	n/a	n/a	n/a	n/a	50.5	n/a	U
S09V000182		O	84-74-2	Di-n-butylphthalate	ug/kg	n/a	<562	<556	n/a	n/a	n/a	n/a	556	n/a	U
S09V000182		O	117-84-0	Di-n-octylphthalate	ug/kg	n/a	<47.7	<47.2	n/a	n/a	n/a	n/a	47.2	n/a	U
S09V000182		O	621-64-7	N-Nitroso-di-n-dipropylamine	ug/kg	77.9	<58.1	<57.4	n/a	n/a	n/a	n/a	57.4	n/a	U
S09V000182		O	206-44-0	Fluoranthene	ug/kg	n/a	<35.4	<35.0	n/a	n/a	n/a	n/a	35.0	n/a	U
S09V000182		O	87-68-3	Hexachlorobutadiene	ug/kg	n/a	<69.7	<68.9	n/a	n/a	n/a	n/a	68.9	n/a	U
S09V000182		O	67-72-1	Hexachloroethane	ug/kg	n/a	<112	<111	n/a	n/a	n/a	n/a	111	n/a	U
S09V000182		O	193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	n/a	<51.0	<50.4	n/a	n/a	n/a	n/a	50.4	n/a	U
S09V000182		O	108-95-2	Phenol	ug/kg	86.4	<59.4	<58.7	n/a	n/a	n/a	n/a	58.7	n/a	U
S09V000182		O	91-20-3	Naphthalene	ug/kg	n/a	<62.6	<61.9	n/a	n/a	n/a	n/a	61.9	n/a	U
S09V000182		O	98-95-3	Nitrobenzene	ug/kg	n/a	<64.6	<63.9	n/a	n/a	n/a	n/a	63.9	n/a	U
S09V000182		O	100-02-7	4-Nitrophenol	ug/kg	89.5	<52.6	<52.0	n/a	n/a	n/a	n/a	52.0	n/a	U
S09V000182		O	87-86-5	Pentachlorophenol	ug/kg	88.8	<37.5	<37.1	n/a	n/a	n/a	n/a	37.1	n/a	U
S09V000182		O	129-00-0	Pyrene	ug/kg	93.3	<62.9	<62.2	n/a	n/a	n/a	n/a	62.2	n/a	U
S09V000182		O	110-86-1	Pyridine	ug/kg	n/a	<65.0	<64.3	n/a	n/a	n/a	n/a	64.3	n/a	U
S09V000182		O	126-73-8	Tributyl phosphate	ug/kg	n/a	<108	<107	n/a	n/a	n/a	n/a	107	n/a	U
S09V000182		O	128-37-0	BHT	ug/kg	n/a	<236	<233	n/a	n/a	n/a	n/a	233	n/a	U
S09V000182		O	110-80-5	2-Ethoxyethanol	ug/kg	n/a	<182	<180	n/a	n/a	n/a	n/a	180	n/a	U
S09V000182		O	1319-77-3	Total Methylphenols	ug/kg	n/a	<107	<105	n/a	n/a	n/a	n/a	105	n/a	U
S09V000182		O	108-94-1	Cyclohexanone	ug/kg	n/a	<559	<553	n/a	n/a	n/a	n/a	553	n/a	U
S09V000182		O	59-89-2	N-Nitrosomorpholine	ug/kg	n/a	<191	<189	n/a	n/a	n/a	n/a	189	n/a	U
S09V000182		O	78-83-1	Isobutanol	ug/kg	n/a	<460	<455	n/a	n/a	n/a	n/a	455	n/a	U
S09V000190		W	14762-75-5	Carbon-14	uCi/g	98.6	<3.65E-07	<6.93E-05	n/a	n/a	n/a	n/a	6.93E-05	n/a	U
S09V000190		W	10028-17-8	Tritium	uCi/g	92.2	<3.28E-04	<4.11E-04	n/a	n/a	n/a	n/a	4.11E-04	n/a	U
S09V000198		A	7429-90-5	Aluminum	ug/g	93.0	<0.0300	3.79E+03	n/a	n/a	n/a	n/a	6.04	n/a	

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT80
Sample Depth: 42-44

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000198		A	7440-39-3	Barium	ug/g	99.0	<3.00E-03	57.2	n/a	n/a	n/a	n/a	0.604	n/a	
S09V000198		A	7440-41-7	Beryllium	ug/g	103	<1.00E-03	<0.201	n/a	n/a	n/a	n/a	0.201	n/a	U
S09V000198		A	7440-70-2	Calcium	ug/g	93.0	<0.0500	6.53E+03	n/a	n/a	n/a	n/a	10.1	n/a	
S09V000198		A	7440-45-1	Cerium	ug/g	102	<0.0300	14.2	n/a	n/a	n/a	n/a	6.04	n/a	J
S09V000198		A	7440-50-8	Copper	ug/g	97.0	<5.00E-03	6.83	n/a	n/a	n/a	n/a	1.01	n/a	J
S09V000198		A	7439-89-6	Iron	ug/g	96.5	<5.00E-03	1.24E+04	n/a	n/a	n/a	n/a	1.01	n/a	
S09V000198		A	7440-09-7	Potassium	ug/g	88.8	<0.500	608	n/a	n/a	n/a	n/a	101	n/a	J
S09V000198		A	7439-91-0	Lanthanum	ug/g	99.7	<3.00E-03	6.94	n/a	n/a	n/a	n/a	0.604	n/a	
S09V000198		A	7439-93-2	Lithium	ug/g	100	<3.00E-03	5.35	n/a	n/a	n/a	n/a	0.604	n/a	J
S09V000198		A	7439-95-4	Magnesium	ug/g	92.2	<0.0500	2.65E+03	n/a	n/a	n/a	n/a	10.1	n/a	
S09V000198		A	7439-96-5	Manganese	ug/g	96.4	<3.00E-03	193	n/a	n/a	n/a	n/a	0.604	n/a	
S09V000198		A	7439-98-7	Molybdenum	ug/g	97.0	<0.0200	<4.03	n/a	n/a	n/a	n/a	4.03	n/a	U
S09V000198		A	7440-23-5	Sodium	ug/g	96.4	<0.100	249	n/a	n/a	n/a	n/a	20.1	n/a	
S09V000198		A	7440-00-8	Neodymium	ug/g	n/a	<0.0100	12.0	n/a	n/a	n/a	n/a	2.01	n/a	J
S09V000198		A	7723-14-0	Phosphorus	ug/g	94.8	<0.0500	510	n/a	n/a	n/a	n/a	10.1	n/a	
S09V000198		A	7704-34-9	Sulfur	ug/g	91.7	<0.100	53.5	n/a	n/a	n/a	n/a	20.1	n/a	J
S09V000198		A	7440-21-3	Silicon	ug/g	88.3	<0.0300	1.61E+03	n/a	n/a	n/a	n/a	6.04	n/a	b
S09V000198		A	7440-24-6	Strontium	ug/g	98.8	<3.00E-03	18.7	n/a	n/a	n/a	n/a	0.604	n/a	
S09V000198		A	7440-32-6	Titanium	ug/g	96.1	<5.00E-03	918	n/a	n/a	n/a	n/a	1.01	n/a	
S09V000198		A	7440-61-1	Uranium	ug/g	103	<0.100	<20.1	n/a	n/a	n/a	n/a	20.1	n/a	U
S09V000198		A	7440-65-5	Yttrium	ug/g	96.0	<2.00E-03	5.56	n/a	n/a	n/a	n/a	0.403	n/a	
S09V000198		A	7440-66-6	Zinc	ug/g	92.4	<5.00E-03	25.4	n/a	n/a	n/a	n/a	1.01	n/a	
S09V000198		A	7440-67-7	Zirconium	ug/g	93.8	<5.00E-03	6.57	n/a	n/a	n/a	n/a	1.01	n/a	J
S09V000198		A	14269-63-7	Thorium-230	ug/g	n/a	<3.50E-07	<7.05E-05	n/a	n/a	n/a	n/a	7.05E-05	n/a	U
S09V000198		A	TH-232	Thorium-232	ug/g	102	3.14E-05	1.88	n/a	n/a	n/a	n/a	1.71E-03	n/a	
S09V000198		A	13968-55-3	Uranium-233	ug/g	n/a	<5.00E-07	<1.01E-04	n/a	n/a	n/a	n/a	1.01E-04	n/a	U
S09V000198		A	13966-29-5	Uranium-234	ug/g	n/a	<2.50E-07	<5.03E-05	n/a	n/a	n/a	n/a	5.03E-05	n/a	U
S09V000198		A	15117-96-1	Uranium-235	ug/g	101	<5.50E-07	3.00E-03	n/a	n/a	n/a	n/a	1.11E-04	n/a	

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT80
Sample Depth: 42-44

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000198		A	13982-70-2	Uranium-236		ug/g	n/a	<2.00E-07	<4.03E-05	n/a	n/a	n/a	n/a	4.03E-05	n/a	U
S09V000198		A	13994-20-2	Neptunium-237		ug/g	112	<2.65E-06	<5.34E-04	n/a	n/a	n/a	n/a	5.34E-04	n/a	U
S09V000198		A	U-238	Uranium-238		ug/g	102	<2.75E-05	0.446	n/a	n/a	n/a	n/a	5.54E-03	n/a	
S09V000198		A	7440-22-4	Silver	UJ	ug/g	107	2.07E-04	0.0812	n/a	n/a	n/a	n/a	0.0322	n/a	BJ
S09V000198		A	7440-38-2	Arsenic	J	ug/g	114	<8.40E-04	2.73	n/a	n/a	n/a	n/a	0.169	n/a	
S09V000198		A	7440-48-4	Cobalt	J	ug/g	110	<4.00E-04	4.62	n/a	n/a	n/a	n/a	0.805	n/a	J
S09V000198		A	7440-43-9	Cadmium	UJ	ug/g	106	7.01E-05	0.0402	n/a	n/a	n/a	n/a	0.0121	n/a	BJ
S09V000198		A	7440-47-3	Chromium	J	ug/g	110	<2.80E-03	12.6	n/a	n/a	n/a	n/a	0.564	n/a	
S09V000198		A	7439-92-1	Lead	J	ug/g	116	<6.20E-04	2.72	n/a	n/a	n/a	n/a	0.125	n/a	
S09V000198		A	7440-36-0	Antimony	UJ	ug/g	110	<8.80E-04	<0.177	n/a	n/a	n/a	n/a	0.177	n/a	U
S09V000198		A	7782-49-2	Selenium	UJ	ug/g	112	<1.22E-03	<0.246	n/a	n/a	n/a	n/a	0.246	n/a	U
S09V000198		A	7440-28-0	Thallium	UJ	ug/g	111	6.92E-05	0.0532	n/a	n/a	n/a	n/a	0.0121	n/a	BJ
S09V000198		A	7440-62-2	Vanadium	J	ug/g	113	<4.80E-04	33.9	n/a	n/a	n/a	n/a	0.967	n/a	
S09V000198		A	7440-02-0	Nickel	J	ug/g	109	3.20E-04	9.35	n/a	n/a	n/a	n/a	0.483	n/a	
S09V000206		E	CM-243/244	Curium-243/244		uCi/g	n/a	<4.01E-07	<4.00E-07	n/a	n/a	n/a	n/a	4.00E-07	n/a	U
S09V000206		E	14596-10-2	Americium-241		uCi/g	102	<1.00E-06	<1.00E-06	n/a	n/a	n/a	n/a	1.00E-06	n/a	U
S09V000206		E	15510-73-3	Curium-242		uCi/g	n/a	<4.01E-07	<4.00E-07	n/a	n/a	n/a	n/a	4.00E-07	n/a	U
S09V000206		E	13981-37-8	Nickel-63		uCi/g	85.5	<6.14E-05	<5.99E-05	n/a	n/a	n/a	n/a	5.99E-05	n/a	U
S09V000206		E	PU-239/240	Plutonium-239/240		uCi/g	96.1	<7.24E-07	<5.82E-07	n/a	n/a	n/a	n/a	5.82E-07	n/a	U
S09V000206		E	13981-16-3	Plutonium-238		uCi/g	n/a	<7.24E-07	<5.82E-07	n/a	n/a	n/a	n/a	5.82E-07	n/a	U
S09V000206		E	15758-45-9	Selenium-79		uCi/g	n/a	<3.20E-06	4.14E-06	n/a	n/a	n/a	n/a	1.66E-06	161.04	J
S09V000206		E	SR-89/90	Strontium-89/90		uCi/g	99.9	<1.56E-06	6.68E-06	n/a	n/a	n/a	n/a	1.72E-06	44.96	J
S09V000214		A	14133-76-7	Technetium-99		ug/g	104	<6.00E-06	<1.19E-03	n/a	n/a	n/a	n/a	1.19E-03	n/a	U
S09V000214		A	SN-117	Tin-117		ug/g	142	9.07E-04	<0.0435	n/a	n/a	n/a	n/a	0.0435	n/a	Ua
S09V000214		A	15832-50-5	Tin-126		ug/g	n/a	<4.00E-06	<7.91E-04	n/a	n/a	n/a	n/a	7.91E-04	n/a	U
S09V000222		S	14798-03-9	Ammonium		ug/g	100	<0.0120	1.13	1.15	1.14	1.25	96.8	0.488	n/a	U
S09V001333		W	16984-48-8	Fluoride		ug/g	97.1	<1.61E-03	0.760	n/a	n/a	n/a	n/a	0.0201	n/a	c
S09V001333		W	006-14-8	Glycolate		ug/g	99.8	<9.37E-03	<0.117	n/a	n/a	n/a	n/a	0.117	n/a	U

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT83
Sample Depth: 56-58

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000175			%WATERA	%WATER-APD	%	n/a	n/a	3.836	n/a	n/a	n/a	n/a	n/a	n/a	
S09V000175			57-12-5	Cyanide	ug/g	108	<0.0370	<5.07	n/a	n/a	n/a	n/a	5.07	n/a	U
S09V000175			13966-00-2	Potassium-40	uCi/g	n/a	n/a	1.94E-05	n/a	n/a	n/a	n/a	8.01E-06	28.59	
S09V000175			10198-40-0	Cobalt-60	uCi/g	99.1	<3.66E-07	<3.96E-07	n/a	n/a	n/a	n/a	3.96E-07	n/a	U
S09V000175			14234-35-6	Antimony-125	uCi/g	n/a	<8.57E-07	<1.13E-06	n/a	n/a	n/a	n/a	1.13E-06	n/a	U
S09V000175			10045-97-3	Cesium-137	uCi/g	104	<5.59E-07	<5.47E-07	n/a	n/a	n/a	n/a	5.47E-07	n/a	U
S09V000175			14683-23-9	Europium-152	uCi/g	n/a	<1.70E-06	<1.97E-06	n/a	n/a	n/a	n/a	1.97E-06	n/a	U
S09V000175			15585-10-1	Europium-154	uCi/g	n/a	<1.19E-06	<1.44E-06	n/a	n/a	n/a	n/a	1.44E-06	n/a	U
S09V000175			14391-16-3	Europium-155	uCi/g	n/a	<9.66E-07	<1.05E-06	n/a	n/a	n/a	n/a	1.05E-06	n/a	U
S09V000175			7439-97-6	Mercury UJ	ug/g	108	<1.00E-04	<0.0110	n/a	n/a	n/a	n/a	0.0110	n/a	U
S09V000175			15046-84-1	Iodine-129	uCi/g	31.4	<2.74E-07	<2.42E-07	n/a	n/a	n/a	n/a	2.42E-07	n/a	U
S09V000175			PH	pH	unitless	n/a	n/a	9.20	n/a	n/a	n/a	n/a	0.0100	n/a	
S09V000175			18496-25-8	Sulfide	ug/g	98.2	<0.180	7.48	n/a	n/a	n/a	n/a	5.56	n/a	J
S09V000183		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	87.1	<77.4	<78.8	n/a	n/a	n/a	75.4	78.8	n/a	U
S09V000183		O	95-50-1	1,2-Dichlorobenzene	ug/kg	n/a	<101	<102	n/a	n/a	n/a	n/a	102	n/a	U
S09V000183		O	106-46-7	1,4-Dichlorobenzene	ug/kg	85.1	<113	<115	n/a	n/a	n/a	71.3	115	n/a	U
S09V000183		O	121-14-2	2,4-Dinitrotoluene	ug/kg	90.9	<38.1	<38.8	n/a	n/a	n/a	91.1	38.8	n/a	U
S09V000183		O	95-95-4	2,4,5-Trichlorophenol	ug/kg	n/a	<44.0	<44.8	n/a	n/a	n/a	n/a	44.8	n/a	U
S09V000183		O	88-06-2	2,4,6-Trichlorophenol	ug/kg	n/a	<49.5	<50.4	n/a	n/a	n/a	n/a	50.4	n/a	U
S09V000183		O	95-48-7	2-Methylphenol	ug/kg	n/a	<57.5	<58.5	n/a	n/a	n/a	n/a	58.5	n/a	U
S09V000183		O	88-75-5	2-Nitrophenol	ug/kg	n/a	<53.7	<54.7	n/a	n/a	n/a	n/a	54.7	n/a	U
S09V000183		O	108-39-4M	Cresol (m & p)	ug/kg	n/a	<51.4	<52.3	n/a	n/a	n/a	n/a	52.3	n/a	U
S09V000183		O	83-32-9	Acenaphthene	ug/kg	97.0	<17.6	<17.9	n/a	n/a	n/a	88.4	17.9	n/a	U
S09V000183		O	56-55-3	Benzo(a)anthracene	ug/kg	n/a	<37.8	<38.5	n/a	n/a	n/a	n/a	38.5	n/a	U
S09V000183		O	205-99-2	Benzo(b)fluoranthene	ug/kg	n/a	<48.9	<49.8	n/a	n/a	n/a	n/a	49.8	n/a	U
S09V000183		O	50-32-8	Benzo(a)pyrene	ug/kg	n/a	<41.2	<41.9	n/a	n/a	n/a	n/a	41.9	n/a	U
S09V000183		O	117-81-7	Bis(2-ethylhexyl) phthalate	ug/kg	n/a	<590	<601	n/a	n/a	n/a	n/a	601	n/a	U
S09V000183		O	207-08-9	Benzo(k)fluoranthene	ug/kg	n/a	<39.1	<39.8	n/a	n/a	n/a	n/a	39.8	n/a	U

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT83
Sample Depth: 56-58

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000199		A	7429-90-5	Aluminum	ug/g	82.1	<0.0300	5.30E+03	n/a	n/a	n/a	n/a	5.62	n/a	
S09V000199		A	7440-39-3	Barium	ug/g	89.0	<3.00E-03	62.5	n/a	n/a	n/a	n/a	0.562	n/a	
S09V000199		A	7440-41-7	Beryllium	ug/g	92.2	<1.00E-03	<0.187	n/a	n/a	n/a	n/a	0.187	n/a	U
S09V000199		A	7440-70-2	Calcium	ug/g	80.8	0.0608	5.69E+03	n/a	n/a	n/a	n/a	9.37	n/a	
S09V000199		A	7440-45-1	Cerium	ug/g	96.1	<0.0300	18.2	n/a	n/a	n/a	n/a	5.62	n/a	J
S09V000199		A	7440-47-3	Chromium	ug/g	87.2	<5.00E-03	15.3	n/a	n/a	n/a	n/a	0.937	n/a	
S09V000199		A	7440-50-8	Copper	ug/g	88.5	<5.00E-03	9.79	n/a	n/a	n/a	n/a	0.937	n/a	
S09V000199		A	7440-53-1	Europium	ug/g	93.3	<5.00E-03	2.58	n/a	n/a	n/a	n/a	0.937	n/a	J
S09V000199		A	7439-89-6	Iron	ug/g	86.4	<5.00E-03	1.35E+04	n/a	n/a	n/a	n/a	0.937	n/a	
S09V000199		A	7440-09-7	Potassium	ug/g	81.8	<0.500	1.09E+03	n/a	n/a	n/a	n/a	93.7	n/a	
S09V000199		A	7439-91-0	Lanthanum	ug/g	89.3	<3.00E-03	7.27	n/a	n/a	n/a	n/a	0.562	n/a	
S09V000199		A	7439-93-2	Lithium	ug/g	90.3	<3.00E-03	8.07	n/a	n/a	n/a	n/a	0.562	n/a	
S09V000199		A	7439-95-4	Magnesium	ug/g	82.7	<0.0500	3.61E+03	n/a	n/a	n/a	n/a	9.37	n/a	
S09V000199		A	7439-96-5	Manganese	ug/g	85.8	<3.00E-03	266	n/a	n/a	n/a	n/a	0.562	n/a	
S09V000199		A	7439-98-7	Molybdenum	ug/g	88.9	<0.0200	<3.75	n/a	n/a	n/a	n/a	3.75	n/a	U
S09V000199		A	7440-23-5	Sodium	ug/g	89.6	<0.100	178	n/a	n/a	n/a	n/a	18.7	n/a	J
S09V000199		A	7440-00-8	Neodymium	ug/g	94.0	<0.0100	8.91	n/a	n/a	n/a	n/a	1.87	n/a	J
S09V000199		A	7723-14-0	Phosphorus	ug/g	89.7	<0.0500	413	n/a	n/a	n/a	n/a	9.37	n/a	
S09V000199		A	7704-34-9	Sulfur	ug/g	86.4	<0.100	44.7	n/a	n/a	n/a	n/a	18.7	n/a	J
S09V000199		A	7440-21-3	Silicon	ug/g	80.8	<0.0300	1.11E+03	n/a	n/a	n/a	n/a	5.62	n/a	b
S09V000199		A	7440-24-6	Strontium	ug/g	88.5	<3.00E-03	23.0	n/a	n/a	n/a	n/a	0.562	n/a	
S09V000199		A	7440-32-6	Titanium	ug/g	88.9	<5.00E-03	861	n/a	n/a	n/a	n/a	0.937	n/a	b
S09V000199		A	7440-61-1	Uranium	ug/g	97.7	<0.100	<18.7	n/a	n/a	n/a	n/a	18.7	n/a	U
S09V000199		A	7440-65-5	Yttrium	ug/g	92.0	<2.00E-03	4.69	n/a	n/a	n/a	n/a	0.375	n/a	
S09V000199		A	7440-66-6	Zinc	ug/g	84.8	<5.00E-03	29.4	n/a	n/a	n/a	n/a	0.937	n/a	
S09V000199		A	7440-67-7	Zirconium	ug/g	81.2	<5.00E-03	6.47	n/a	n/a	n/a	n/a	0.937	n/a	J
S09V000199		A	14269-63-7	Thorium-230	ug/g	n/a	<1.40E-07	<2.62E-05	n/a	n/a	n/a	n/a	2.62E-05	n/a	U
S09V000199		A	TH-232	Thorium-232	ug/g	102	1.29E-04	2.99	n/a	n/a	n/a	n/a	6.37E-04	n/a	

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT83
Sample Depth: 56-58

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000199		A	13968-55-3	Uranium-233		ug/g	n/a	<2.00E-07	1.24E-04	n/a	n/a	n/a	n/a	3.75E-05	n/a	J
S09V000199		A	13966-29-5	Uranium-234		ug/g	n/a	<1.00E-07	<1.87E-05	n/a	n/a	n/a	n/a	1.87E-05	n/a	U
S09V000199		A	15117-96-1	Uranium-235		ug/g	96.5	5.35E-07	3.03E-03	n/a	n/a	n/a	n/a	4.12E-05	n/a	
S09V000199		A	13982-70-2	Uranium-236		ug/g	n/a	<8.00E-08	<1.50E-05	n/a	n/a	n/a	n/a	1.50E-05	n/a	U
S09V000199		A	13994-20-2	Neptunium-237		ug/g	107	<1.06E-06	7.19E-04	n/a	n/a	n/a	n/a	1.99E-04	n/a	J
S09V000199		A	U-238	Uranium-238		ug/g	102	1.34E-04	0.433	n/a	n/a	n/a	n/a	2.06E-03	n/a	B
S09V000199		A	7440-22-4	Silver	UJ	ug/g	99.6	<8.00E-04	<0.150	n/a	n/a	n/a	n/a	0.150	n/a	U
S09V000199		A	7440-38-2	Arsenic	J	ug/g	103	<8.40E-04	2.65	n/a	n/a	n/a	n/a	0.157	n/a	
S09V000199		A	7440-48-4	Cobalt	J	ug/g	104	<4.00E-04	4.05	n/a	n/a	n/a	n/a	0.0750	n/a	
S09V000199		A	7440-43-9	Cadmium	J	ug/g	103	<6.00E-05	0.0637	n/a	n/a	n/a	n/a	0.0112	n/a	J
S09V000199		A	7439-92-1	Lead	J	ug/g	102	<6.20E-04	4.03	n/a	n/a	n/a	n/a	0.116	n/a	
S09V000199		A	7440-36-0	Antimony	UJ	ug/g	109	<8.80E-04	<0.165	n/a	n/a	n/a	n/a	0.165	n/a	U
S09V000199		A	7782-49-2	Selenium	UJ	ug/g	107	2.00E-03	<0.229	n/a	n/a	n/a	n/a	0.229	n/a	U
S09V000199		A	7440-28-0	Thallium	UJ	ug/g	118	5.12E-04	0.0899	n/a	n/a	n/a	n/a	0.0112	n/a	BJ
S09V000199		A	7440-62-2	Vanadium	J	ug/g	95.2	<4.80E-04	31.5	n/a	n/a	n/a	n/a	0.900	n/a	
S09V000199		A	7440-02-0	Nickel	J	ug/g	98.2	<1.20E-03	12.6	n/a	n/a	n/a	n/a	0.225	n/a	
S09V000207		E	CM-243/244	Curium-243/244		uCi/g	n/a	<4.01E-07	<4.39E-07	n/a	n/a	n/a	n/a	4.39E-07	n/a	U
S09V000207		E	14596-10-2	Americium-241		uCi/g	102	<1.00E-06	<1.10E-06	n/a	n/a	n/a	n/a	1.10E-06	n/a	U
S09V000207		E	15510-73-3	Curium-242		uCi/g	n/a	<4.01E-07	<4.39E-07	n/a	n/a	n/a	n/a	4.39E-07	n/a	U
S09V000207		E	13981-37-8	Nickel-63		uCi/g	85.5	<6.14E-05	<8.50E-05	n/a	n/a	n/a	n/a	8.50E-05	n/a	U
S09V000207		E	PU-239/240	Plutonium-239/240		uCi/g	96.1	<7.24E-07	<6.99E-07	n/a	n/a	n/a	n/a	6.99E-07	n/a	U
S09V000207		E	13981-16-3	Plutonium-238		uCi/g	n/a	<7.24E-07	<6.99E-07	n/a	n/a	n/a	n/a	6.99E-07	n/a	U
S09V000207		E	15758-45-9	Selenium-79		uCi/g	n/a	<3.20E-06	2.11E-06	n/a	n/a	n/a	n/a	2.11E-06	-716.52	J
S09V000207		E	SR-89/90	Strontium-89/90		uCi/g	99.9	<1.56E-06	4.92E-06	n/a	n/a	n/a	n/a	2.06E-06	68.59	J
S09V000223		S	14798-03-9	Ammonium		ug/g	100	<0.0120	1.45	n/a	n/a	n/a	n/a	0.480	n/a	J
S09V001334		W	16984-48-8	Fluoride		ug/g	97.1	<1.61E-03	1.08	n/a	n/a	n/a	n/a	0.0198	n/a	c
S09V001334		W	666-14-8	Glycolate		ug/g	99.8	<9.37E-03	<0.115	n/a	n/a	n/a	n/a	0.115	n/a	U
S09V001334		W	71-50-1	Acetate		ug/g	103	<6.94E-03	0.246	n/a	n/a	n/a	n/a	0.0744	n/a	Jc

NA = Not Analyzed, ND = Not Detected

J - Estimated
B - Found in Blank
X - Comment
U - Less Than Detection Limit
a - LCS Outside Range
Y - Comment
c - RPD Outside Range
b - MS/MSD Outside Range
e - SERDIL Outside Range

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT83
Sample Depth: 56-58

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S09V001334~~		~~W~~	~~12911-37-0~~	~~Formate~~	~~ug/g~~	~~101~~	~~<4.87E-03~~	~~0.482~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.0575~~	~~n/a~~	~~J~~
S09V001334		W	16887-00-6	Chloride	ug/g	97.1	<9.98E-03	4.30	n/a	n/a	n/a	n/a	0.123	n/a	
S09V001334		W	14797-65-0	Nitrite	ug/g	102	0.160	3.79	n/a	n/a	n/a	n/a	0.236	n/a	B
S09V001334		W	14808-79-8	Sulfate	ug/g	99.7	<0.0187	45.0	n/a	n/a	n/a	n/a	0.230	n/a	c
S09V001334		W	338-70-5	Oxalate	ug/g	98.8	<0.0231	1.64	n/a	n/a	n/a	n/a	0.285	n/a	J
S09V001334		W	14797-55-8	Nitrate	ug/g	97.0	0.0219	7.71	n/a	n/a	n/a	n/a	0.256	n/a	c
~~S09V001334~~		~~W~~	~~14265-44-2~~	~~Phosphate~~	~~ug/g~~	~~97.6~~	~~<0.0167~~	~~0.476~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.206~~	~~n/a~~	~~Jc~~
S09V001554		A	14133-76-7	Technetium-99	ug/g	96.4	<6.00E-06	<1.06E-03	<1.08E-03	n/a	n/a	100	1.06E-03	n/a	U
S09V001554		A	SN-117	Tin-117	ug/g	88.7	<2.20E-04	<0.0390	<0.0396	n/a	n/a	102	0.0390	n/a	U
S09V001554		A	15832-50-5	Tin-126	ug/g	n/a	<4.00E-06	<7.09E-04	<7.20E-04	n/a	n/a	n/a	7.09E-04	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated
B - Found in Blank
X - Comment
U - Less Than Detection Limit
a - LCS Outside Range
Y - Comment
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b - MS/MSD Outside Range
e - SERDIL Outside Range

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

222-S LABORATORY

FINAL ANALYTICAL REPORT FOR SAMPLES FROM WASTE MANAGEMENT AREA C FOR CORE HOLES: C6392, C6400, C6402 C6404, AND C6406 IN SUPPORT OF RCRA SOIL CHARATERICZATION

1.0 INTRODUCTION

This final report presents the results for the samples taken from Waste Management Area C between March 11th and June 15th, 2009. The samples were analyzed in accordance with RPP-PLAN-40564, *Field Sampling and Analysis Plan for Sites P and L at Waste Management Area C,* (FSAP); RPP-PLAN 3877, *Sampling and Analysis Plan for Phase 2 Characterization of Vadose Zone Soil in Waste Management Area C* (SAP); ATL-MP-1011, *ATL Quality Assurance Project Plan for 222-S Laboratory* (QAPP); *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* (SW-846); and the additional guidance given by the client's point of contact.

Because the 222-S Laboratory Facility was designed to analyze hazardous and complex tank waste samples, most SW-846 test methods performed at the 222-S Laboratory contain deviations that are listed in an appendix in the analytical procedures. All known deviations or variances from SW-846 are documented in this narrative. The following attachments are included in this report.

Attachment 1	Data Summary Report
Attachment 2	Sample Breakdown Diagrams
Attachment 3	Holding Time Report
Attachment 4	Tentatively Identified Compounds (TIC) for Organic Analyses
Attachment 5	Correspondence
Attachment 6	Receipt Paperwork

This report also contains the following appendices.

Appendix A	Geologic Report
Appendix B	Analytical Raw Data

2.0 SAMPLE RECEIPT AND BREAKDOWN

2.1.1 Sample Receipt

A total of 25 core intervals from five core holes along with two equipment blanks and three trip blanks were received by 222-S beginning March 11th and ending June 15th, 2009. The samples were delivered in a cooler with ice or, in the case of the volatile organic samples, in a freezer. The temperature of a randomly selected sample from each cooler or freezer was measured and recorded on the chain of custody. Laboratory sample receipt personnel failed to record the receipt temperature for four core intervals:

- C6404 - 6 ft. to 8 ft
- C6404 - 10 ft. to 12 ft.
- C6406 - 54.5 ft. to 56.5 ft.
- C6406 - 59 ft. to 61 ft.

This was caused partially by the confusion from the delivery of multiple core projects at the same time and failure of laboratory personnel to follow the sample receipt procedure. These issues have been addressed and corrective measures have been taken. Many of the samples received were outside the required temperature ranges. This was due to the fact that these samples had not been in the cooler or freezer long enough to reach equilibrium. This can be verified, in most cases, by comparing the receipt time with the sampling time. The cooler and freezer walls were sometimes measured and were within the required temperature range. This temperature was not generally recorded since this measurement is not called out in the procedure. For future projects, the temperature of a temperature blank or the side of the cooler or freezer will be measured and recorded as described in SW-846.

2.1.2 Sample Breakdown

The laboratory received each core interval as a set of volatile organic analysis (VOA) samples and three liner samples, when complete core recovery was obtained. Nine core intervals had less than full recovery (see Attachment 2 and Attachment 6). The liner samples from each core interval were extruded, described, and composited by the Washington River Protection Solutions, Inc. (WRPS) geologist. The geologist's report is included in Appendix A. Provided sufficient samples existed, the composite for each core interval was analyzed as described in the SAP and FSAP. WRPS shipped a subsample of each composite to an offsite laboratory, when sufficient sample was available. The results of these analyses are not discussed in this report.

The 10-ft. to 12-ft. interval from core hole C6404 consisted of only VOA vial samples. No core liners were received for this interval. A limited suite for radiochemical analyses was performed using the methanol-preserved VOA sample. No other analyses were performed.

3.0 ANALYTICAL RESULTS SUMMARY

The Data Summary Report (Attachment 1) presents the final analytical results for those analytes requested in the SAP and FSAP. Secondary analytes are only reported if detected. The TIC from gas chromatography-mass spectrometry (GC/MS) analysis of semivolatile organic compounds (SVOC) is presented in Attachment 4. In addition to the required isotopes, all isotopes with positive gamma energy analysis (GEA) results were reported.

The "Det Limit" column in Attachment 1 contains the method detection limit (MDL) for non-radionuclide analyses, or the minimum detectable activity for radionuclides.

In Attachment 1 the column labeled "A#" indicates the aliquot class or the method used for sample preparation before analysis. For solid samples, the aliquot classes are defined as follows:

"A" indicates samples that were prepared by SW846-3050B.

"E" indicates samples that were prepared by a strong acid digest.

"O" indicates samples that were extracted for organic analysis.

"S" indicates samples that were prepared by a distillation.

"W" indicates samples that were prepared by a water digest.

Samples without a letter identifier in the "A#" column were analyzed directly with no separate preparation or with sample preparation performed as a part of the procedure steps.

The "Qual Flags" column in Attachment 1 contains data qualifier flags that are defined as follows:

"B" is used to indicate that the analyte was detected in the method or preparation blank and in the sample, and the result for the blank was greater than 5% of the reported sample result.

"J" indicates that the reported result should be considered an estimate because it is below the quantitation limit. The "J" flag is applied to sample concentrations that are greater than the MDL but less than the quantitation limit or sample activity with a counting uncertainty greater than 30%.

"N" indicates a TIC which has been named.

"Q" indicates that the result is qualitative only.

"T" indicated a TIC.

"U" indicates that the reported result is less than the calculated detection limit.

"Y" indicates that the percent difference (%D) for the continuing calibration verification standard (CCV) was greater than -20%.

"X" indicates that the initial calibration verification (ICV) standard was outside the range specified in the QAPP.

"a" indicates that the laboratory control sample (LCS) was outside of the specified range in the QAPP or SAP.

"b" indicates that the matrix spike (MS) was outside of the specified range in the QAPP or SAP.

"c" indicates that the relative percent difference (RPD) between the sample and the duplicate is greater than 30%.

"e" indicates that the %D between the sample result and the serial dilution exceeded 10%.

"f" indicates that the MS failed and the serial dilution passed.

Manual calculations using rounded results from the Data Summary Report or result calculation forms may differ slightly from the actual results derived from the raw data.

3.1 SAMPLE DIGESTIONS

3.1.1 Radiochemistry Strong Acid Digestion

Strong acid digestions with a hot plate for the heat source were performed using a mixture of concentrated nitric and hydrochloric acids. For each digest, approximately 10 grams of sample were digested, filtered, and diluted to a final volume of 100 or 125 mL. This digestion was used for all radiochemical analyses except tritium, ^{14}C, and ^{129}I. This digestion is a leach of the acid soluble species only.

3.1.2 SW846-3050B - Acid Digestion-Heating Block

This acid digestion follows SW846-3050B using a heating block and nitric and hydrochloric acids. Approximately 0.25 g of sample was digested. All heating-block digestions were filtered and diluted to a final volume of 50 mL. In soil, this digestion is a leach of the acid soluble species only. This digestion was used for all inductively coupled plasma/mass spectrometry (ICP/MS) and inductively coupled plasma/atomic emission spectroscopy (ICP/AES) analyses except for ^{99}Tc and isotopic tin (^{117}Sn and ^{126}Sn) analysis. The digestion is modified for the ^{99}Tc analysis by using only nitric acid. This is done to eliminate the possibility of the formation a zinc-chlorine ion pair of mass 99. The laboratory believes this ion, when present, is responsible for low level false positives.

3.1.3 Water Digestion

A water digestion or leach was prepared for the anions by ion chromatography, ^{14}C, and tritium analyses using approximately 0.25 to 4 g of sample diluted to 25 mL. Sonification was used, and the leachate was then filtered. In soil, this digestion is a leach of the water soluble species only.

3.2 INORGANIC ANALYSES

3.2.1 Cyanide

The cyanide analysis was performed on direct subsamples of the liner composite samples. All analyses met the SW846 holding time of 14 days except for sample B1YT71 (S09V000171). The holding time was missed due to the need for reanalysis, which was caused by quality control (QC) failures during the first analysis. The sample was initially analyzed within the holding time, but the final analysis, which passed all QC requirements, was 1 day past the holding. The sample result was the same for both analyses. The laboratory believes there was no effect on the final result from this missed holding time. There was no required reporting limit in the SAP for cyanide. The target detection limit was 0.5 µg/g, which is at least an order of magnitude lower than the current laboratory method (lachet micro-distillation) can reach.

3.2.2 Sulfide

Sulfide analysis was performed on direct subsamples of the liner composite samples. All analysis met the SW846 holding time of 7 days except for samples B1YT92 (S09V000382), B1YTH1

(S09V000626), and B1YTH3 (S09V000642). The first holding time was missed due to the lack of analytical personnel resources. The other two missed holding times were caused by the inability of the analytical personnel to access the laboratory due the lack of facility support, which is beyond the control of analytical personnel and their management. There was no required reporting limit in the SAP for sulfide. The target detection limit was 5 µg/g. Three sample results had adjusted MDLs of 5 µg/g. The rest were between 6 µg/g and 8 µg/g.

Batches 13951, 13952, 14332, 14517, 14598, and 14778: There were no notable issues with these batches and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 14184: The RPD between the sample and duplicate exceeded the required 30% in the SAP at 36%. Since the sample result was below the quantitation limit, this criterion is not applicable. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

Batch 14354: The RPD between the sample and duplicate exceeded the required 30% in the SAP at 32%. Since the sample result was below the quantitation limit, this criterion is not applicable. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

3.2.3 pH Analysis

The pH analysis was performed on the liner composite samples. These analyses met all QC requirements in the FSAP, SAP, and QAPP. The FSAP lists a pH holding time requirement of "as soon as possible." All pH measurements were taken immediately after the water leach was performed, but the sampling to analysis date varied from 2 to 20 days (see Attachment 3). There is no correlation between pH results and days to analysis, and the results fall within an expected range for alkaline soils. This indicates that the large variation in time has no apparent effect on the results. However, the client's expectation was that analysis would be performed within 14 days. For future projects, the analysis will be performed in less time.

3.2.4 Mercury

Analysis for mercury was performed on digested subsamples of the liner composite samples. All results met the QC requirements in the FSAP, SAP, and QAPP. All analyses met the holding time of 28 days, except for samples B1YT80 (S09V000174), B1YT83 (S09V000175), and B1YT98 (S09V000392). This was apparently the result of an oversight error by the analytical staff. The laboratory is working on improvements in holding time expiration tracking.

This analysis met the required and target detection limits except for three samples: B1YT71 (S09V000171), B1YT74 (S09V000172), and B1YT77 (S09V000173). These sample results met the target detection limit of 0.2 mg/Kg but were twice the required detection limit of 0.01 mg/Kg.

3.2.5 Ion Chromatography - Ammonium

Analysis for NH_4^+ was performed using a distillation preparation of the liner composite samples. The SAP lists an administrative holding time of 7 days. The laboratory believes that after

distillation and preservation, the holding is 28 days based on EPA drinking water and waste water holding times for preserved samples. There is no regulatory holding time limit promulgated for ammonium in soil. Four samples were analyzed outside of the administrative 7-day holding time: B1YT71 (S09V000219), B1YT92 (S09V000425), B1YTH1 (S09V000632), and B1YTH3 (S09V000648). This was apparently the result of an oversight error by the analytical staff. The laboratory is working on improvements in holding time expiration tracking. These analyses met the target detection limit listed in the SAP. There was no required reporting limit in the SAP or FSAP for ammonium.

Batches 14073, 14226, 14237, and 14498: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 14301: The preparation blank had a result above the MDL but below the quantitation limit. Since the blank result was more than 5% of the sample, a "B" flag has been applied to the associated results. Since both the sample and the blank results were below the quantitation limit, reanalysis was not required. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

Batch 14710: Samples B1YTF4 (S09V000599) and B1YTF4 (S09V000615) were analyzed with an LCS and MS, which used a standard that was 2 days past the expiration date. Since the recoveries of the expired standards were within 95% to 100% of the expected value, and the analytical batch contained other valid standards with acceptable recoveries, it is the laboratory's opinion that the data quality was not affected. Therefore, no reanalysis was requested. One of the two preparation blanks contained in this analytical batch had an ammonium result slightly above the MDL. Since the associated samples were non-detect, there is no effect on the data. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

Batch 14840: The preparation blank had a result above the MDL but below the quantitation limit. Since the blank result was more than 5% of the sample results, a "B" flag has been applied to the associated results. Since the blank result was below the quantitation limit, reanalysis was not required. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

Batch 14659: The preparation blank had a result above the MDL but below the quantitation limit. Since the blank result was more than 5% of the sample results, a "B" flag has been applied to the associated results. Since both the sample and the blank results were below the quantitation limit, reanalysis was not required. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

3.2.6 Ion Chromatography – Anions and Small Organic Acids

Ion chromatography analysis was performed on a water digest of subsamples from all soil composite samples except for B20XV5. This was due to insufficient sample volume. This sample was the 6-ft. to 8-ft. interval from core hole C6402, which was a retake of the same interval in core hole C6404. The laboratory met all the required and target detection limits. All analyses were within the applicable holding time. All sample spikes used in this analysis are post digestion spikes. Current laboratory procedures and practice were developed for the analysis of concentrated waste, which typically does not include the use of predigestion spikes for this

analysis. The laboratory will change to predigestion spike for future projects. In general, these samples experienced multiple RPD failures in every batch. All samples were reanalyzed and little improvement was seen. Other analyses also experienced high RPDs. The exact cause of the IC failures is unknown at this time, but it is matrix related. The "c" has been applied to all samples in the batch, not just the sample used for the duplicate analysis.

Batch 16700: Nitrite and nitrate were present in the preparation blank at levels below the quantitation limit; therefore, reanalysis was not required. Sample results have been flagged with "B" when appropriate. The RPD for formate and oxalate exceeded the required 30%. However, since the results for these analytes were below the quantitation limit, the criterion does not apply. The RPD for fluoride, acetate, sulfate, nitrate, and phosphate exceeded the 30% requirement, and results were all above the quantitation limit. The sample results have been flagged with a "c."

Batch 16701: The preparation blank result for chloride was above the MDL but less than the quantitation limit. Therefore, the data quality was not affected and reanalysis was not required. The samples were "B" flagged as appropriate. The closing continuing calibration blank (CCB) result for formate was above the MDL but less than the quantitation limit. Therefore, the data quality was not affected and reanalysis was not required. The samples were "B" flagged as appropriate. The RPD for nitrite and oxalate exceeded the required 30%. However, since the results for these analytes were below the quantitation limit, the criterion does not apply. The RPD for sulfate, nitrate, and chloride exceeded the 30% requirement, and results were all above the quantitation limit. The sample results have been flagged with a "c."

Batch 16744: The RPD for acetate exceeded the required 30%. Since the result for this analyte was below the quantitation limit, the criterion does not apply. The RPD for nitrite exceeded the 30% requirement, and all results were above the quantitation limit. The sample results have been flagged with a "c."

Batch 17027: The RPD for oxalate and formate exceeded the required 30%. Since the result for these analytes were below the quantitation limit, the criterion does not apply. The RPD for acetate, nitrate, nitrite, and sulfate exceeded the 30% requirement, and results were all above the quantitation limit. The sample results have been flagged with a "c."

3.2.7 Inductively Coupled Plasma/Atomic Emission Spectroscopy

The ICP/AES analysis was performed on an acid-digest (SW846-3050B) of all liner composite samples. In general, the ICP/AES analysis experienced repeated failures for the duplicate RPDs, serial dilutions, and matrix spike recoveries. The laboratory believes these failures are due to interferences from high levels of iron and aluminum, and sample inhomogeneity. This is supported by the fact that there were no post digestion spike failures. The interference from the iron and aluminum appeared to cause signal suppression in most cases. The impact of this interference could be reduced by reanalyzing the samples using smaller aliquots or greater dilution, but this would cause some primary elements to be reported as estimated or non-detected above the required detection limits. This was discussed with the client, who agreed that reanalysis would not improve the overall analytical results (see Attachment 5). Additionally, it was noted that some of the secondary analytes experienced LCS failures and that reanalysis was not required for secondary elements. In particular, the digestion method used, which was an acid

leach, does not produce consistent results for silicon. The amount of silicon leached from a highly siliceous material, like soil, is not consistent when using an acid leach. Also, the LCS recoveries are somewhat variable and may be related to the concentration and types of acid used. Silicon is not listed with other elements in SW846-3050B, section 1.1, under "Scope and Application" for the method.

The ICP/AES analysis was unable to obtain the required detection limit for antimony, arsenic, cadmium, lead, nickel, selenium, silver, thallium, and vanadium. These elements have been reported from separate ICP/MS analyses. Additionally, some chromium and cobalt results were from these same ICP/MS analyses. Total uranium has been reported by the ICP/AES analysis but did not meet the required detection limits in the FSAP. Since the isotopic uranium analysis by ICP/MS met the required detection limit for ^{238}U, the overall data usability was not affected. For all other metals reported by ICP/AES, all target and required detection limits were met or the results were above the quantitation limit, with the exception of one sample. Sample B1YT71 from core C6392 failed to meet the required detection limit for molybdenum and the target detection limits for beryllium, copper, and molybdenum.

Batch 15041: The low level standard (LLS) for potassium failed low at 69%. This indicates that results near the LLS could be biased low. Since all potassium results were near the mid-range of the calibration, the data was not affected by the low LLS recovery. The MS recoveries for aluminum, calcium, and iron failed to meet the FSAP criterion. Since the sample concentrations of these analytes exceeded four times the spike level, the MS recovery criterion does not apply. The MS recovery for silicon exceeded the ±25% criterion in the SAP and FSAP at 311%. The laboratory believes that the failure is due to the inconsistent leaching of silicon discussed previously. The associated sample results have been flagged with a "b."

Batch 16002: The MS recoveries for aluminum, calcium, iron, and magnesium failed to meet the FSAP criterion. Since the sample concentrations of these analytes exceeded four times the spike level, the MS recovery criterion does not apply. The MS recovery for sodium, tantalum, titanium, and potassium exceeded the ±25% criterion in the SAP and FSAP, and the results have been flagged with a "b." The laboratory believes this is a result of matrix interference due to the high levels of other elements in these samples and sample inhomogeneity. This was discussed with the client (see Attachment 5), and reanalysis was deemed unnecessary. The MS recovery for tantalum was less than 1%. The laboratory believes this was due to an issue with the standard. Since tantalum is not a required analyte, reanalysis was not required. Zinc was detected in the preparation blank above the MDL but less than the quantitation limit. Since the result was less than 5% of the sample result, the data quality was not affected.

Batch 16229: Calcium was present in the preparation blank but was less than 5% of the lowest sample result. The MS recoveries for aluminum, calcium, iron, silicon, titanium, and magnesium failed to meet the FSAP criterion. Since the sample concentrations of these analytes exceeded four times the spike level, the MS recovery criterion does not apply. The serial dilution for manganese and sodium failed the 10% requirement at 19% and 12%, respectively. The results have been flagged with an "e." This could indicate that the parent sample result is biased low due to matrix interference.

Batch 16778: The ICV standard recovery for rubidium was outside the 90% to 110% criterion at 112%. The sample results have been flagged with an "X." Reanalysis was not required since rubidium is a secondary analyte. The results for palladium and rubidium in the CCBs and initial calibration standard (ICB) were above MDL but below the quantitation limits. A "B" flag was applied since the blank result was greater than 5% of the sample results. Reanalysis was not required because all results (blank and samples) were below the quantitation limit. The LLS for rubidium, potassium, and palladium exceeded the 130% recovery criterion at 237%, 134%, and 137%, respectively. The palladium and rubidium results should be considered biased high. Since these are secondary analytes, reanalysis is not required. All potassium results are above the ICV and CCV level. Therefore, the slightly high recovery of the LLS does not impact the data quality. The LCS for silicon failed low at 52%. Silicon results should be considered biased low and are flagged with an "a." The preparation blank results for calcium and zinc were above the MDL but below the quantitation limit and less than 5% of the sample result. Therefore, the sample results were not affected. The duplicate RPD for praseodymium exceeded the 30% requirement in the SAP and FSAP. Since the sample result was below the quantitation limit, this criterion does not apply. The MS recoveries for aluminum, calcium, iron, and magnesium were outside the ±25% requirement in the SAPs. However, since the sample results for these elements were more than four times the spike level, the criterion does not apply. The MS recoveries for sodium, potassium, rubidium, silicon, and titanium were outside the 75% to 125% requirement, so all associated sample results have been flagged with a "b." The laboratory believes this is a result of matrix interference due to the high levels of other elements in these samples. The %D for the serial dilutions exceeded 10% for magnesium, phosphorous, silicon, and titanium. The laboratory believes this is a result of matrix interference due to the high levels of other elements in these samples. An "e" flag has been applied to these results. Since the post digestion spike passed, the serial dilution was not required, nor was reanalysis. However, these results do indicate matrix interference.

Batch 16822: The mid batch CCB result for praseodymium was above the MDL but below the quantitation limit. All associated sample results were less than 20 times the CCB result and were flagged with a "B." Since the blank and sample results were below the quantitation limit, reanalysis was not required. The initial calibration blank result for iron was above the MDL but less than the quantitation limit and much less than 5% of the sample results; therefore, the data quality was not affected. The LCS failed low for silicon and tungsten; since these were secondary analytes, reanalysis was not required. The affected sample results have been flagged with an "a." The duplicate RPD for cerium, cobalt, europium, sulfur, and praseodymium exceeded the required 30%. Since the results were below the quantitation limit, this criterion does apply. The duplicate RPD for aluminum, calcium, copper, iron, magnesium, manganese, sodium, neodymium, phosphorous, strontium, titanium, yttrium, and zinc exceeded the 30% criterion, and the associated samples have been flagged with "c." The laboratory believes that this particular failure is due to sample inhomogeneity. The serial dilution for silicon, magnesium, calcium, iron, and manganese exceeded the required 10% criterion. Since the post digestion spike passed, the serial dilution was not required, nor was reanalysis. However, these results do indicate matrix interference. The MS recovery for aluminum, calcium, iron, and magnesium exceeded the 30% requirement in the SAP and FSAP. Since the sample results were more than four times the spike concentration, this criterion does not apply. The MS recovery for phosphorous, potassium, sodium, and tungsten exceeded the 30% requirement in the SAP and FSAP. The laboratory believes this is a result of matrix interference due to the high levels of

other elements in these samples and sample inhomogeneity. This was discussed with the client (see Attachment 5), and reanalysis was deemed unnecessary. The MS recovery for cerium was less than 1%. The laboratory believes this was due to an issue with the standard. Since cerium is not a required analyte, reanalysis was not required.

3.2.8 Inductively Coupled Plasma/Mass Spectroscopy

The ICP/MS actinide analysis was performed on the SW846-3050 acid digestion of all liner composite samples. The ICP/MS ^{126}Sn and ^{99}Tc analysis was performed on the same digest, without the addition of the hydrochloric acid. Hydrochloric acid is not used for ^{99}Tc analysis because of the potential formation of a ZnCl ion pair with mass 99.

Direct calibration, where a standard containing the isotope and element of interest is used to calibrate the response of the isotope, is the most accurate type of calibration. Standard material is not available for all the isotopes of interest. Those isotopes without available standards are calibrated using the instrument's mass-response curve that is generated by using the intensity/concentration relationship for the available isotope standards. While the isotope results calibrated in this manner are designated "semi-quantitative" in the procedure, the differences in instrument response along the curve are generally small enough across the actinide mass range such that the results generated might be expected to be within similar uncertainties associated with quantitative results (i.e., those obtained directly against an isotope-specific standard).

A similar approach is used to evaluate the recoveries of calibration checks, standards, and spikes. Just as all of the elemental isotopes of interest are not available for calibration, they are also not available for the various QC samples. Because the chemical properties of an element are the same for all of its isotopes, one elemental isotope can be used as a measure for other isotopes of interest. For example, by measuring the recovery of ^{238}U in the various QC samples, the accuracy of the other uranium isotopes also can be evaluated. Table 1 lists the isotopes used for standards and spike samples for ICP-MS analyses. A response curve is derived using the slopes of the calibration lines of the available isotope standards. Slopes for the isotopes without available standards are then derived from the response curve, and results are calculated using the derived slopes.

Table 1. Inductively Coupled Plasma-Mass Spectroscopy Standards and Spikes.

Standard Type	Analytes Analyzed
Initial calibration verification (nondigested)	^{232}Th, ^{235}U, ^{238}U, ^{237}Np, ^{99}Tc, ^{117}Sn
Acid digest standard (laboratory control standard)	^{232}Th, ^{235}U, ^{238}U, ^{237}Np, ^{99}Tc, ^{117}Sn
Predigest spike (MS)	^{232}Th, ^{235}U, ^{238}U, ^{237}Np, ^{99}Tc, ^{117}Sn
Post-digest spike	^{232}Th, ^{235}U, ^{238}U, ^{237}Np, ^{99}Tc, ^{117}Sn
No standard or spike of either type	^{126}Sn, ^{230}Th, ^{233}U, ^{234}U, ^{236}U,

3.2.8.1 Technetium-99 and Tin-126

The required detection limit listed in the SAP for ^{99}Tc was met. The target detection limit for ^{99}Tc was not met. There were no required or target detection limits for ^{126}Sn listed in the SAP. The FSAP lists a holding time of isotopic analytes as 6 months. All samples were initially

analyzed within the holding time. However, due to a required reanalysis, nine samples exceeded the holding time. The reanalysis was delayed by instrument repair, failure of the chemist review to recognize the need for reanalysis, and delayed third level review by the project manager. Additionally, Washington River Projection System's management set the analytical priority of C Farm analysis behind other projects. Since the analytical results did not significantly change from the initial to the final analysis, the laboratory does not believe these exceedances affected the final results.

Batches 16639, 16734, and 16982: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 16341: The preparation blank contained ^{117}Sn below the quantitation limit. However, all samples in the batch were nondetect for ^{117}Sn, so the data was not affected. The LCS for ^{117}Sn exceeded the required 120% at 141% and the associated results have been flagged with an "a." This could indicate a high bias for these results. However, since the results for all samples were below the MDL, the data was not affected. The MS for ^{117}Sn met the recovery requirements, demonstrating preparation batch accuracy to some degree.

Batch 16865: The mid-run CCB contained ^{99}Tc below the quantitation limit. All field samples in this batch demonstrated results below the MDL; therefore, the data was not affected.

Batch 16970: All blanks contained a low level of ^{126}Sn, and the preparation blank contained a low level of ^{126}Sn and ^{99}Tc. Since neither ^{126}Sn or ^{99}Tc were detected in the samples, the data quality was not affected and reanalysis was not required.

3.2.8.2 Actinides

The required and target detection limits were met for all isotopes and in all samples. The FSAP lists the holding time for isotopic analytes as 6 months. All samples were initially analyzed within the holding time. However, due to a required reanalysis, 11 samples exceeded the holding time. The reanalysis was delayed by instrument repair, failure of the chemist review to recognize the need for reanalysis, and a delayed third level review by the project manager. Additionally, Washington River Projection System's management set the analytical priority of C Farm analysis behind other projects. Since the analytical results did not significantly change from the initial to the final analysis, the laboratory does not believe these exceedances affected the final results.

Batch 15672: Neptunium-237 was detected in the mid-run CCB below the quantitation level. All affected samples have a similar result and have been flagged with a "B." Since all ^{237}Np results were below the quantitation level, reanalysis is not required. All blanks (CCB and preparation blanks) contained ^{232}Th below the quantitation level and were less than 5% of the sample results. Therefore, the results were not affected and reanalysis was not required. The LLS for ^{235}U was recovered above the 130% requirement at 131%. Since the lowest sample result was more than 10 times the LLS level, the results were not affected. The RPD for ^{237}Np exceeded the 30% requirement at 47%. Since the results were below the quantitation limit, this criterion does not apply. The closing CCB result for ^{238}U was above the MDL but below the quantitation limit and less than 5% of the sample results; therefore, reanalysis was not required.

Batch 16171: The preparation blank result for ^{235}U was below the quantitation limit but less than 5% of the lowest sample result. Therefore, no reanalysis was required and the data quality was

not affected. The preparation blank result for ^{232}Th was above the quantitation limit but less than 5% for the sample result; therefore, reanalysis was not required and the data quality was not affected. The preparation blank contained ^{238}U above the quantitation level and was greater than 5% of three of the sample results. However, since the sample results were below the TDL and above the quantitation limit, the client gave permission to report the data with a "B" qualifier (see Attachment 5). The ending LLS for ^{235}U exceeded the 130% requirement at 133%. This could indicate a high bias for ^{235}U results near the LLS level. However, the lowest sample result for ^{235}U was approximately 80 times the LLS level and the data quality was not affected.

Batch 16595: The preparation blank contained ^{238}U and ^{235}U above the quantitation level and was greater than 5% of all of the sample results in this batch. Since the sample results were above the quantitation level but below the TDL, the client gave permission to report the data with a "B" qualifier and narration of the issue (see Attachment 5). The preparation blank result for ^{233}U was below the quantitation limit and greater than 5% of the sample results. Since both the sample results and the blank result were below the quantitation level, reanalysis was not required. The associated results have been flagged with a "B." The preparation blank result for ^{232}Th was above the quantitation limit but less than 5% of the sample results; therefore, reanalysis was not required and the data quality was not affected. The ICB and CCBs contained ^{232}Th below the quantitation limit, which had no effect on the data quality. The RPD for ^{234}U exceeded the 30% requirement at 38%; since the sample result was below the quantitation limit, this criterion does not apply.

Batch 17023: The closing LLS exceeded the 130% criterion for ^{232}Th at 164%. However, all results were near the CCV level, which is 200 times the LLS. Therefore, the data quality was not affected. The RPD for ^{234}U and ^{238}U exceeded the 30% requirement; since the sample result was below the quantitation limit, this criterion does not apply.

Batch 17024: The first CCB contained ^{235}U at a level equal to the MDL; since it was below the quantitation limit, the data quality was not affected. The initial LLS exceeded the 130% for ^{232}Th criterion at 164%. However, all results were near the CCV, which is 200 times the LLS, and therefore, there was no effect on the data quality. The RPD for ^{234}U exceeded the 30% requirement; since the sample result was below the quantitation limit, this criterion does not apply.

3.2.8.3 Trace Metals

Antimony, arsenic, cadmium, lead, nickel, selenium, silver, thallium, and vanadium were analyzed by ICP/MS to obtain the required detection limits in the SAP. Additionally, some chromium and cobalt results were used from the ICP/MS analyses. Except for the required detection limit for selenium, all target and required detection limits were met or the sample results were above the quantitation limit and the sample detection limit criteria do not apply. The target detection limit for selenium was approximately an order of magnitude below the detection limit obtained by using ICP/MS. The laboratory does not anticipate reaching this detection limit for future projects. The FSAP lists the holding time of isotopic analytes as 6 months. All samples were initially analyzed within the holding time using ICP/AES. However, due to a required reanalysis, 23 samples exceeded this holding time. The reanalysis was delayed by instrument repair, failure of the chemist review to recognize the need for reanalysis, and a delayed third level review by the project manager. Additionally, Washington River Projection System's management set the analytical priority of C Farm analysis behind other projects. Since the

analytes with results that could be compared (chromium, cobalt, nickel, and vanadium) did not significantly change from the initial ICP/AES to the final ICP/MS analysis, the laboratory does not believe these exceedances affected the final results.

SW846-6020A requires that an interference check standard be used to determine possible isobaric or polyatomic ion interferences. The current laboratory procedure does not require the use of this standard, and it was not included in these analyses. However, interferences were mitigated by the use of the collision cell, or gas mode, of the instrument. This was used for arsenic and vanadium to mitigate chloride interference. Since the blank result for these elements were below the MDL, the mitigation appears to have been successful. The laboratory plans to use the required interference check standard for future projects.

Batch 16927: The initial LLS recovered Cr at 152%. Since all chromium results were above the ICV/CCV level, the high recovery of the LLS does not affect data quality for chromium. The selenium recoveries for the LLS were outside the 70% to 130% requirement in SW846 at 167% for the initial LLS and 36% for the final LLS. The selenium concentration selected for the LLS was only slightly above the MDL and was determined to be too low. Some of the subsequent analyses used a more appropriate LLS level of selenium. The preparation blank contained silver, cadmium, thallium, and nickel above their MDLs but below the quantitation limits. All sample results, except for nickel, have been flagged with a “B” because the blank result was greater than 5% of the sample results. Reanalysis was not required because the blank results were below the quantitation limits.

Batch 16990: The preparation blank and mid-run CCB results for thallium were above the MDL but less than the quantitation limit. Since the blank result was greater than 5% of all sample results, a “B” flag has been applied. Reanalysis was not required since the blank result was below the quantitation limit.

Batch 17021: The closing LLS for selenium was recovered at 202%. Since all sample results for selenium were below the MDL, the data quality was not affected. The selenium concentration selected for the LLS was at the MDL and was determined to be too low. Some of the subsequent batches used a more appropriate LLS concentration of selenium. The preparation blank result for selenium was above the MDL. However, since all sample results were below the MDL, the data quality was not affected. The closing CCV for silver was below the required 90% at 89.3%. This CCV bracketed only QC samples, all of which met requirements. Therefore, reanalysis was deemed unnecessary. The duplicate RPD for nickel exceeded the 30% requirement at 45%, and the associated results have been flagged with a “c.” The laboratory believes this is due to sample inhomogeneity, and with client agreement, reanalysis was not performed (see Attachment 5).

Batch 17062: The LLS recoveries for selenium were 213% and 220%. Since all sample results for selenium were below the MDL, the data quality was not affected. The selenium concentration selected for this LLS, though higher than previously used, was determined to be too low. Subsequent analyses used a more appropriate LLS concentration of selenium. The preparation blank and closing CCB results for selenium were above the MDL. However, since all sample results were below the MDL, the data quality was not affected. The duplicate RPD for cadmium exceeded the 30% requirement at 33%. Since the sample result was below the quantitation level, this criterion does not apply. The duplicate RPD for lead, thallium, and vanadium exceeded the 30% requirement at 47%, 59%, and 44%, respectively, and the associated results have been flagged with a “c.” Based on ICP/AES and other analyses, the laboratory believes this is due to

sample inhomogeneity and, with client agreement, no reanalysis was performed (see Attachment 5).

Batch 17063: The preparation blank result for thallium was above the MDL but less than the quantitation limit. Since the blank result was greater than 5% of all sample results, a "B" flag has been applied. Reanalysis was not required since the blank result was below the quantitation limit. The duplicate RPD for thallium exceeded the 30% requirement at 32%. Since the sample result was below the quantitation level, this criterion does not apply.

Batch 17222: The preparation blank result for selenium was above the MDL. However, since all sample results were below the MDL, the data quality was not affected.

Batch 17230: The post digestion spike failed low at 42% for selenium. However, since the MS met the required recovery criteria at 102%, a post digestion spike is not required (per SW846). It should be noted that the raw sample result was negative, indicating a matrix interference. This may be the cause of the low post digestion spike recovery. The spike level for the MS is higher than the post digestion spike and possibly negated the interference.

Batch 17234: There were no notable issues with this batch; all QC requirements in the FSAP, SAP, and the QAPP were met.

3.3 RADIOCHEMICAL ANALYSIS

The holding time listed in the FSAP for radioactive isotopes is 6 months. SW846 does not address holding times for these analytes. All radiochemical analyses met the 6-month holding time. Holding time tables for these analytes have not been included in Attachment 2.

3.3.1 Gamma Energy Analysis

Gamma energy analysis was performed directly on approximately 60 mL of soil from all liner composite samples. Sample B1YT98 was inadvertently analyzed twice. The sample with the highest ^{137}Cs result (S09V000473) has been reported in Attachment 1. The other analysis results and raw data are contained in Appendix 2. The GEA analysis met all the required detection limits in the SAP. The laboratory was unable to meet any of the target detection limits.

Batches 13909, 15005, 15098, 15100, and 15511: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batches 15099: This batch did not contain a field sample duplicate as required in the QAPP. However, the client indicated (see Attachment 5) the FSAP and SAP only requires one field duplicate per core hole. Since the client QC requirement was met, reanalysis was not required.

3.3.2 Strontium-90/89

Strontium-90/89 analysis was performed on a strong acid digest of all liner composite samples. Fifteen of the sample analyses met the required detection limit of 2.3 pCi/g listed in the FSAP or had results above the quantitation limit. Of the remaining ten samples, all but one achieved a detection limit between 2.3 pCi/g and 4.2 pCi/g. No detection limit exceeded the lowest action limit of 23 pCi/g in Table 5.2 of the SAP.

Batches 16420, 16466, and 16485: There were no notable QC issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 16482: The preparation blank had a positive result slightly above the minimum detectable activity with a counting error of 117%. All samples, except one, had results below the MDA. The sample result above the MDA was below the quantitation limit and has been flagged with a "B." Because the result of the blank and the sample were below the quantitation limit, reanalysis was not performed.

Batch 16610: The RPD between the sample and duplicate was 116%. The original digestates were reanalyzed with similar results. There was insufficient sample to perform a second preparation of the sample. A "c" flag has been applied to all samples in the batch.

Batch 16776: The blank result displayed in Attachment 1 for sample S09V000509 (<2.7E-6 μCi/g), is different from that in the batch report (<1.95E-6 μCi/g). This resulted from the sample being rejected and reanalyzed in a new batch (16776) while the remaining samples in the original batch were reported from the original batch. Both batches share the same preparation blank, which has now been analyzed twice. Currently, the Data Summary Report (Attachment 1) reports only one blank result; it is from the original batch. Additional programming is required to change this. The two blank results are essentially the same.

3.3.3 Tritium

The tritium analysis was performed on a water leach of all liner composite samples. This method only measured the tritium in the samples which can be dissolved in water. This analysis achieved the required detection limit in the FSAP but could not meet the target detection limit. There were no notable issues with any of the tritium batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

3.3.4 Selenium-79

The ^{79}Se analysis was performed on a strong acid digest of all liner composite samples. The analysis achieved the target detection limit in the FSAP. No required detection limit was listed. No standard is currently available for ^{79}Se. A cold carrier is used to monitor recovery and is measured gravimetrically.

Batches 16105 and 16145: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batches 16188, 16194, and 16259: The preparation blanks for these batches demonstrated positive results below the quantitation limit, as did many of the samples. All results had very large counting errors and were below the target detection limit. Because of these factors, reanalysis was not required. The associated results have been flagged with a "B."

Batch 16409: The blank results displayed in Attachment 1 for sample S09V000509 (<1.51E-6 μCi/g) and S09V000666 (5.23E-6 μCi/g) are different from that in the batch report (<2.2E-6 μCi/g). This resulted from these samples being rejected and reanalyzed in a new batch

(16409), while the remaining samples in the original batch were reported from the original batch. Both batches share the same preparation blank, which has now been analyzed twice. The current Data Summary Report (Attachment 1) reports only one blank result; it is from the original batch. Additional programming is required to change this. The two blank results are essentially the same. Even though the original blank result for sample S09V000666 was positive, it had a counting uncertainty of 185%.

3.3.5 Carbon-14

The ^{14}C analysis was performed on a water leach of all liner composite samples. The 10-ft. to 12-ft. interval from core hole C6404 did not retrieve sufficient liner material to produce a sample for this analysis. The analysis achieved the required detection limit in the FSAP but exceeded the target detection limit. This analysis will only detect water soluble forms of ^{14}C. There were no notable issues with the batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

3.3.6 Nickel-63

The ^{63}Ni analysis was performed on a strong acid digest of all liner composite samples. The analysis achieved the required detection limit in the FSAP but exceeded the target detection limit of 30 pCi/g. Most samples had detection limits of between 50 pCi/g and 100 pCi/g.

Batches 15697, 16267, 16282, and 16392: There were no notable issues with these ^{63}Ni batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 16240: The preparation blank had a positive result slightly above the MDA with a counting error of 412%. All samples, except one, had results below the MDA. The sample result above the MDA was below the quantitation limit and has been flagged with a “B.” Because the results for the blank and the sample were below the quantitation limit, reanalysis was not performed.

Batch 16551: The blank result displayed in Attachment 1 for sample S09V000509 (<5.65E-5 μCi/g) is different from that in the batch report (<4.98E-6 μCi/g). This resulted from the sample being rejected and reanalyzed in a new batch (16551), while the remaining samples in the original batch were reported from the original batch. Both batches share the same preparation blank, which was analyzed twice. The current Data Summary Report (Attachment 1) reports only one blank result; it is from the original batch. Additional programming is required to change this. The two blank results are essentially the same.

3.3.7 Iodine-129

Analysis for ^{129}I was performed on an iodine specific fusion digest of all liner composite samples. The required and target detection limits in the SAP were met.

Batches 16203, 16246, and 16307: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 16468: The preparation blank result was above the quantitation limit but below the target detection limit. The customer contact agreed (see Attachment 5) that since the result was below the target detection limit, reanalysis was unnecessary. One of the samples in this batch had a result above the quantitation limit but below the target detection limit. This result has been flagged with a "B." The remaining sample results were nondetect.

Batch 16496: The preparation blank result was above the quantitation limit but below the target detection. Since the sample results were all nondetect, reanalysis was not required.

3.3.8 Americium-241, Curium-243/244, and Curium-242

Analysis for ^{241}Am, $^{243/244}$Cm, and ^{242}Cm was performed on a strong acid digest of all liner composite samples. For this analysis, there were no notable issues with any batches and all QC requirements in the FSAP, SAP, and the QAPP were met. The required detection limit in the SAP was met, and all but three samples met the target detection limit.

3.3.9 Plutonium-238 and Plutonium-239/240

Plutonium isotopic (^{238}Pu and $^{239/240}$Pu) analysis was performed on a strong acid digest of all liner composite samples. For this analysis, there were no notable issues with any batches and all QC requirements in the FSAP, SAP, and the QAPP were met. The required and target detection limits in the SAP were met

3.4 ORGANIC ANALYSES

3.4.1 Volatile Organic Analysis

The VOA was performed on all field samples by purge and trap. Field sampling, sample containers, and preservation followed SW846-5035. The soil samples were delivered in a freezer, in pre-weighed VOA vials with magnetic stir bars and approximately 5 g of sample. After receipt, the VOA samples were stored in a freezer. For each sample interval, an additional high level sample preserved in methanol was also received. These were not used because none of the results for the frozen samples were above the calibration range. The exact weight of the sample and the tare weight of the VOA vials were recorded by sampling personnel and delivered with the samples. Four liquid trip blank samples were also received and analyzed. The samples were preserved with either HCl or H_2SO_4 to a pH < 2.

The holding time for all samples is 14 days. All samples but two meet the required holding time. Sample B1YTB2 (S09V000410), a soil sample, exceeded the holding time requirement by 2 days. This was caused by a lack of facility resources (radiological control technicians), which was beyond the control of the analytical staff contractor at 222-S. The facility operator is addressing the issue by hiring additional facility support staff. Sample B1YY24 (S09V000493), a trip blank, was analyzed 1 day beyond the required holding time. This was due to an oversight by 222-S analytical personnel. The laboratory believes that the affect of the holding time exceedance on sample results is minimal. A study by the Department of Energy and others have

shown that exceedances of less than 2 weeks produce no statistical difference and only a few compounds are affected for up to 6 weeks (see Reference Section).

The VOA analysis met the target and required detection limits in the SAP with the following exceptions: for 2-nitropropane, one sample was slightly above the target detection limit; for cis-1,2-dichloroethene, trans-1,2-dichloroethene, m,p-xylene, o-xylene, and TCE, two samples were slightly above the target detection limits. These detection limit exceedances were caused by a less than 5 g aliquot in the VOA vial. The laboratory cannot adjust the amount of sample when following SW846-5035 and must analyze them as received.

Loss of Internal Standards, Spike Compounds, and Surrogates: During the VOA analysis of the C Farm soil samples, low recoveries of the internal standard and surrogates were frequently experienced. At times, the instrument produced no response at all for these monitoring compounds. The issue was extensively investigated and was isolated to only the C Farm soil samples. Liquid samples and laboratory prepared soil standards (using laboratory VOA vials and stir bars) were not affected. The C Farm soil samples were analyzed on different instruments, which eliminated instrumentation as the problem. The laboratory believes that this problem is related to the sample matrix and/or the oversized stir bars used by the client. Additionally, it was determined that some of the VOA vials provided by the client leaked around the cap during purging. The problem was determined to be some type of blockage that impeded purge flow. The laboratory eventually developed a technique that provided improved results. This technique consisted of lightly shaking the VOA vial while monitoring purge flow with an in-line flow meter. The laboratory has requested that the client discontinue the use of the large stir bar and use different VOA vials.

The purpose of the internal standard is to compensate for fluctuation and drift in instrument response. The instrument responses for spikes, surrogates, or compounds found in the sample are adjusted base on their closest internal standard. A complete loss of internal standard undoubtedly invalidates the sample results. However, low internal standard recoveries do not necessarily mean that the data is unusable. SW846 only specifies minimum internal standard recovery requirements for the CCV, not the samples. While there are no regulatory limits for internal standard recoveries in a sample, there are practical limitations to the amount of fluctuation that can be tolerated before quantitation is affected. Typically that value is around the limits specified for the CCV (-50 to +100% drift). The further that the sample internal standards are from the established CCV limit, the more likely the quantitation is adversely affected. When internal standard recoveries fall outside these limits, surrogate recoveries may be used to evaluate any adverse effects on quantitation. On all samples exhibiting low internal standard responses, associated surrogate recoveries were evaluated to determine if the loss had significant effect on the reported results. Based on this evaluation, the laboratory believes that the VOA results contained in this report are useable.

Samples and their associated MS and matrix spike duplicate (MSD) were initially analyzed together in a single analytical run. However, because of the frequent internal standard failures, many reanalyses were required. Due to the limited number of extra sample vials (five per sample), the reanalysis did not typically contain the original sample, MS, and MSD. Consequently, the analytical batches contained in this report have sample and associated QC results for different analytical runs, which were often on different days. The construction of

batches in this manner was necessary for the laboratory information management system to associate a sample and its MS/MSD pair. All information and data concerning the analysis and reanalysis are contained in the VOA section of Appendix B.

The discussion below of the individual batches will not contain additional information concerning the low recoveries of internal standards. Detailed information for each sample is contained Appendix B.

Batch 14157: The method blank contained 1,2-dichloroethane and acetone below the estimated quantitation limit. Since the sample results were below the MDL for these compounds, reanalysis is not required. The LCS demonstrated a high recovery for acetone, 1-butanol, 2-butanone, and methyl isobutyl ketone (MIBK). Since these compounds were non-detect in the sample, reanalysis is not required. Sample results have been flagged with an "a."

Batch 14180: Other than the previously discussed internal standard issue, there were no notable issues with this batch and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 15471: The RPD between the MS and MSD failed to meet the 30% requirement for acetone, 1-butanol, 2-butanone, and MIBK. Since the sample did not contain quantifiable amounts of these compounds, reanalysis was not necessary. However, the sample results were flagged with a "c" indicating a batch precision failure. The MS failed slightly high at 131% for 2-butanone. Since this compound was not detected above the quantitation level, reanalysis was not required. The sample was flagged with a "b."

Batch 15472: The second method blank contained acetone below the estimated quantitation limit. Since the associated sample did not contain acetone above the estimated quantitation limit, reanalysis is not required. A "B" flag has been applied to the sample result. Toluene was present in the second method blank below the estimated quantitation limit. Since the associated sample results were below the MDL, the data was not affected. The first LCS demonstrated a high recovery for 1,1-dichloroethene, MIBK, acetone, and 2-butanone. Since these compounds were not detected in the samples above the estimated quantitation limit, reanalysis is not required. Sample results have been flagged with an "a." The MS recovery for 1-butanol was above the 30% requirement and a "b" flag has been added to the associated results. Since this compound was not detected in the associated samples, reanalysis was not required. The CCV %D exceeded the ±20% requirement for trichlorofluoromethane, 1,1-dichloroethene, carbon disulfide, acetone, and 2-butanone. All were above the expected value. Since all compounds were either not detected or below the estimated quantitation limit, the results were not affected and reanalysis not required. The CCV met the 15% average %D requirement.

Batch 15474: The method blank contained acetone below the estimated quantitation limit. Since the associated sample did not contain acetone, reanalysis is not required. The CCV for acetone exceeded the 20% %D requirement. Since the CCV was above the calibration amount and the sample was nondetect, reanalysis was not required.

Batch 15476: The method blank contained acetone below the estimated quantitation limit. Since the associated sample did not contain acetone, reanalysis is not required.

Batch 15477: The method blank contained acetone below the estimated quantitation limit. Since the associated samples did not contain acetone above the estimated quantitation limit, reanalysis is not required. All acetone results were slightly above the MDL and have been flagged with a "B." The RPD between the MS and MSD exceeded the 30% requirement at 31% for 1-butanol. Since the samples were nondetect for this compound, reanalysis was not required. A "c" flag was added to the associated sample results. The CCV for acetone exceeded the 20% %D requirement. Since the CCV was above the calibration amount and the samples were below the estimated quantitation limit, reanalysis was not required.

Batch 15479: There were no notable issues with this liquid sample batch, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 15491: Other than the previously discussed internal standard issue, there were no notable issues with this batch and all QC requirements in the FSAP, SAP, and the QAPP were met. Since the client only required an MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6406 is in batch 15477.

Batch 15492: Other than the previously discussed internal standard issue, there were no notable issues with this batch and all QC requirements in the FSAP, SAP, and the QAPP were met. Since the client only required an MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6406 is in batch 15477, and the MS/MSD for core hole C6402 is in batch 15471.

Batch 15493: There were no notable issues with this liquid sample batch, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 15503: The method blank contained acetone below the estimated quantitation limit. Since associated samples did not contain acetone above the estimated quantitation limit, reanalysis is not required. Two samples contained acetone at slightly above the MDL and have been flagged with a "B." The method blank contained toluene below the estimated quantitation limit. Since associated samples did not contain toluene above the MDL, reanalysis was not required.

Batch 15525: The CCV %D for 1-butanol was slightly high at 20.6%. Since the sample did not contain 1-butanol above the MDL, the result was not adversely affected. Since the client only required an MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6404 is in batch 15674.

Batch 15671: The CCV associated with the field samples and the MSD for sample B1TY75 (S09V000125) had a %D of -23% for 1-butanol. This could indicate that positive results for 1-butanol could be biased low. A laboratory-defined "Y" flag has been applied to these results. 1-butanol was not detected in these samples. Additionally, the MSD was recovered at 90%, indicating that the low CCV had minimal affect on the results. The CCV associated with the MS/MSD for sample B1YT72 (S09V000124) and MS for sample B1YT75 (S09V000125) had a %D of -30% for 1-butanol. The recoveries for the field quality control samples were within the required 70% to 130%, indicating that the low CCV had minimal effect on the analysis results. The average %D was less than 15%, which meets the SW-846 requirement.

Batch 15673: The CCV %D exceeded the 20% limit for acetone. Acetone was recovered above the expected calibration value. This could indicate a high bias for acetone sample results. Since the sample result for acetone was below the estimated quantitation limit, reanalysis was not required and the data was not affected. The method blank contained acetone and toluene below the estimated quantitation limit. The sample contained acetone below the estimated quantitation limit and was nondetect for toluene. Since all results (blank and sample) were below the estimated quantitation limit, reanalysis was not required. Since the client only required an MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6400 is in batch 15503.

Batch 15674: The CCV had a %D at -21% for 1-butanol. This could indicate that positive results for 1-butanol could be biased low. A laboratory defined "Y" flag has been applied to these results. 1-butanol was not detected in these samples. The LCS and MS/MSD recoveries were within the required limits, indicating that the low CCV had minimal effect on the analysis results. The average %D was less than 15%, which meets the SW-846 requirement.

Batch15785: The LCS recoveries for 1-butanol, 2-butanone, MIBK, and acetone were above the required 130%. The sample did not contain these compounds above the MDL, so the results were not affected. The method blank contained toluene below the estimated quantitation limit. Since the associated sample did not contain toluene above the MDL, reanalysis was not required. The CCV %D for 1-butanol was slightly high at 20.1%. Since the sample did not contain 1-butanol above the MDL, the result was not adversely affected. Since the client only required and MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6404 is in batch 15674. The average %D was less than 15%, which meets the SW-846 requirement.

3.4.2 Semivolatile Organic Analysis

The semivolatile organic analysis (SVOA) was performed on methylene chloride extractions of all liner composite samples except B20XV5 and B20XW3. These samples were not analyzed based on the client's instructions. Each extract was analyzed twice using two separate calibration curves to provide calibrated results for all compounds listed in the FSAP and SAP. All holding times were met except for the extraction of sample B20XV9 (S09V000742). This was caused by failure to assign the test during log-in.

Ten of the twenty-two samples contained a low level of bis (2-ethylhexyl) phthalate, which was not detected above the MDL in the method blanks. Additionally, low levels of di-n-butylphthalate were detected in four samples and was present in the method blank associated with two of the samples. Low levels of phthalates may represent contamination of the samples during sampling and/or analysis, but environmental contamination could also be the source. If laboratory contamination is present, it will usually appear in the method blank. Due to the prevalence of low level phthalate contamination in the environment, it can be hard to determine the source of low level results. Equipment blanks can help isolate the source of phthalates, but no equipment blanks were analyzed with these samples. One possible source of phthalate could be the red plastic end caps used with the liners. It is the laboratory's opinion that the use of these end caps should be discontinued.

The SVOA analysis met the required and target detection limits with two exceptions:

- The adjusted MDLs for cyclohexanone were above the 0.5mg/kg target detection limit for most samples. This compound obtained detection limits between 0.5 mg/kg an 0.7 mg/kg. The adjusted MDLs for di-n-butyl-phthalate were above the target detection limit of 0.33 mg/kg. The analysis achieved a detection limit of between 0.5 mg/kg and 0.7 mg/kg for this compound.
- LCS, MS, and MSD recoveries were compared against the laboratory's statistical process control (SPC) limits, as required by SW-846. The use of SPC limits is allowed in the FSAP, SAP, and QAPP.

Batches 14181, 14528, 14529, and 15811: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 14169: The surrogate terphenyl-d14 was recovered below the laboratories SPC limits of 75% to 175% at 62%. It is the laboratory's opinion that this is not a particularly low recovery and the usability of the associated results was not affected. The SPC limits appear to be biased high. SPC limits are currently under review and will be updated. This bias is expected to be corrected. All other QC requirements were met.

Batch 14527: Di-n-butylphthalate was detected in the method blank below the quantitation limit. However, the blank result exceeded 5% of the associated sample results. These results have been flagged with a "B." Since the blank and sample results were below the quantitation limit, reanalysis was not required. No MS or MSD was analyzed with this batch. Since the client only required that an MS and MSD be analyzed once per core hole (see Attachment 5), this requirement was met in batch 14529. All other QC requirements were met.

Batch 14580: For two samples, the surrogate terphenyl-d14 was recovered below the laboratory's SPC limits of 75% to 175% at 64% and 58%. It is the laboratory's opinion that this is not a particularly low recovery and the usability of the associated results was not affected. The SPC limits appear to be biased high. SPC limits are currently under review and will be updated. This bias is expected to be corrected. All other QC requirements were met.

Batch 15509: All QC requirements were met. However, a large cyclohexene peak was detected during the second analysis of the samples. Since the TICs were reported from the 1st analysis only, this peak has not been reported. The laboratory believes that the cyclohexene was present in the methylene chloride used for the extraction.

3.4.3 Tentatively Identified Compounds

Unassigned peaks or TICs were treated as follows. Standards were obtained and analyzed for each secondary analyte identified in the SAP. This data was accumulated in the Hanford library. Following analysis, the largest TICs with instrument responses greater than 10% of the response of the nearest internal standard were evaluated and compared to the Hanford library. The estimated concentration of these TICs was calculated using measured response factors from the Hanford library compound list.

After comparison to the Hanford library, remaining unknowns were compared to the National Institute of Standards and Technology (NIST) 02, *HP Mass Spectral (compound) Libraries*. The estimated concentration of compounds identified from the NIST library was calculated based on an arbitrary response factor of 1.0. If the compounds were not identified as a result of this comparison, they were reported as "unknown." Summaries of the SVOA and VOA TICs from the field samples and method blanks are provided in Attachment 4. TICs found in the field samples and which were present in the associated batch method blank have been flagged with "B."

4.0 PROCEDURES

Table 2 lists the analytical procedures used for analysis of the C-Farm samples.

Table 2. Analytical Procedures.

Analysis	Preparation Method	Analysis Procedure
Inorganic Analyses		
Cyanide	LA-695-103, Rev. I-0, J-0 (SW-846 9010C)	LA-695-103, Rev. I-0, J-0 (SW-846 9014)
Sulfide	LA-361-101, Rev. D-0 (SW-846 9030B)	LA-361-101, Rev. D-0 (SW-846 9215)
pH	Direct	LA-212-105, Rev. G-0 (SW-846 9045D)
Mercury – Cold Vapor Atomic Absorption	LA-325-106, Rev. G-0 (SW-846 7470A, 7471A)	LA-325-106, Rev. G-0 (SW-846, 7470A, 7471A)
Ammonia – IC	LA-544-112, Rev. D-0	LA-533-101, Rev. O-0
Anions & Organic Acids – IC	LA-504-101, Rev. L-0	LA-533-115, Rev. J-0
Metals – ICP /AES	LA-505-163, Rev. F-0 (SW-846 3050B)	LA-505-161, Rev. I-0, J-0a (SW-846 6010C)
^{99}Tc, ^{126}Sn – ICP/MS	LA-505-163, Rev. F-0 (SW-846 3050B)	LA-506-102, Rev. E-0
Metals – ICP/MS	LA-505-163, Rev. F-0 (SW-846 3050B)	LA-506-103, Rev. A-0 (SW-846 6020A)
Actinides – ICP/MS	LA-505-163, Rev. F-0 (SW-846 3050B)	LA-506-102, Rev. E-0
Radiochemical Analyses		
GEA	Direct	LA-548-121, Rev. I-0
^{90}Sr – Separation/Beta counting	LA-544-101, Rev. F-0	LA-220-101, Rev. I-0
Tritium – LSC	LA-504-101, Rev. L-0	LA-218-114, Rev. F-0
^{14}C – LSC	LA-504-101, Rev. L-0	LA-348-104, Rev. H-0
^{79}Se – Separation/LSC	LA-544-101, Rev. F-0	LA-365-102, Rev. I-0
^{63}Ni – Separation/LSC	LA-544-101, Rev. F-0	LA-285-102, Rev. D-0
^{129}I – Separation/GEA	LA-544-101, Rev. F-0	LA-378-105, Rev. C-0
^{241}Am, $^{243/244, 242}$Cm – Separation/AEA	LA-544-101, Rev. F-0	LA-953-104, Rev. H-1
$^{239/240, 238}$Pu – Separation/AEA	LA-544-101 Rev. F-0	LA-953-104, Rev. H-1
Organic Analyses		
VOC – GC-MS	Direct	LA-523-118, Rev. G-0

Table 2. Analytical Procedures.

Analysis	Preparation Method	Analysis Procedure
SVOC – GC/MS	LA-523-138, Rev. F-0 (SW846-3540C)	LA-523-135, Rev. C-0

5.0 REFERENCES

ATL-MP-1011, 2008, *ATL Quality Assurance Project Plan for 222-S Laboratory*, Rev. 8 and Rev. 9, Advanced Technologies and Laboratories International, Inc., Richland, Washington.

NIST 02, 2002, *HP Mass Spectral Libraries*, July 2002 Release, Hewlett-Packard Company, Palo Alto, California.

SW-846, 1986, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods,* Third Edition, as amended, U.S. Environmental Protection Agency, Washington, D.C.

DASTM STP 1057, 1991, *Waste Testing and Quality Assurance: Third Volume, Holding Times of Volatile Organics in Water*, American Society for Testing and Materials, Philadelphia, Pennsylvania.

CONF-96071123-5, 1996, *A Confirmatory Holding Time Study for purgeable VOCs in Water Samples,* Oak Ridge National Laboratory, Tennessee.

RPP-PLAN-40564, 2009, *Field Sampling and Analysis Plan for Sites P and L at Waste Management Area,* Rev. 0, Washington River Protection Solutions, Inc.

RPP-PLAN-38777, 2008, *Sampling and Analysis Plan for Phase 2 Characterization of Vadose Zone Soil in Waste Management Area C*, Rev. 0, Washington River Protection Solutions, Inc.

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-013	PAGE 1 OF 2
COLLECTOR: Rosane, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C6392, I-003	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 pg 56	ACTUAL SAMPLE DEPTH: 14-15'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S20090160

SPECIAL HANDLING AND/OR STORAGE
7°C / 45°F

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C	
TYPE OF CONTAINER	aGs*	aGs*	
NO. OF CONTAINER(S)	5	3	
VOLUME	40mL	40mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B1YT69 / S09V000123	SOIL	4-14-09	1300	✓	✓								
~~+S09V000128~~	Called												
S09V000131													

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane, Larry Rosane	4-14-09/1515	TW Collock TW Collock	4-14-09 1515

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

CRCL 20090160
ZB, Ref 1 Rta

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-015	PAGE 2 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C6392, I-003	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg56	ACTUAL SAMPLE DEPTH 14'-15'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-015	PAGE 1 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-003	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 56	ACTUAL SAMPLE DEPTH 14'-15'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

7°C/45°F

SPECIAL HANDLING AND/OR STORAGE
22252009 0160

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	~~1~~ 2 4-14-09
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1YT71/20090160	SOIL	4-14-09	1300	✓
S09V000148 → ZB				
S09V000149				

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne Larry Rosanne	4-14-09/1515	Tw Gllock	4-14-09 1515

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

only two liners were filled due to material

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-013	PAGE 2 OF 2
COLLECTOR Rosanne, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-003	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg56	ACTUAL SAMPLE DEPTH 14'-15'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-016	PAGE 1 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-004	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 57	ACTUAL SAMPLE DEPTH 19.5'-21.5'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S20090160

SPECIAL HANDLING AND/OR STORAGE
28°F/46°F
-2°C/8°C

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C	
TYPE OF CONTAINER	aGs*	aGs*	
NO. OF CONTAINER(S)	5	3	
VOLUME	40mL	40mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B1YT72	SOIL	4-21-09	1041	✓	✓								
S09V000124 (Low)													
S09V000132 (High)													

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne - Larry Rosanne	4-21-09/1330	R Steele R/Steele	4-21-09 1330
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-016	PAGE 2 OF 2
COLLECTOR Rosane, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P **AIR QUALITY** ☐	**DATA TURNAROUND** 75 Days / 75 Days
SAMPLING LOCATION C6392, I-004	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-W-576-3 pg 57	**ACTUAL SAMPLE DEPTH** 19.5', 21.5'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-018	PAGE 1 OF 2
COLLECTOR Rosanne, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-004	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 57	ACTUAL SAMPLE DEPTH 19.5'-21.5'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S20090160

SPECIAL HANDLING AND/OR STORAGE
8°C/46°F

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B1YT74	SOIL	4-21-09	1041
S09V000152 (a)			
153 (b)			
154 (c)			

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne, Larry Rosanne	4-21-09/1330	RtSteele RtSteele	4.21.09 1330
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-018	PAGE 2 OF 2
COLLECTOR Rosane, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P	**DATA TURNAROUND**
SAMPLING LOCATION C6392, I-004	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002	**AIR QUALITY** ☐	**75 Days / 75 Days**
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 pg 57	**ACTUAL SAMPLE DEPTH** 19.5'-21.5'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-019	PAGE 1 OF 2
COLLECTOR: Rosawe, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C6392, I-005	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HUF-W-576-3 pg 59	ACTUAL SAMPLE DEPTH: 25'-27'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

22252009 0160

SPECIAL HANDLING AND/OR STORAGE
54°F / 34°F
12°C / 1°C

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C	
TYPE OF CONTAINER	aGs*	aGs*	
NO. OF CONTAINER(S)	5	3	
VOLUME	40mL	40mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B1YT75 GV ppr 4-22-09	SOIL	4-22-09	1000	✓	✓	
SOV9000125 (Lo)						
SOV9000133 (Hi) GV						
Lot #				814110	B907501V3	

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosawe Larry Rosawe	4-22-09 1313	TM Collock	4-22-09 1313

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-019	PAGE 2 OF 2
COLLECTOR Rosane, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-005	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 59	ACTUAL SAMPLE DEPTH 25'-27'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V09-002-021	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8P	DATA TURNAROUND
Rosanne, Rust	SYDNOR, HA	373-3967	WIDRIG, DL		
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**	**AIR QUALITY** ☐	75 Days / 75 Days
C6392, I-005	WMA C Sampling for CMS		V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
	HNF-N-576-3 pg 59	25'-27'	301483ES10	GOVERNMENT VEHICLE	
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
222-S Lab Operations					

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S2009016 0

SPECIAL HANDLING AND/OR STORAGE
12°C / 54°F

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B1YT77	SOIL	4-22-09	1000
S09V000156			
S09V000158			
S09V000157			
LOT #			

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne, Larry Rosanne	4-22-09 1313	TM Collick	4-22-09 1313

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-021	PAGE 2 OF 2
COLLECTOR Rosane, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C6392, I-005	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 59	ACTUAL SAMPLE DEPTH 25'-27'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V09-002-022	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8P	DATA TURNAROUND
Rosawe, Rust	SYDNOR, HA	373-3967	WIDRIG, DL	AIR QUALITY ☐	75 Days / 75 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**		
C6392, I-006	WMA C Sampling for CMS		V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
	HNF-2572-3 pg 61	~~HNF 10 57~~ 42-44' SAR 4-30-09	301483ES10	GOVERNMENT VEHICLE	
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
222-S Lab Operations					

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

2226 2009 0160

SPECIAL HANDLING AND/OR STORAGE
-1°C/22°C
30°F/72°F
SPR 9/28/09 ~~2009 0160~~

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C									
TYPE OF CONTAINER	aGs*	aGs*									
NO. OF CONTAINER(S)	5	3									
VOLUME	40mL	40mL									
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS									

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B1YT78	SOIL	4-30-09	1015	✓	✓								
509V000126	(Li)												
509V000134	(Hi)												

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosawe, Larry Rosawe	4-30-09/ 1510	Todd McGlock/	4/30/09 1510
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-022	PAGE 2 OF 2
COLLECTOR Rosane, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P **AIR QUALITY** ☐	**DATA TURNAROUND** 75 Days / 75 Days
SAMPLING LOCATION C6392, I-006	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-526-3 pg61	**ACTUAL SAMPLE DEPTH** 42'-44'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-024	PAGE 1 OF 2
COLLECTOR Roanne, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C6392, I-006	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg61	ACTUAL SAMPLE DEPTH 42'-44'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

SPECIAL HANDLING AND/OR STORAGE
222S20090160 22°C/72°F

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1YT80	SOIL	4-30-09	1015 ~~1015~~ 4-30-09	✓
S09V000160				
S09V000161				
S09V000162				

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane, Larry Rosane	4-30-09/ 1510	Tim Gollock Tim Gollock	4/30/09 1510
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-024	PAGE 2 OF 2
COLLECTOR Rosine, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P **AIR QUALITY** ☐	**DATA TURNAROUND** 75 Days / 75 Days
SAMPLING LOCATION C6392, I-006	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 pg 61	**ACTUAL SAMPLE DEPTH** 42'-44'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-025	PAGE 1 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-007	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 61	ACTUAL SAMPLE DEPTH 56'-58'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

SPECIAL HANDLING AND/OR STORAGE
222S20090160 -1°C/22°C 30°C/72°F

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C	
TYPE OF CONTAINER	aGs*	aGs*	
NO. OF CONTAINER(S)	5	3	
VOLUME	40mL	40mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B1YT81	SOIL	4-30-09	1415	✓	✓	
S09V000127	(L.)					
S09U000135	(H.)					
Lot #				B1F0110	B9075011V13	

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne Larry Rosanne	4-30-09/ 1510	Tim Mock Tim Mock	4/30/09 1510
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-025	PAGE 2 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-007	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg61	ACTUAL SAMPLE DEPTH 56'-58'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-027	PAGE 1 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-007	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-5 pg 61	ACTUAL SAMPLE DEPTH 56-58'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

SPECIAL HANDLING AND/OR STORAGE
222S20090160 22°C/72°F

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1YT83 164	SOIL	4-30-09	1415	✓
S09V000175				
S09V000165				
S09V000166				

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne, Larry Rosanne	4-30-09/1500	Tim Tech Tim Tech	4/30/09 1510
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-027	PAGE 2 OF 2
COLLECTOR Rosane Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-007	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-526-3 p61	ACTUAL SAMPLE DEPTH 56'-58'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-003-009	PAGE 1 OF 1
COLLECTOR Karen White	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 7P	**DATA TURNAROUND**
SAMPLING LOCATION C6404, I-005TB	**PROJECT DESIGNATION** WMA C Sampling for CMS - QC Sampling		**SAF NO.** V09-003	**AIR QUALITY** ☐	75 Days / 75 Days
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 pg 66	**ACTUAL SAMPLE DEPTH** N/A	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S2009C345

SPECIAL HANDLING AND/OR STORAGE
13°C/55°F

PRESERVATION	HCl or H2SO4 to pH <2/Cool~4C
TYPE OF CONTAINER	aGs*
NO. OF CONTAINER(S)	3
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1YY23	WATER	5-18-09	07:30	✓
509V000377				

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: Karen White / [signature] 5-18-09	DATE/TIME 1455	RECEIVED BY/STORED IN: T M Gillet [signature] 5-18-09	DATE/TIME 1455
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
(1)VOA - 8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

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

A-6003-618(01/06)

Appendix 5

Data Validation Supporting Documentation

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

ALIDATION LEVEL:	A	B	C	D	E
PROJECT: WMA C			DATA PACKAGE: VSR10-013		
VALIDATOR: Carl Schloesslin		LAB: 222-S Laboratory		DATE: 4-28-2010	
			SDG: 20090160		
ANALYSES PERFORMED					
SW-846/ICP X	SW-846/GFAA	SW-846/Hg X	SW-846 Cyanide	EPA 200.8 ICP/MS	

SAMPLES/MATRIX

Soil samples B1YT71, B1YT74, B1YT77, B1YT80, B1YT83

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? ..... Yes (No) N/A

Comments: None

2. INSTRUMENT PERFORMANCE AND CALIBRATIONS (Levels D and E)

Initial calibrations performed on all instruments? ..... Yes No (N/A)

Initial calibrations acceptable? ..... Yes No (N/A)

ICP interference checks acceptable? ..... Yes No (N/A)

ICV and CCV checks performed on all instruments? ..... Yes No (N/A)

ICV and CCV checks acceptable? ..... Yes No (N/A)

Standards traceable? ..... Yes No (N/A)

Standards expired? ..... Yes No (N/A)

Calculation check acceptable? ..... Yes No (N/A)

Comments:

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

3. BLANKS (Levels B, C, D, and E)

ICB and CCB checks performed for all applicable analyses? (Levels D, E) ..... Yes No N/A

ICB and CCB results acceptable? (Levels D, E) ..... Yes No N/A

Laboratory blanks analyzed? ..... Yes No N/A

Laboratory blank results acceptable? ..... Yes No N/A

Field blanks analyzed? (Levels C, D, E) ..... Yes No N/A

Field blank results acceptable? (Levels C, D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments:

MB Detections: ICP-AES Batch 16229: Ca 12.2 ug/g; ICP-MS Batch 16341: Sn-117 9.07 E-04 ug/mL; ICP-MS Batch 15762: Th-232 0.00628 ug/g; ICP-MS Batch 16171: Th-232 0.0258 ug/g, U-235 1.07E-04 ug/g, U-238 0.0268 ug/g; ICP-MS Batch 16927: Ag 0.0414 ug/g, Cd 0.0140 ug/g, Tl 0.0138 ug/g, Ni 0.064 ug/g; ICP-MS Batch 17063: Tl 0.102 ug/g; ICP-MS Batch 17222: Se 0.399 ug/g

4. ACCURACY (Levels C, D, and E)

MS/MSD samples analyzed? ..... Yes No N/A

MS/MSD results acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards expired? (Levels D, E) ..... Yes No N/A

LCS/BSS samples analyzed? ..... Yes No N/A

LCS/BSS results acceptable? ..... Yes No N/A

Standards traceable? (Levels D, E) ..... Yes No N/A

Standards expired? (Levels D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Performance audit sample(s) analyzed? ..... Yes No N/A

Performance audit sample results acceptable? ..... Yes No N/A

Comments:

ICP-AES Batch 15041: Si MS %R = 311%, Ta MS %R = 42%
ICP-MS Batch 16341: Sn-117 LCS %R = 142%

Note: For ICP-MS, all radionuclides not spiked in LCS and MS but were represented by other isotopes. For example, stable isotope Sn-117 represents radioactive isotope Sn-126.

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

5. PRECISION (Levels C, D, and E)

Duplicate RPD values acceptable? ..... Yes No N/A

Duplicate results acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards expired? (Levels D, E) ..... Yes No N/A

Field duplicate RPD values acceptable? ..... Yes No N/A

Field split RPD values acceptable? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: None

6. ICP QUALITY CONTROL (Levels D and E)

ICP serial dilution samples analyzed? ..... Yes No N/A

ICP serial dilution %D values acceptable? ..... Yes No N/A

ICP post digestion spike required? ..... Yes No N/A

ICP post digestion spike values acceptable? ..... Yes No N/A

Standards traceable? ..... Yes No N/A

Standards expired? ..... Yes No N/A

Transcription/calculation errors? ..... Yes No N/A

Comments:

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

7. FURNACE AA QUALITY CONTROL (Levels D and E)

Duplicate injections performed as required? ..... Yes No N/A

Duplicate injection %RSD values acceptable? ..... Yes No N/A

Analytical spikes performed as required? ..... Yes No N/A

Analytical spike recoveries acceptable? ..... Yes No N/A

Standards traceable? ..... Yes No N/A

Standards expired? ..... Yes No N/A

MSA performed as required? ..... Yes No N/A

MSA results acceptable? ..... Yes No N/A

Transcription/calculation errors? ..... Yes No N/A

Comments:

8. HOLDING TIMES (all levels)

Samples properly preserved? ..... Yes No N/A

Sample holding times acceptable? ..... Yes No N/A

Comments:

ICP-MS Batch 16927: Samples B1YT71, B1YT74, B1YT77 and B1YT80 analyzed on 11-13-2009
ICP-MS Batch 17063: Sample B1YT83 analyzed on 12-08-2009
ICP-MS Batch 17222: Sample B1YT83 analyzed on 12-23-2009
CVAA Batch 14538: Samples B1YT80 and B1YT83 analyzed on 6-10-2009

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

9. RESULT QUANTITATION AND DETECTION LIMITS (all levels)

Results reported for all requested analyses? ..... Yes No N/A

Rresults supported in the raw data? (Levels D, E)..... Yes No N/A

Samples properly prepared? (Levels D, E) ..... Yes No N/A

Detection limits meet RDL? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E)..... Yes No N/A

Comments:

MDLs > CRDLs [or Target Detection Limits (TDLs) when CRDLs not provided in the SAP]. The following lists associated non-detected sample results only since MDLs > CRDLs/TDLs are not an issue for detected results. All values are in ug/g.

B1YT71 - Mo 20.2 (CRDL = 4), U 101 (CRDL = 0.5), Se 0.25 (CRDL = 0.03)

B1YT74 - U 20.1 (CRDL = 0.5), Se 0.25 (CRDL = 0.03)

B1YT77 - U 20.1 (CRDL = 0.5), Se 0.25 (CRDL = 0.03)

B1YT80 - U 20.1 (CRDL = 0.5), Se 0.25 (CRDL = 0.03)

B1YT83 - U 18.7 (CRDL = 0.5), Se 0.23 (CRDL = 0.03)

Appendix 6

Additional Documentation Requested By Client

LABCORE Completed Batch Report for Batch# 00014171

Analyst: Maling, Tracy

Book#: bench sheet

Instrument: Hg by Cold Vapor by FIAS

Method: HG, LA-325-106 Rev/Mod G-0

Specification: C Farm WMA C

Prep Batch:

Batch Comment:

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 ICV	S0905060034		0	0	Mercury	LIQUID	.01	1.0040E-02			1.00E-04	ug/mL	100.4	% Recovery	
Sample Sequence 2															
2 ICB	S0905060035		0	0	Mercury	LIQUID		<1.0000E-04			1.00E-04	ug/mL			
Sample Sequence 3															
3 LLS	S0905060036		0	0	Mercury	LIQUID	.001	9.9700E-04			1.00E-04	ug/mL	99.7	% Recovery	
Sample Sequence 4															
4 SAMPLE	S09V000171		0	0	Mercury	SOLID	N/A	<1.7513E-02			0.017513	ug/g			U
Sample Sequence 5															
5 DUP	S0905060037	S09V000171	0	0	Mercury	SOLID	<1.7513E-02	<2.0141E-02			0.020141	ug/g			
Sample Sequence 6															
6 SPK-PREDIG	S0905060043	S09V000171	0	0	Mercury	SOLID	.814995	7.9299E-01			0.0163	ug/g	97.3	% Recovery	
Sample Sequence 7															
7 SPKPRE-DUP	S0905060044	S09V000171	0	0	Mercury	SOLID	1.04712	1.0746E+00			0.020942	ug/g	102.62 5.3221	% Recovery % RPD	
Sample Sequence 8															
8 SAMPLE	S09V000172		0	0	Mercury	SOLID	N/A	<2.0534E-02			0.020534	ug/g			U
Sample Sequence 9															
9 SAMPLE	S09V000173		0	0	Mercury	SOLID	N/A	<2.2075E-02			0.022075	ug/g			U
Sample Sequence 10															
10 CCV	S0905060040		0	0	Mercury	LIQUID	.01	1.0360E-02			1.00E-04	ug/mL	103.6	% Recovery	
Sample Sequence 11															
11 CCB	S0905060041		0	0	Mercury	LIQUID		<1.0000E-04			1.00E-04	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed Batch Report for Batch# 00014171

Final Page for Batch# 00014171

Brian Dank 5/6/09
Reviewer Signature Date

2nd reviewer: Sandra Pang 5/7/09

PM reviewer: Donald Pettman 9/29/04

LABCORE Completed Batch Report for Batch# 00014171

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0905060034	ICV				
2	S0905060035	ICB				
3	S0905060036	LLS				
4	S09V000171	SAMPLE		20090160	B1YT71	C Farm WMA C
5	S0905060037	DUP	S09V000171			
6	S0905060043	SPK-PREDIG	S09V000171			
7	S0905060044	SPKPRE-DUP	S09V000171			
8	S09V000172	SAMPLE		20090160	B1YT74	C Farm WMA C
9	S09V000173	SAMPLE		20090160	B1YT77	C Farm WMA C
10	S0905060040	CCV				
11	S0905060041	CCB				

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Data Entry Template for Batch# 00014171

Analyst: Maling, Tracy

Standard ID / Book#: Bench Sheet.

Instrument: Hg by Cold Vapor by FIAS

Method: HG, LA-325-106 Rev/Mod G-0

Prep Batch:

Batch Comment: C - Farm WMA C

S	Type	Sample	R	A	Matrix	Group#	Project
1	ICV		0		LIQUID		
	Analytes Requested:	Mercury					
2	ICB		0		LIQUID		
	Analytes Requested:	Mercury					
3	LLS		0		LIQUID		
	Analytes Requested:	Mercury					
4	SAMPLE	S09V000171	0		SOLID	20090160	C Farm WMA C
	Analytes Requested:	Mercury					
5	DUP	S09V000171	0		SOLID		
	Analytes Requested:	Mercury					
6	SPK-PREDIG	S09V000171	0		SOLID		
	Analytes Requested:	Mercury					
7	SPKPRE-DUP	S09V000171	0		SOLID		
	Analytes Requested:	Mercury					
8	SAMPLE	S09V000172	0		SOLID	20090160	C Farm WMA C
	Analytes Requested:	Mercury					
9	SAMPLE	S09V000173	0		SOLID	20090160	C Farm WMA C
	Analytes Requested:	Mercury					
10	CCV		0		LIQUID		
	Analytes Requested:	Mercury					
11	CCB		0		LIQUID		
	Analytes Requested:	Mercury					

Final Page for Batch# 00014171

Tracy Maling — 5/06/09
Analyst Signature — Date

5/6/09
Data Entry Signature — Date

Data Entry Comments:

S = Batch Slot Number, R = Retest Number, A = Aliquot Code.

MERCURY PREPARATION and INSTRUMENTATION BENCH SHEET

Project: C-Farm + MAPEP

Analyst TRM Prep. Date 5/05/09 Run Date 5/05/09 Batch # 0001456 171 BD 5-6-09

Tube Lot ID N/A *Final Volume 50 mL (20mL for Liquid & Solids) Cal. Corr. Coeff. 0.99948

For Calibration & LLS[a] use _____ 0.1 µg/mL "Calibration Std" Lot 118N11B Expires 6/01/09

For ICV, CCV, & RLS/RLS Dup[a] use _ 0.1 µg/mL "LCS0.1 Std" Lot 119N11B Expires 6/01/09

*For LCS &LCS Dup[a] use _____ 1.0µg/mL "LCS1.0 Std" Lot N/A Expires N/A

Digestion Acids: Conc. H_2SO_4 Lot 3102111 Conc. HNO_3 Lot C400037 Conc. HCl Lot E160071

Dilution Acid: 2% HNO_3 used (20mL conc. HNO_3 to 1L with reagent water) or readymade by Standard Lab.

Balance IDs LE-BAL-040 Pipette IDs F0787382F, 1120714 [✓ checked

$SnCl_2$ Lot B13T021 Mass (g) 40.051 (Every 20g $SnCl_2$, 8.26 mL conc. HCl diluted to 200mL reagent water).

Instrument ID: [✓ LA-325-106 Rev. 6-0 [ ] LA-325-107 Rev. ____ Highest calibration standard[b] abs: 0.261

	Standard/Sample ID.	mL or g	DF[c]		Standard/Sample ID.	mL or g	DF[c]
1	ICV	2.0		23			
2	ICB	NA		24			
3	LLS	0.2		25			
4	509Q000029	0.4574		26			
5	29 Dup	0.4197		27			
6	(1) 29 P. SPK	0.4484		28			
7	CCV	2.0		29			
8	CCB			30			
9	509V000171	0.1142		31			
10	171 Dup	0.0993		32			
11	(1) 171 P. SPK	0.1227		33			
12	(1) 171 P. SPK Dup	0.0955		34			
13	172	0.0974		35			
14	173	0.0906		36			
15	CCV	2.0		37			
16	CCB			38			
17				39			
18				40			
19				41			
20				42			
21				43			
22				44			

not used TRM 5/05/09

Comments: (1) Spike (Predigest) of 1 mL LCS standard (119N11B)

* For IH Vapor Tube. LCS & LCS Dup: 0.3mL of the "LCS1.0" to final volume of 50mL; If there are RLS&RLS Dup: 0.5 mL of the "LCS0.1" std to final volume of 50mL.

(a) Calibration, ICV, CCV, LLS, Matrix predigest spike, and Post digest spike: Preparation in LA-325-106 or 325-107 for more details.

(b) If the "Instr. abs" for the highest calibration standard (20 µg/L) is <0.13 abs, instrument troubleshooting maintenance is needed (See LA-325-106 or -107 in Appendices or contact the responsible scientist).

(c) DF: Dilution Factor, none means 1 and other than 1 if indicated.

LABCORE Completed Batch Report for Batch# 00014538

Analyst: Maling, Tracy

Book#: see bench sheet.

Instrument: Hg by Cold Vapor by FIAS

Method: HG, LA-325-106 Rev/Mod G-0

Specification: C Farm WMA C

Prep Batch:

Batch Comment: C-Farm Hg Solids

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 ICV	S0906100100		0	0	Mercury	LIQUID	.01	1.0820E-02			1.00E-04	ug/mL	108.2	% Recovery	
Sample Sequence 2															
2 ICB	S0906100101		0	0	Mercury	LIQUID		<1.0000E-04			1.00E-04	ug/mL			
Sample Sequence 3															
3 LLS	S0906100102		0	0	Mercury	LIQUID	.001	1.0250E-03			1.00E-04	ug/mL	102.5	% Recovery	
Sample Sequence 4															
4 SAMPLE	S09V000174		0	0	Mercury	SOLID	N/A	<1.0015E-02			0.010015	ug/g			U
Sample Sequence 5															
5 SAMPLE	S09V000175		0	0	Mercury	SOLID	N/A	<1.0971E-02			0.010971	ug/g			U
Sample Sequence 6															
6 SAMPLE	S09V000392		0	0	Mercury	SOLID	N/A	1.3162E-02			0.010701	ug/g			J
Sample Sequence 7															
7 SAMPLE	S09V000482		0	0	Mercury	SOLID	N/A	<1.0543E-02			0.010543	ug/g			U
Sample Sequence 8															
8 SAMPLE	S09V000500		0	0	Mercury	SOLID	N/A	<1.0411E-02			0.010411	ug/g			U
Sample Sequence 9															
9 SAMPLE	S09V000545		0	0	Mercury	SOLID	N/A	<1.0593E-02			0.010593	ug/g			U
Sample Sequence 10															
10 SPK-PREDIG	S0906100108	S09V000545	0	0	Mercury	SOLID	.51975	5.6268E-01			0.010395	ug/g	108.26	% Recovery	
Sample Sequence 11															
11 SPKPRE-DUP	S0906100109	S09V000545	0	0	Mercury	SOLID	.5035245	5.5730E-01			0.01007	ug/g	110.68	% Recovery	
													2.2107	% RPD	
Sample Sequence 12															
12 SAMPLE	S09V000561		0	0	Mercury	SOLID	N/A	<1.0537E-02			0.010537	ug/g			U
Sample Sequence 13															
13 CCV	S0906100106		0	0	Mercury	LIQUID	.01	1.0410E-02			1.00E-04	ug/mL	104.1	% Recovery	
Sample Sequence 14															
14 CCB	S0906100107		0	0	Mercury	LIQUID		<1.0000E-04			1.00E-04	ug/mL			

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N. A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014538

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 15															
15 SAMPLE	S09V000577		0	0	Mercury	SOLID	N/A	<1.1167E-02			0.011167	ug/g			U
Sample Sequence 16															
16 SAMPLE	S09V000626		0	0	Mercury	SOLID	N/A	1.9169E-02			0.01065	ug/g			J
Sample Sequence 17															
17 SAMPLE	S09V000642		0	0	Mercury	SOLID	N/A	<1.0817E-02			0.010817	ug/g			U
Sample Sequence 18															
18 SAMPLE	S09V000658		0	0	Mercury	SOLID	N/A	<1.0638E-02			0.010638	ug/g			U
Sample Sequence 19															
19 CCV	S0906100111		0	0	Mercury	LIQUID	.01	1.0190E-02			1.00E-04	ug/mL	101.9	% Recovery	
Sample Sequence 20															
20 CCB	S0906100110		0	0	Mercury	LIQUID		<1.0000E-04			1.00E-04	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00014538

Brian Dahl 6/11/09
Reviewer Signature Date

2nd reviewer: Karl M Pang 6/11/09
PM Review: Derek P Petrovics 9/29/09

LABCORE Completed Batch Report for Batch# 00014538

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0906100100	ICV				
2	S0906100101	ICB				
3	S0906100102	LLS				
4	S09V000174	SAMPLE		20090160	B1YT80	C Farm WMA C
5	S09V000175	SAMPLE		20090160	B1YT83	C Farm WMA C
6	S09V000392	SAMPLE		20090325	B1YT98	C Farm WMA C
7	S09V000482	SAMPLE		20090364	B1YTC9	C Farm WMA C
8	S09V000500	SAMPLE		20090364	B1YTD2	C Farm WMA C
9	S09V000545	SAMPLE		20090364	B1YTD5	C Farm WMA C
10	S0906100108	SPK-PREDIG	S09V000545			
11	S0906100109	SPKPRE-DUP	S09V000545			
12	S09V000561	SAMPLE		20090364	B1YTD8	C Farm WMA C
13	S0906100106	CCV				
14	S0906100107	CCB				
15	S09V000577	SAMPLE		20090364	B1YTF1	C Farm WMA C
16	S09V000626	SAMPLE		20090377	B1YTH1	C Farm WMA C
17	S09V000642	SAMPLE		20090377	B1YTH3	C Farm WMA C
18	S09V000658	SAMPLE		20090377	B1YTH6	C Farm WMA C
19	S0906100111	CCV				
20	S0906100110	CCB				

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N/A = Non-reported Analyte

LABCORE Data Entry Template for Batch# 00014538

Analyst: Maling, Tracy

Standard ID / Book#: See Benchsheet

Instrument: Hg by Cold Vapor by FIAS

Method: HG, LA-325-106 Rev/Mod G-0

Prep Batch:

Batch Comment: C-Farm Hg Solids

CACN:200389

S	Type	Sample	R	A	Matrix	Group#	Project
1	ICV		0		LIQUID		
	Analytes Requested:	Mercury					
2	ICB		0		LIQUID		
	Analytes Requested:	Mercury					
3	LLS		0		LIQUID		
	Analytes Requested:	Mercury					
4	SAMPLE	S09V000174	0		SOLID	20090160	C Farm WMA C
	Analytes Requested:	Mercury					
5	SAMPLE	S09V000175	0		SOLID	20090160	C Farm WMA C
	Analytes Requested:	Mercury					
6	SAMPLE	S09V000392	0		SOLID	20090325	C Farm WMA C
	Analytes Requested:	Mercury					
7	SAMPLE	S09V000482	0		SOLID	20090364	C Farm WMA C
	Analytes Requested:	Mercury					
8	SAMPLE	S09V000500	0		SOLID	20090364	C Farm WMA C
	Analytes Requested:	Mercury					
9	SAMPLE	S09V000545	0		SOLID	20090364	C Farm WMA C
	Analytes Requested:	Mercury					
10	SPK-PREDIG	S09V000545	0		SOLID		
	Analytes Requested:	Mercury					
11	SPKPRE-DUP	S09V000545	0		SOLID		
	Analytes Requested:	Mercury					
12	SAMPLE	S09V000561	0		SOLID	20090364	C Farm WMA C
	Analytes Requested:	Mercury					
13	CCV		0		LIQUID		
	Analytes Requested:	Mercury					
14	CCB		0		LIQUID		
	Analytes Requested:	Mercury					
15	SAMPLE	S09V000577	0		SOLID	20090364	C Farm WMA C
	Analytes Requested:	Mercury					
16	SAMPLE	S09V000626	0		SOLID	20090377	C Farm WMA C
	Analytes Requested:	Mercury					
17	SAMPLE	S09V000642	0		SOLID	20090377	C Farm WMA C
	Analytes Requested:	Mercury					
18	SAMPLE	S09V000658	0		SOLID	20090377	C Farm WMA C
	Analytes Requested:	Mercury					
19	CCV		0		LIQUID		
	Analytes Requested:	Mercury					

Data Entry Comments:

S = Batch Slot Number, R = Retest Number, A = Aliquot Code.

LABCORE Data Entry Template for Batch# 00014538

20	CCB	0	LIQUID

Analytes Requested: Mercury

Final Page for Batch# 00014538

Tracy Maling 6/10/09
Analyst Signature Date

Tracy Maling 6/10/09
Data Entry Signature Date

Data Entry Comments:

S = Batch Slot Number, R = Retest Number, A = Aliquot Code.

MERCURY PREPARATION and INSTRUMENTATION BENCH SHEET

Project: C-Farm Solids

Analyst TRM Prep. Date 6/10/09 Run Date 6/10/09 Batch # 00014538

Tube Lot ID N/A *Final Volume 50 mL (20mL for Liquid & Solids) Cal. Corr. Coeff. 0.99998

For Calibration & LLS[a] use _____ 0.1 µg/mL "Calibration Std" Lot 118N11C Expires 6/02/10

For ICV, CCV, & RLS/RLS Dup[a] use _ 0.1 µg/mL "LCS0.1 Std" Lot 119N11C Expires 6/02/10

*For LCS &LCS Dup[a] use _____ 1.0µg/mL "LCS1.0 Std" Lot N/A Expires N/A

Digestion Acids: Conc. H_2SO_4 Lot 302111 Conc. HNO_3 Lot E01042 Conc. HCl Lot G16423

Dilution Acid: 2% HNO_3 used (20mL conc. HNO_3 to 1L with reagent water) or readymade by Standard Lab.

*1 Balance IDs LE-BAL-040 Pipette IDs E06073325F, D62520 [✓checked

$SnCl_2$ Lot B13T021 Mass (g) 20.0438 (Every 20g $SnCl_2$, 8.26 mL conc. HCl diluted to 200mL reagent water).

Instrument ID: [✓LA-325-106 Rev. 6-0 [ ] LA-325-107 Rev. ____ Highest calibration standard[b] abs: 0.196

	Standard/Sample ID.	mL or g	DF[c]		Standard/Sample ID.	mL or g	DF[c]
1	ICV	2.0		23			
2	ICB	NA		24			
3	LLS	0.2		25			
4	S09V000174	0.1997		26			
5	175	0.1823		27			
6	392	0.1869		28			
7	482	0.1897		29			
8	500	0.1921		30			
9	545	0.1888		31			
*2 10	545 Pre Dig SPK	0.1924		32			
*2 11	545 Pre Dig Spk Dup	0.1986		33			
12	561	0.1898		34			
13	CCV	2mL		35			
14	CCB	Ø		36			
15	S09V000577	0.1791		37			
16	626	0.1878		38			
17	642	0.1849		39			
18	658	0.1880		40			
19	CCV	2mL		41			
20	CCB	Ø		42			
21				43			
22				44			

Comments: *Also used balances LE-BAL-040 + LE-BAL-044 + LEL-BAL-023
*2 - Sample + 1.0 mL Spike (119N11C)

* For IH Vapor Tube. LCS & LCS Dup: 0.3mL of the "LCS1.0" to final volume of 50mL; If there are RLS&RLS Dup: 0.5 mL of the "LCS0.1" std to final volume of 50mL.

(a) Calibration, ICV, CCV, LLS, Matrix predigest spike, and Post digest spike: Preparation in LA-325-106 or 325-107 for more details.

(b) If the "Instr. abs" for the highest calibration standard (20 µg/L) is <0.13 abs, instrument troubleshooting maintenance is needed (See LA-325-106 or -107 in Appendices or contact the responsible scientist).

(c) DF: Dilution Factor, none means 1 and other than 1 if indicated.

LABCORE Completed Batch Report for Batch# 00015041

Analyst: Monteith, Kenneth

Book#:

Instrument: ICP-TJA

Method: ICP-TOTAL METALS, LA-505-161 Rev/Mod I-0

Specification: C Farm WMA C

Prep Batch: 00014929

Batch Comment: ICP analysis C Farm soil sample group 20090160.bsm

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1																
1	ICV	S0907160141		0	0	Silver	LIQUID	5	4.8591E+00			5.00E-03	ug/mL	97.182	% Recovery	
1	ICV	S0907160141		0	0	Aluminum	LIQUID	5	4.9359E+00			0.03	ug/mL	98.719	% Recovery	
1	ICV	S0907160141		0	0	Arsenic	LIQUID	5	4.9794E+00			0.05	ug/mL	99.589	% Recovery	
2	ICV	S0907160141		0	1	Boron	LIQUID	5	4.9188E+00			0.03	ug/mL	98.377	% Recovery	
1	ICV	S0907160141		0	0	Barium	LIQUID	5	4.9952E+00			3.00E-03	ug/mL	99.903	% Recovery	
1	ICV	S0907160141		0	0	Beryllium	LIQUID	5	5.0484E+00			1.00E-03	ug/mL	100.97	% Recovery	
1	ICV	S0907160141		0	0	Bismuth	LIQUID	5	4.8747E+00			0.1	ug/mL	97.494	% Recovery	
4	ICV	S0907160141		0	3	Calcium	LIQUID	5	5.0359E+00			0.05	ug/mL	100.72	% Recovery	
1	ICV	S0907160141		0	0	Cadmium	LIQUID	5	5.0391E+00			5.00E-03	ug/mL	100.78	% Recovery	
1	ICV	S0907160141		0	0	Cerium	LIQUID	5	5.1808E+00			0.03	ug/mL	103.62	% Recovery	
1	ICV	S0907160141		0	0	Cobalt	LIQUID	5	5.1079E+00			0.01	ug/mL	102.16	% Recovery	
1	ICV	S0907160141		0	0	Chromium	LIQUID	5	5.0848E+00			5.00E-03	ug/mL	101.7	% Recovery	
1	ICV	S0907160141		0	0	Copper	LIQUID	5	4.9788E+00			5.00E-03	ug/mL	99.576	% Recovery	
1	ICV	S0907160141		0	0	Europium	LIQUID	5	4.8612E+00			5.00E-03	ug/mL	97.223	% Recovery	
1	ICV	S0907160141		0	0	Iron	LIQUID	5	5.0595E+00			5.00E-03	ug/mL	101.19	% Recovery	
1	ICV	S0907160141		0	0	Potassium	LIQUID	5	4.9922E+00			0.5	ug/mL	99.844	% Recovery	
1	ICV	S0907160141		0	0	Lanthanum	LIQUID	5	4.9565E+00			3.00E-03	ug/mL	99.131	% Recovery	
1	ICV	S0907160141		0	0	Lithium	LIQUID	5	5.1043E+00			3.00E-03	ug/mL	102.09	% Recovery	
1	ICV	S0907160141		0	0	Magnesium	LIQUID	5	4.9331E+00			0.05	ug/mL	98.662	% Recovery	
1	ICV	S0907160141		0	0	Manganese	LIQUID	5	4.9852E+00			3.00E-03	ug/mL	99.703	% Recovery	
2	ICV	S0907160141		0	1	Molybdenum	LIQUID	5	4.9329E+00			0.02	ug/mL	98.658	% Recovery	
1	ICV	S0907160141		0	0	Sodium	LIQUID	5	4.9961E+00			0.1	ug/mL	99.922	% Recovery	
1	ICV	S0907160141		0	0	Neodymium	LIQUID	5	5.0272E+00			0.01	ug/mL	100.54	% Recovery	
1	ICV	S0907160141		0	0	Nickel	LIQUID	5	5.0029E+00			0.02	ug/mL	100.06	% Recovery	
2	ICV	S0907160141		0	1	Niobium	LIQUID	5	4.9788E+00			0.03	ug/mL	99.577	% Recovery	
1	ICV	S0907160141		0	0	Phosphorus	LIQUID	5	4.9863E+00			0.05	ug/mL	99.726	% Recovery	
1	ICV	S0907160141		0	0	Lead	LIQUID	5	5.2035E+00			0.05	ug/mL	104.07	% Recovery	
3	ICV	S0907160141		0	2	Palladium	LIQUID	5	4.8103E+00			0.1	ug/mL	96.205	% Recovery	
1	ICV	S0907160141		0	0	Praseodymium	LIQUID	5	4.9893E+00			0.01	ug/mL	99.787	% Recovery	
1	ICV	S0907160141		0	0	Rubidium	LIQUID	5	4.5934E+00			1	ug/mL	91.867	% Recovery	
3	ICV	S0907160141		0	2	Rhodium	LIQUID	5	4.7846E+00			0.05	ug/mL	95.692	% Recovery	

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00015041

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
3	ICV	S0907160141		0 2		Ruthenium	LIQUID	5	4.8017E+00			0.03	ug/mL	96.033	% Recovery	
2	ICV	S0907160141		0 1		Sulfur	LIQUID	5	4.9775E+00			0.1	ug/mL	99.551	% Recovery	
2	ICV	S0907160141		0 1		Antimony	LIQUID	5	4.7323E+00			0.05	ug/mL	94.647	% Recovery	
1	ICV	S0907160141		0 0		Selenium	LIQUID	5	5.1260E+00			0.1	ug/mL	102.52	% Recovery	
2	ICV	S0907160141		0 1		Silicon	LIQUID	5	4.8238E+00			0.03	ug/mL	96.476	% Recovery	
1	ICV	S0907160141		0 0		Samarium	LIQUID	5	4.9857E+00			0.02	ug/mL	99.715	% Recovery	
2	ICV	S0907160141		0 1		Tin	LIQUID	5	4.9999E+00			0.03	ug/mL	99.998	% Recovery	
1	ICV	S0907160141		0 0		Strontium	LIQUID	5	5.0041E+00			3.00E-03	ug/mL	100.08	% Recovery	
2	ICV	S0907160141		0 1		Tantalum	LIQUID	5	5.0770E+00			0.05	ug/mL	101.54	% Recovery	
2	ICV	S0907160141		0 1		Tellurium	LIQUID	5	5.1897E+00			0.1	ug/mL	103.79	% Recovery	
1	ICV	S0907160141		0 0		Thorium	LIQUID	5	4.9743E+00			0.05	ug/mL	99.487	% Recovery	
2	ICV	S0907160141		0 1		Titanium	LIQUID	5	4.8914E+00			5.00E-03	ug/mL	97.828	% Recovery	
1	ICV	S0907160141		0 0		Thallium	LIQUID	5	5.0165E+00			0.1	ug/mL	100.33	% Recovery	
1	ICV	S0907160141		0 0		Uranium	LIQUID	5	4.9660E+00			0.1	ug/mL	99.321	% Recovery	
1	ICV	S0907160141		0 0		Vanadium	LIQUID	5	5.1105E+00			5.00E-03	ug/mL	102.21	% Recovery	
2	ICV	S0907160141		0 1		Tungsten	LIQUID	5	4.9208E+00			0.2	ug/mL	98.415	% Recovery	
1	ICV	S0907160141		0 0		Yttrium	LIQUID	5	4.9207E+00			2.00E-03	ug/mL	98.414	% Recovery	
1	ICV	S0907160141		0 0		Zinc	LIQUID	5	4.9378E+00			5.00E-03	ug/mL	98.756	% Recovery	
4	ICV	S0907160141		0 3		Zirconium	LIQUID	5	4.8688E+00			5.00E-03	ug/mL	97.375	% Recovery	
Sample Sequence 5																
5	LLS	S0907160143		0 0		Silver	LIQUID	.02	1.8830E-02			5.00E-03	ug/mL	94.15	% Recovery	
5	LLS	S0907160143		0 0		Aluminum	LIQUID	.1	9.4900E-02			0.03	ug/mL	94.9	% Recovery	
5	LLS	S0907160143		0 0		Arsenic	LIQUID	.2	1.7149E-01			0.05	ug/mL	85.745	% Recovery	
6	LLS	S0907160143		0 1		Boron	LIQUID	.1	9.4380E-02			0.03	ug/mL	94.38	% Recovery	
5	LLS	S0907160143		0 0		Barium	LIQUID	.01	9.8100E-03			3.00E-03	ug/mL	98.1	% Recovery	
5	LLS	S0907160143		0 0		Beryllium	LIQUID	.001	8.7000E-04			1.00E-04	ug/mL	87	% Recovery	
5	LLS	S0907160143		0 0		Bismuth	LIQUID	.2	2.1681E-01			0.1	ug/mL	108.4	% Recovery	
5	LLS	S0907160143		0 0		Calcium	LIQUID	.2	1.9778E-01			0.05	ug/mL	98.89	% Recovery	
5	LLS	S0907160143		0 0		Cadmium	LIQUID	.01	9.6100E-03			5.00E-03	ug/mL	96.1	% Recovery	
5	LLS	S0907160143		0 0		Cerium	LIQUID	.2	1.9144E-01			0.03	ug/mL	95.72	% Recovery	
6	LLS	S0907160143		0 1		Cobalt	LIQUID	.05	4.6300E-02			0.01	ug/mL	92.6	% Recovery	
5	LLS	S0907160143		0 0		Chromium	LIQUID	.02	1.5630E-02			5.00E-03	ug/mL	78.15	% Recovery	
6	LLS	S0907160143		0 1		Copper	LIQUID	.02	1.9830E-02			5.00E-03	ug/mL	99.15	% Recovery	
7	LLS	S0907160143		0 2		Europium	LIQUID	.1	9.3610E-02			5.00E-03	ug/mL	93.61	% Recovery	
5	LLS	S0907160143		0 0		Iron	LIQUID	.04	3.8380E-02			5.00E-03	ug/mL	95.95	% Recovery	
5	LLS	S0907160143		0 0		Potassium	LIQUID	.5	3.4355E-01			0.1	ug/mL	68.71	% Recovery	
5	LLS	S0907160143		0 0		Lanthanum	LIQUID	.01	9.2800E-03			3.00E-03	ug/mL	92.8	% Recovery	
5	LLS	S0907160143		0 0		Lithium	LIQUID	.02	2.1720E-02			3.00E-03	ug/mL	108.6	% Recovery	
5	LLS	S0907160143		0 0		Magnesium	LIQUID	.2	1.9988E-01			0.05	ug/mL	99.94	% Recovery	
5	LLS	S0907160143		0 0		Manganese	LIQUID	.02	2.0460E-02			3.00E-03	ug/mL	102.3	% Recovery	
6	LLS	S0907160143		0 1		Molybdenum	LIQUID	.1	9.7270E-02			0.02	ug/mL	97.27	% Recovery	
5	LLS	S0907160143		0 0		Sodium	LIQUID	.2	1.9937E-01			0.1	ug/mL	99.685	% Recovery	

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00015041

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
5	LLS	S0907160143		0	0	Neodymium	LIQUID	.1	1.0027E-01			0.01	ug/mL	100.27	% Recovery	
5	LLS	S0907160143		0	0	Nickel	LIQUID	.04	3.7770E-02			0.02	ug/mL	94.425	% Recovery	
9	LLS	S0907160143		0	4	Niobium	LIQUID	.1	1.0373E-01			0.03	ug/mL	103.73	% Recovery	
6	LLS	S0907160143		0	1	Phosphorus	LIQUID	.4	3.8188E-01			0.05	ug/mL	95.47	% Recovery	
5	LLS	S0907160143		0	0	Lead	LIQUID	.2	2.1776E-01			0.05	ug/mL	108.88	% Recovery	
8	LLS	S0907160143		0	3	Palladium	LIQUID	1	1.0143E+00			0.1	ug/mL	101.43	% Recovery	
7	LLS	S0907160143		0	2	Praseodymium	LIQUID	.1	1.0095E-01			0.01	ug/mL	100.95	% Recovery	
7	LLS	S0907160143		0	2	Rubidium	LIQUID	1	9.5289E-01			0.1	ug/mL	95.289	% Recovery	
8	LLS	S0907160143		0	3	Rhodium	LIQUID	.1	1.0719E-01			0.05	ug/mL	107.19	% Recovery	
8	LLS	S0907160143		0	3	Ruthenium	LIQUID	.1	1.0463E-01			0.03	ug/mL	104.63	% Recovery	
6	LLS	S0907160143		0	1	Sulfur	LIQUID	.2	1.9145E-01			0.1	ug/mL	95.725	% Recovery	
6	LLS	S0907160143		0	1	Antimony	LIQUID	.1	7.7130E-02			0.05	ug/mL	77.13	% Recovery	
5	LLS	S0907160143		0	0	Selenium	LIQUID	.2	2.0453E-01			0.1	ug/mL	102.26	% Recovery	
6	LLS	S0907160143		0	1	Silicon	LIQUID	.1	1.0286E-01			0.03	ug/mL	102.86	% Recovery	
5	LLS	S0907160143		0	0	Samarium	LIQUID	.1	9.8270E-02			0.02	ug/mL	98.27	% Recovery	
9	LLS	S0907160143		0	4	Tin	LIQUID	.1	9.3740E-02			0.03	ug/mL	93.74	% Recovery	
5	LLS	S0907160143		0	0	Strontium	LIQUID	.02	2.0000E-02			3.00E-03	ug/mL	100	% Recovery	
9	LLS	S0907160143		0	4	Tantalum	LIQUID	1	1.0208E+00			0.05	ug/mL	102.08	% Recovery	
9	LLS	S0907160143		0	4	Tellurium	LIQUID	1	1.0057E+00			0.1	ug/mL	100.57	% Recovery	
7	LLS	S0907160143		0	2	Thorium	LIQUID	.1	1.0345E-01			0.05	ug/mL	103.45	% Recovery	
6	LLS	S0907160143		0	1	Titanium	LIQUID	.02	1.9380E-02			5.00E-03	ug/mL	96.9	% Recovery	
5	LLS	S0907160143		0	0	Thallium	LIQUID	.4	4.4672E-01			0.1	ug/mL	111.68	% Recovery	
6	LLS	S0907160143		0	1	Uranium	LIQUID	.5	4.6367E-01			0.1	ug/mL	92.734	% Recovery	
6	LLS	S0907160143		0	1	Vanadium	LIQUID	.05	4.9290E-02			5.00E-03	ug/mL	98.58	% Recovery	
9	LLS	S0907160143		0	4	Tungsten	LIQUID	1	9.3506E-01			0.2	ug/mL	93.506	% Recovery	
7	LLS	S0907160143		0	2	Yttrium	LIQUID	.1	9.6740E-02			2.00E-03	ug/mL	96.74	% Recovery	
6	LLS	S0907160143		0	1	Zinc	LIQUID	.02	1.9280E-02			5.00E-03	ug/mL	96.4	% Recovery	
6	LLS	S0907160143		0	1	Zirconium	LIQUID	.02	1.8310E-02			5.00E-03	ug/mL	91.55	% Recovery	
Sample Sequence 10																
10	ICB	S0907160142		0	0	Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
10	ICB	S0907160142		0	0	Aluminum	LIQUID		<3.0000E-02			0.03	ug/mL			
10	ICB	S0907160142		0	0	Arsenic	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S0907160142		0	0	Boron	LIQUID		<3.0000E-02			0.03	ug/mL			
10	ICB	S0907160142		0	0	Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
10	ICB	S0907160142		0	0	Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL			
10	ICB	S0907160142		0	0	Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL			
10	ICB	S0907160142		0	0	Calcium	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S0907160142		0	0	Cadmium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
10	ICB	S0907160142		0	0	Cerium	LIQUID		<3.0000E-02			0.03	ug/mL			
10	ICB	S0907160142		0	0	Cobalt	LIQUID		<1.0000E-02			0.01	ug/mL			
10	ICB	S0907160142		0	0	Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
10	ICB	S0907160142		0	0	Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL			

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LABCORE Completed Batch Report for Batch# 00015041

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
10	ICB	S0907160142		0	0	Europium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
10	ICB	S0907160142		0	0	Iron	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
10	ICB	S0907160142		0	0	Potassium	LIQUID		<5.0000E-01			0.5	ug/mL			
10	ICB	S0907160142		0	0	Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
10	ICB	S0907160142		0	0	Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
10	ICB	S0907160142		0	0	Magnesium	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S0907160142		0	0	Manganese	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
10	ICB	S0907160142		0	0	Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL			
10	ICB	S0907160142		0	0	Sodium	LIQUID		<1.0000E-01			0.1	ug/mL			
10	ICB	S0907160142		0	0	Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
10	ICB	S0907160142		0	0	Nickel	LIQUID		<2.0000E-02			0.02	ug/mL			
10	ICB	S0907160142		0	0	Niobium	LIQUID		<3.0000E-02			0.03	ug/mL			
10	ICB	S0907160142		0	0	Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S0907160142		0	0	Lead	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S0907160142		0	0	Palladium	LIQUID		<1.0000E-01			0.1	ug/mL			
10	ICB	S0907160142		0	0	Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
10	ICB	S0907160142		0	0	Rubidium	LIQUID		<1.0000E+00			1	ug/mL			
10	ICB	S0907160142		0	0	Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S0907160142		0	0	Ruthenium	LIQUID		<3.0000E-02			0.03	ug/mL			
10	ICB	S0907160142		0	0	Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL			
10	ICB	S0907160142		0	0	Antimony	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S0907160142		0	0	Selenium	LIQUID		<1.0000E-01			0.1	ug/mL			
10	ICB	S0907160142		0	0	Silicon	LIQUID		<3.0000E-02			0.03	ug/mL			
10	ICB	S0907160142		0	0	Samarium	LIQUID		<2.0000E-02			0.02	ug/mL			
10	ICB	S0907160142		0	0	Tin	LIQUID		<3.0000E-02			0.03	ug/mL			
10	ICB	S0907160142		0	0	Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
10	ICB	S0907160142		0	0	Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S0907160142		0	0	Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL			
10	ICB	S0907160142		0	0	Thorium	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S0907160142		0	0	Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
10	ICB	S0907160142		0	0	Thallium	LIQUID		<1.0000E-01			0.1	ug/mL			
10	ICB	S0907160142		0	0	Uranium	LIQUID		<1.0000E-01			0.1	ug/mL			
10	ICB	S0907160142		0	0	Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
10	ICB	S0907160142		0	0	Tungsten	LIQUID		<2.0000E-01			0.2	ug/mL			
10	ICB	S0907160142		0	0	Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL			
10	ICB	S0907160142		0	0	Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
10	ICB	S0907160142		0	0	Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
Sample Sequence 11																
11	ICSA	S0907160144		0	0	Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Aluminum	LIQUID	200	1.9397E+02			0.03	ug/mL	96.986	% Recovery	
11	ICSA	S0907160144		0	0	Arsenic	LIQUID		<6.0000E-02			0.06	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Boron	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		

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LABCORE Completed Batch Report for Batch# 00015041

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
11	ICSA	S0907160144		0	0	Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Calcium	LIQUID	200	1.9850E+02			0.05	ug/mL	99.25	% Recovery	
11	ICSA	S0907160144		0	0	Cadmium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Cerium	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Cobalt	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Europium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Iron	LIQUID	200	1.8882E+02			5.00E-03	ug/mL	94.412	% Recovery	
11	ICSA	S0907160144		0	0	Potassium	LIQUID		<5.0000E-01			0.5	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Magnesium	LIQUID	200	1.9583E+02			0.05	ug/mL	97.913	% Recovery	
11	ICSA	S0907160144		0	0	Manganese	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Molybdenum	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Sodium	LIQUID	200	1.8533E+02			0.1	ug/mL	92.664	% Recovery	
11	ICSA	S0907160144		0	0	Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Nickel	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Niobium	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Lead	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Palladium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Rubidium	LIQUID		<1.0000E+00			1	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Ruthenium	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Antimony	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Selenium	LIQUID		<1.5000E-01			0.15	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Silicon	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Samarium	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Tin	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Tantalum	LIQUID		<7.0000E-02			0.07	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Thorium	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Thallium	LIQUID		<3.0000E-01			0.3	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Uranium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		

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LABCORE Completed Batch Report for Batch# 00015041

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
11	ICSA	S0907160144		0	0	Tungsten	LIQUID		<9.0000E-01			0.9	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
11	ICSA	S0907160144		0	0	Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
Sample Sequence 12																
12	ICSAB	S0907160145		0	0	Silver	LIQUID	1	9.5265E-01			5.00E-03	ug/mL	95.265	% Recovery	
12	ICSAB	S0907160145		0	0	Aluminum	LIQUID	200	1.9234E+02			0.03	ug/mL	96.172	% Recovery	
12	ICSAB	S0907160145		0	0	Arsenic	LIQUID	5	4.9122E+00			0.05	ug/mL	98.243	% Recovery	
12	ICSAB	S0907160145		0	0	Boron	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
12	ICSAB	S0907160145		0	0	Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
12	ICSAB	S0907160145		0	0	Beryllium	LIQUID	.02	1.8840E-02			1.00E-03	ug/mL	94.2	% Recovery	
12	ICSAB	S0907160145		0	0	Bismuth	LIQUID		<2.5000E-01			0.25	ug/mL	N/A		
12	ICSAB	S0907160145		0	0	Calcium	LIQUID	200	2.0042E+02			0.05	ug/mL	100.21	% Recovery	
12	ICSAB	S0907160145		0	0	Cadmium	LIQUID	.2	1.5499E-01			5.00E-03	ug/mL	77.495	% Recovery	
12	ICSAB	S0907160145		0	0	Cerium	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
12	ICSAB	S0907160145		0	0	Cobalt	LIQUID	5	4.8264E+00			0.01	ug/mL	96.527	% Recovery	
12	ICSAB	S0907160145		0	0	Chromium	LIQUID	5	4.8046E+00			5.00E-03	ug/mL	96.091	% Recovery	
12	ICSAB	S0907160145		0	0	Copper	LIQUID	5	4.8188E+00			5.00E-03	ug/mL	96.375	% Recovery	
12	ICSAB	S0907160145		0	0	Europium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
12	ICSAB	S0907160145		0	0	Iron	LIQUID	200	1.8778E+02			5.00E-03	ug/mL	93.89	% Recovery	
12	ICSAB	S0907160145		0	0	Potassium	LIQUID		<5.0000E-01			0.5	ug/mL	N/A		
12	ICSAB	S0907160145		0	0	Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
12	ICSAB	S0907160145		0	0	Lithium	LIQUID	1	9.3758E-01			3.00E-03	ug/mL	93.758	% Recovery	
12	ICSAB	S0907160145		0	0	Magnesium	LIQUID	200	1.9515E+02			0.05	ug/mL	97.577	% Recovery	
12	ICSAB	S0907160145		0	0	Manganese	LIQUID	5	4.7684E+00			3.00E-03	ug/mL	95.367	% Recovery	
12	ICSAB	S0907160145		0	0	Molybdenum	LIQUID	5	4.6571E+00			0.02	ug/mL	93.142	% Recovery	
12	ICSAB	S0907160145		0	0	Sodium	LIQUID	200	1.8082E+02			0.1	ug/mL	90.412	% Recovery	
12	ICSAB	S0907160145		0	0	Neodymium	LIQUID		<2.0000E-01			0.2	ug/mL	N/A		
12	ICSAB	S0907160145		0	0	Nickel	LIQUID	5	4.6910E+00			0.02	ug/mL	93.819	% Recovery	
12	ICSAB	S0907160145		0	0	Niobium	LIQUID	5	4.2174E+00			0.03	ug/mL	84.347	% Recovery	
12	ICSAB	S0907160145		0	0	Phosphorus	LIQUID	1	9.9933E-01			0.05	ug/mL	99.933	% Recovery	
12	ICSAB	S0907160145		0	0	Lead	LIQUID	1	1.0991E+00			0.05	ug/mL	109.91	% Recovery	
12	ICSAB	S0907160145		0	0	Palladium	LIQUID	1	8.3068E-01			0.1	ug/mL	83.068	% Recovery	
12	ICSAB	S0907160145		0	0	Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
12	ICSAB	S0907160145		0	0	Rubidium	LIQUID		<1.0000E+00			1	ug/mL	N/A		
12	ICSAB	S0907160145		0	0	Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
12	ICSAB	S0907160145		0	0	Ruthenium	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
12	ICSAB	S0907160145		0	0	Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
12	ICSAB	S0907160145		0	0	Antimony	LIQUID	5	4.8337E+00			0.05	ug/mL	96.674	% Recovery	
12	ICSAB	S0907160145		0	0	Selenium	LIQUID	5	5.0389E+00			0.1	ug/mL	100.78	% Recovery	
12	ICSAB	S0907160145		0	0	Silicon	LIQUID		<4.0000E-01			0.4	ug/mL	N/A		
12	ICSAB	S0907160145		0	0	Samarium	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00015041

Seq	Type	Sample#	Assoc. Sample	RepR		A		Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
12	ICSAB	S0907160145		0	0			Tin	LIQUID		<6.0000E-02			0.06	ug/mL	N/A		
12	ICSAB	S0907160145		0	0			Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
12	ICSAB	S0907160145		0	0			Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
12	ICSAB	S0907160145		0	0			Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
12	ICSAB	S0907160145		0	0			Thorium	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
12	ICSAB	S0907160145		0	0			Titanium	LIQUID	50	4.6442E+01			5.00E-03	ug/mL	92.883	% Recovery	
12	ICSAB	S0907160145		0	0			Thallium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
12	ICSAB	S0907160145		0	0			Uranium	LIQUID	5	4.5156E+00			0.1	ug/mL	90.311	% Recovery	
12	ICSAB	S0907160145		0	0			Vanadium	LIQUID	1	9.7567E-01			5.00E-03	ug/mL	97.567	% Recovery	
12	ICSAB	S0907160145		0	0			Tungsten	LIQUID	1	1.0210E+00			0.2	ug/mL	102.1	% Recovery	
12	ICSAB	S0907160145		0	0			Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL	N/A		
12	ICSAB	S0907160145		0	0			Zinc	LIQUID	5	4.8783E+00			5.00E-03	ug/mL	97.565	% Recovery	
12	ICSAB	S0907160145		0	0			Zirconium	LIQUID	5	4.4388E+00			5.00E-03	ug/mL	88.775	% Recovery	
Sample Sequence 13																		
13	BLNK-PREP	S0907130014		0	0	A		Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Aluminum	LIQUID		<3.0000E-02			0.03	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Arsenic	LIQUID		<5.0000E-02			0.05	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Boron	LIQUID		<3.0000E-02			0.03	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Calcium	LIQUID		<5.0000E-02			0.05	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A	*	Cadmium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Cerium	LIQUID		<3.0000E-02			0.03	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Cobalt	LIQUID		<1.0000E-02			0.01	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Europium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Iron	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Potassium	LIQUID		<5.0000E-01			0.5	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Magnesium	LIQUID		<5.0000E-02			0.05	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Manganese	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Sodium	LIQUID		<1.0000E-01			0.1	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Nickel	LIQUID		<2.0000E-02			0.02	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Niobium	LIQUID		<3.0000E-02			0.03	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Lead	LIQUID		<5.0000E-02			0.05	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Palladium	LIQUID		<1.0000E-01			0.1	ug/mL			

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LABCORE Completed Batch Report for Batch# 00015041

Seq	Type	Sample#	Assoc. Sample	RepR		A		Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
13	BLNK-PREP	S0907130014		0	0	A		Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Rubidium	LIQUID		<1.0000E+00			1	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Ruthenium	LIQUID		<3.0000E-02			0.03	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Antimony	LIQUID		<5.0000E-02			0.05	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Selenium	LIQUID		<1.0000E-01			0.1	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Silicon	LIQUID		<3.0000E-02			0.03	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Samarium	LIQUID		<2.0000E-02			0.02	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Tin	LIQUID		<3.0000E-02			0.03	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Thorium	LIQUID		<5.0000E-02			0.05	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Thallium	LIQUID		<1.0000E-01			0.1	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Uranium	LIQUID		<1.0000E-01			0.1	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Tungsten	LIQUID		<2.0000E-01			0.2	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
13	BLNK-PREP	S0907130014		0	0	A		Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
Sample Sequence 14																		
14	STD-PREP	S0907130015		0	0	A		Silver	LIQUID	1	8.9021E-01			5.00E-03	ug/mL	89.021	% Recovery	
14	STD-PREP	S0907130015		0	0	A		Aluminum	LIQUID	5	4.6496E+00			0.03	ug/mL	92.992	% Recovery	
14	STD-PREP	S0907130015		0	0	A		Arsenic	LIQUID	5	4.7774E+00			0.05	ug/mL	95.547	% Recovery	
14	STD-PREP	S0907130015		0	0	A		Boron	LIQUID	5	4.6374E+00			0.03	ug/mL	92.747	% Recovery	
14	STD-PREP	S0907130015		0	0	A		Barium	LIQUID	5	4.9509E+00			3.00E-03	ug/mL	99.019	% Recovery	
14	STD-PREP	S0907130015		0	0	A		Beryllium	LIQUID	5	5.1722E+00			1.00E-03	ug/mL	103.44	% Recovery	
14	STD-PREP	S0907130015		0	0	A		Bismuth	LIQUID	5	4.6932E+00			0.1	ug/mL	93.863	% Recovery	
14	STD-PREP	S0907130015		0	0	A		Calcium	LIQUID	5	4.6515E+00			0.05	ug/mL	93.03	% Recovery	
14	STD-PREP	S0907130015		0	0	A	*	Cadmium	LIQUID	5	4.7958E+00			5.00E-03	ug/mL	95.917	% Recovery	
15	STD-PREP	S0907130015		0	1	A		Cerium	LIQUID	5	5.0975E+00			0.03	ug/mL	101.95	% Recovery	
14	STD-PREP	S0907130015		0	0	A		Cobalt	LIQUID	5	4.9589E+00			0.01	ug/mL	99.179	% Recovery	
14	STD-PREP	S0907130015		0	0	A		Chromium	LIQUID	5	4.9428E+00			5.00E-03	ug/mL	98.856	% Recovery	
14	STD-PREP	S0907130015		0	0	A		Copper	LIQUID	5	4.8516E+00			5.00E-03	ug/mL	97.032	% Recovery	
15	STD-PREP	S0907130015		0	1	A		Europium	LIQUID	5	4.8583E+00			5.00E-03	ug/mL	97.166	% Recovery	
14	STD-PREP	S0907130015		0	0	A		Iron	LIQUID	5	4.8259E+00			5.00E-03	ug/mL	96.518	% Recovery	
14	STD-PREP	S0907130015		0	0	A		Potassium	LIQUID	5	4.4404E+00			0.5	ug/mL	88.809	% Recovery	
14	STD-PREP	S0907130015		0	0	A		Lanthanum	LIQUID	5	4.9873E+00			3.00E-03	ug/mL	99.747	% Recovery	
14	STD-PREP	S0907130015		0	0	A		Lithium	LIQUID	5	5.0176E+00			3.00E-03	ug/mL	100.35	% Recovery	
14	STD-PREP	S0907130015		0	0	A		Magnesium	LIQUID	5	4.6107E+00			0.05	ug/mL	92.215	% Recovery	

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LABCORE Completed Batch Report for Batch# 00015041

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
14	STD-PREP	S0907130015		0	0	A	Manganese	LIQUID	5	4.8197E+00			3.00E-03	ug/mL	96.394	% Recovery	
14	STD-PREP	S0907130015		0	0	A	Molybdenum	LIQUID	5	4.8511E+00			0.02	ug/mL	97.021	% Recovery	
14	STD-PREP	S0907130015		0	0	A	Sodium	LIQUID	5	4.8221E+00			0.1	ug/mL	96.443	% Recovery	
15	STD-PREP	S0907130015		0	1	A	Neodymium	LIQUID		5.0003E+00			0.01	ug/mL	N/A		
14	STD-PREP	S0907130015		0	0	A	Nickel	LIQUID	5	4.8343E+00			0.02	ug/mL	96.685	% Recovery	
15	STD-PREP	S0907130015		0	1	A	Niobium	LIQUID	5	4.9079E+00			0.03	ug/mL	98.159	% Recovery	
14	STD-PREP	S0907130015		0	0	A	Phosphorus	LIQUID	5	4.7393E+00			0.05	ug/mL	94.786	% Recovery	
14	STD-PREP	S0907130015		0	0	A	Lead	LIQUID	5	4.8440E+00			0.05	ug/mL	96.88	% Recovery	
15	STD-PREP	S0907130015		0	1	A	Palladium	LIQUID	5	4.4334E+00			0.1	ug/mL	88.669	% Recovery	
15	STD-PREP	S0907130015		0	1	A	Praseodymium	LIQUID	5	4.9626E+00			0.01	ug/mL	99.253	% Recovery	
15	STD-PREP	S0907130015		0	1	A	Rubidium	LIQUID	5	3.9105E+00			1	ug/mL	78.211	% Recovery	
15	STD-PREP	S0907130015		0	1	A	Rhodium	LIQUID	5	4.8416E+00			0.05	ug/mL	96.831	% Recovery	
15	STD-PREP	S0907130015		0	1	A	Ruthenium	LIQUID	5	4.6801E+00			0.03	ug/mL	93.602	% Recovery	
14	STD-PREP	S0907130015		0	0	A	Sulfur	LIQUID	5	4.5864E+00			0.1	ug/mL	91.728	% Recovery	
14	STD-PREP	S0907130015		0	0	A	Antimony	LIQUID	5	4.5314E+00			0.05	ug/mL	90.628	% Recovery	
14	STD-PREP	S0907130015		0	0	A	Selenium	LIQUID	5	5.0136E+00			0.1	ug/mL	100.27	% Recovery	
14	STD-PREP	S0907130015		0	0	A	Silicon	LIQUID	5	4.4147E+00			0.03	ug/mL	88.293	% Recovery	
15	STD-PREP	S0907130015		0	1	A	Samarium	LIQUID	5	4.9825E+00			0.02	ug/mL	99.65	% Recovery	
15	STD-PREP	S0907130015		0	1	A	Tin	LIQUID	5	4.6507E+00			0.03	ug/mL	93.013	% Recovery	
14	STD-PREP	S0907130015		0	0	A	Strontium	LIQUID	5	4.9393E+00			3.00E-03	ug/mL	98.786	% Recovery	
15	STD-PREP	S0907130015		0	1	A	Tantalum	LIQUID	5	4.8897E+00			0.05	ug/mL	97.795	% Recovery	
15	STD-PREP	S0907130015		0	1	A	Tellurium	LIQUID	5	4.7130E+00			0.1	ug/mL	94.26	% Recovery	
15	STD-PREP	S0907130015		0	1	A	Thorium	LIQUID	5	4.8228E+00			0.05	ug/mL	96.456	% Recovery	
14	STD-PREP	S0907130015		0	0	A	Titanium	LIQUID	5	4.8068E+00			5.00E-03	ug/mL	96.137	% Recovery	
15	STD-PREP	S0907130015		0	1	A	Thallium	LIQUID	5	4.9131E+00			0.1	ug/mL	98.262	% Recovery	
15	STD-PREP	S0907130015		0	1	A	Uranium	LIQUID	5	5.1324E+00			0.1	ug/mL	102.65	% Recovery	
14	STD-PREP	S0907130015		0	0	A	Vanadium	LIQUID	5	5.0085E+00			5.00E-03	ug/mL	100.17	% Recovery	
15	STD-PREP	S0907130015		0	1	A	Tungsten	LIQUID	5	4.7247E+00			0.2	ug/mL	94.494	% Recovery	
15	STD-PREP	S0907130015		0	1	A	Yttrium	LIQUID	5	4.8019E+00			2.00E-03	ug/mL	96.037	% Recovery	
14	STD-PREP	S0907130015		0	0	A	Zinc	LIQUID	5	4.6220E+00			5.00E-03	ug/mL	92.44	% Recovery	
14	STD-PREP	S0907130015		0	0	A	Zirconium	LIQUID	5	4.6882E+00			5.00E-03	ug/mL	93.764	% Recovery	
Sample Sequence 16																	
16	SAMPLE	S09V000195		0	0	A	Aluminum	SOLID	N/A	7.7995E+03			30.303	ug/g			
16	SAMPLE	S09V000195		0	0	A	Barium	SOLID	N/A	7.7113E+01			3.0303	ug/g			
16	SAMPLE	S09V000195		0	0	A	Beryllium	SOLID	N/A	<1.0101E+00			1.0101	ug/g			U
16	SAMPLE	S09V000195		0	0	A	Calcium	SOLID	N/A	1.1799E+04			50.505	ug/g			
16	SAMPLE	S09V000195		0	0	A	Copper	SOLID	N/A	1.2517E+01			5.0505	ug/g			J
16	SAMPLE	S09V000195		0	0	A	Iron	SOLID	N/A	2.5142E+04			5.0505	ug/g			
16	SAMPLE	S09V000195		0	0	A	Potassium	SOLID	N/A	1.2673E+03			505.05	ug/g			J
16	SAMPLE	S09V000195		0	0	A	Lanthanum	SOLID	N/A	1.3770E+01			3.0303	ug/g			J
16	SAMPLE	S09V000195		0	0	A	Lithium	SOLID	N/A	8.2990E+00			3.0303	ug/g			J
16	SAMPLE	S09V000195		0	0	A	Magnesium	SOLID	N/A	6.2084E+03			50.505	ug/g			

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LABCORE Completed Batch Report for Batch# 00015041

Seq	Type	Sample#	Assoc. Sample	RepR		A		Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
16	SAMPLE	S09V000195		0	0	A		Manganese	SOLID	N/A	3.6893E+02			3.0303	ug/g			
16	SAMPLE	S09V000195		0	0	A		Molybdenum	SOLID	N/A	<2.0202E+01			20.202	ug/g			U
16	SAMPLE	S09V000195		0	0	A		Sodium	SOLID	N/A	1.9270E+03			101.01	ug/g			
16	SAMPLE	S09V000195		0	0	A		Neodymium	SOLID	N/A	2.1152E+01			10.101	ug/g			J
16	SAMPLE	S09V000195		0	0	A		Phosphorus	SOLID	N/A	9.8436E+02			50.505	ug/g			
16	SAMPLE	S09V000195		0	0	A		Palladium	SOLID	N/A	1.3215E+02			101.01	ug/g			J
16	SAMPLE	S09V000195		0	0	A		Silicon	SOLID	N/A	1.6270E+03			30.303	ug/g			b
16	SAMPLE	S09V000195		0	0	A		Strontium	SOLID	N/A	3.2291E+01			3.0303	ug/g			
16	SAMPLE	S09V000195		0	0	A		Tantalum	SOLID	N/A	5.8594E+01			50.505	ug/g			J
16	SAMPLE	S09V000195		0	0	A		Titanium	SOLID	N/A	1.9564E+03			5.0505	ug/g			
16	SAMPLE	S09V000195		0	0	A		Uranium	SOLID	N/A	<1.0101E+02			101.01	ug/g			U
16	SAMPLE	S09V000195		0	0	A		Yttrium	SOLID	N/A	1.0899E+01			2.0202	ug/g			J
16	SAMPLE	S09V000195		0	0	A		Zinc	SOLID	N/A	4.8558E+01			5.0505	ug/g			
16	SAMPLE	S09V000195		0	0	A		Zirconium	SOLID	N/A	1.7253E+01			5.0505	ug/g			J
Sample Sequence 17																		
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Silver	SOLID	398.4063746	1.6461E+02			0.99602	ug/g	41.317	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Aluminum	SOLID	996.0159365	1.0123E+04			5.9761	ug/g	233.27	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Arsenic	SOLID	996.0159365	9.0128E+02			11.952	ug/g	90.488	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Boron	SOLID	996.0159365	8.8125E+02			5.9761	ug/g	88.478	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Barium	SOLID	996.0159365	1.0218E+03			0.59761	ug/g	94.846	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Beryllium	SOLID	996.0159365	9.6585E+02			0.1992	ug/g	96.972	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Bismuth	SOLID	996.0159365	8.8048E+02			19.92	ug/g	88.4	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Calcium	SOLID	996.0159365	1.3078E+04			9.9602	ug/g	128.41	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A	*	Cadmium	SOLID	996.0159365	8.7084E+02			0.99602	ug/g	87.433	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Cobalt	SOLID	996.0159365	9.1457E+02			1.992	ug/g	90.253	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Chromium	SOLID	996.0159365	9.1870E+02			0.99602	ug/g	91.55	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Copper	SOLID	996.0159365	9.4285E+02			0.99602	ug/g	93.405	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Iron	SOLID	996.0159365	2.4441E+04			0.99602	ug/g	-70.36	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Potassium	SOLID	996.0159365	2.1172E+03			99.602	ug/g	85.326	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Lanthanum	SOLID	996.0159365	9.5390E+02			0.59761	ug/g	94.389	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Lithium	SOLID	996.0159365	9.3551E+02			0.59761	ug/g	93.092	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Magnesium	SOLID	996.0159365	7.0538E+03			9.9602	ug/g	84.876	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Manganese	SOLID	996.0159365	1.2562E+03			0.59761	ug/g	89.08	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Molybdenum	SOLID	996.0159365	9.0365E+02			3.9841	ug/g	90.727	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Sodium	SOLID	996.0159365	2.9939E+03			19.92	ug/g	107.12	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Nickel	SOLID	996.0159365	8.8580E+02			3.9841	ug/g	88.935	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Phosphorus	SOLID	996.0159365	1.8274E+03			9.9602	ug/g	84.643	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Lead	SOLID	996.0159365	8.9616E+02			9.9602	ug/g	89.975	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Sulfur	SOLID	996.0159365	9.3505E+02			19.92	ug/g	93.879	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Antimony	SOLID	996.0159365	8.0537E+02			9.9602	ug/g	80.858	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Selenium	SOLID	996.0159365	9.4656E+02			19.92	ug/g	95.035	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A		Silicon	SOLID	996.0159365	4.7275E+03			5.9761	ug/g	311.29	% Recovery	

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LABCORE Completed Batch Report for Batch# 00015041

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A	Strontium	SOLID	996.0159365	9.6827E+02			0.59761	ug/g	93.972	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A	Titanium	SOLID	996.0159365	2.8288E+03			0.99602	ug/g	87.592	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A	Vanadium	SOLID	996.0159365	9.8750E+02			0.99602	ug/g	93.134	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A	Zinc	SOLID	996.0159365	8.9369E+02			0.99602	ug/g	84.851	% Recovery	
17	SPK-PREDIG	S0907130017	S09V000195	0	0	A	Zirconium	SOLID	996.0159365	9.0142E+02			0.99602	ug/g	88.771	% Recovery	
Sample Sequence 18																	
18	SPK-PREDIG	S0907130018	S09V000195	0	0	A	Cerium	SOLID	1009.285426	1.0087E+03			6.0557	ug/g	99.944	% Recovery	
18	SPK-PREDIG	S0907130018	S09V000195	0	0	A	Europium	SOLID	1009.285426	9.4211E+02			1.0093	ug/g	93.345	% Recovery	
18	SPK-PREDIG	S0907130018	S09V000195	0	0	A	Neodymium	SOLID	1009.285426	9.9086E+02			2.0186	ug/g	96.078	% Recovery	
18	SPK-PREDIG	S0907130018	S09V000195	0	0	A	Niobium	SOLID	1009.285426	8.6575E+02			6.0557	ug/g	85.779	% Recovery	
18	SPK-PREDIG	S0907130018	S09V000195	0	0	A	Palladium	SOLID	1009.285426	9.2873E+02			20.186	ug/g	78.925	% Recovery	
18	SPK-PREDIG	S0907130018	S09V000195	0	0	A	Praseodymium	SOLID	1009.285426	9.6190E+02			2.0186	ug/g	95.305	% Recovery	
18	SPK-PREDIG	S0907130018	S09V000195	0	0	A	Rubidium	SOLID	1009.285426	7.7050E+02			201.86	ug/g	76.342	% Recovery	
18	SPK-PREDIG	S0907130018	S09V000195	0	0	A	Rhodium	SOLID	1009.285426	9.0680E+02			10.093	ug/g	89.845	% Recovery	
18	SPK-PREDIG	S0907130018	S09V000195	0	0	A	Ruthenium	SOLID	1009.285426	8.9510E+02			6.0557	ug/g	88.686	% Recovery	
18	SPK-PREDIG	S0907130018	S09V000195	0	0	A	Samarium	SOLID	1009.285426	9.6509E+02			4.0371	ug/g	95.62	% Recovery	
18	SPK-PREDIG	S0907130018	S09V000195	0	0	A	Tin	SOLID	1009.285426	9.2609E+02			6.0557	ug/g	91.757	% Recovery	
18	SPK-PREDIG	S0907130018	S09V000195	0	0	A	Tantalum	SOLID	1009.285426	4.7854E+02			10.093	ug/g	41.608	% Recovery	
18	SPK-PREDIG	S0907130018	S09V000195	0	0	A	Tellurium	SOLID	1009.285426	9.3160E+02			20.186	ug/g	92.303	% Recovery	
18	SPK-PREDIG	S0907130018	S09V000195	0	0	A	Thorium	SOLID	1009.285426	9.3799E+02			10.093	ug/g	92.935	% Recovery	
18	SPK-PREDIG	S0907130018	S09V000195	0	0	A	Thallium	SOLID	1009.285426	9.5381E+02			20.186	ug/g	94.504	% Recovery	
18	SPK-PREDIG	S0907130018	S09V000195	0	0	A	Uranium	SOLID	1009.285426	9.8093E+02			20.186	ug/g	97.19	% Recovery	
18	SPK-PREDIG	S0907130018	S09V000195	0	0	A	Tungsten	SOLID	1009.285426	9.4562E+02			40.371	ug/g	93.692	% Recovery	
18	SPK-PREDIG	S0907130018	S09V000195	0	0	A	Yttrium	SOLID	1009.285426	9.4592E+02			0.40371	ug/g	92.642	% Recovery	
Sample Sequence 19																	
19	SERDIL	S0907160146	S09V000195	0	0		Aluminum	SOLID		8.5652E+03			151.52	ug/g	9.8177	% Diff	
19	SERDIL	S0907160146	S09V000195	0	0		Boron	SOLID		<7.5000E-01			0.75	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0		Barium	SOLID		8.2935E+01			15.152	ug/g	7.5504	% Diff	
19	SERDIL	S0907160146	S09V000195	0	0		Beryllium	SOLID		<5.0505E+00			5.0505	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0		Bismuth	SOLID		<2.5000E+00			2.5	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0		Calcium	SOLID		1.2601E+04			252.53	ug/g	6.7986	% Diff	
19	SERDIL	S0907160146	S09V000195	0	0	*	Cadmium	SOLID		<1.2500E-01			0.125	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0		Cerium	SOLID		<7.5000E-01			0.75	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0		Cobalt	SOLID		<5.0505E+01			50.505	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0		Copper	SOLID		<2.5253E+01			25.253	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0		Europium	SOLID		<1.2500E-01			0.125	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0		Iron	SOLID		2.7191E+04			25.253	ug/g	8.1515	% Diff	
19	SERDIL	S0907160146	S09V000195	0	0		Potassium	SOLID		<2.5253E+03			2.53E+03	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0		Lanthanum	SOLID		<1.5152E+01			15.152	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0		Lithium	SOLID		<1.5152E+01			15.152	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0		Magnesium	SOLID		6.8075E+03			252.53	ug/g	9.6501	% Diff	
19	SERDIL	S0907160146	S09V000195	0	0		Manganese	SOLID		3.9394E+02			15.152	ug/g	6.78	% Diff	

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LABCORE Completed Batch Report for Batch# 00015041

Seq	Type	Sample#	Assoc. Sample	RepR		A		Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
19	SERDIL	S0907160146	S09V000195	0	0			Molybdenum	SOLID		<1.0101E+02			101.01	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0			Sodium	SOLID		2.1817E+03			505.05	ug/g	13.218	% Diff	
19	SERDIL	S0907160146	S09V000195	0	0			Neodymium	SOLID		<5.0505E+01			50.505	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0			Niobium	SOLID		<7.5000E-01			0.75	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0			Phosphorus	SOLID		1.0333E+03			252.53	ug/g	4.9743	% Diff	
19	SERDIL	S0907160146	S09V000195	0	0			Palladium	SOLID		<5.0505E+02			505.05	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0			Praseodymium	SOLID		<2.5000E-01			0.25	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0			Rubidium	SOLID		<2.5000E+01			25	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0			Rhodium	SOLID		<1.2500E+00			1.25	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0			Ruthenium	SOLID		<7.5000E-01			0.75	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0			Sulfur	SOLID		<2.5000E+00			2.5	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0			Silicon	SOLID		1.6821E+03			151.52	ug/g	3.3836	% Diff	
19	SERDIL	S0907160146	S09V000195	0	0			Samarium	SOLID		<5.0000E-01			0.5	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0			Tin	SOLID		<7.5000E-01			0.75	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0			Strontium	SOLID		3.5172E+01			15.152	ug/g	8.9211	% Diff	
19	SERDIL	S0907160146	S09V000195	0	0			Tantalum	SOLID		<2.5253E+02			252.53	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0			Tellurium	SOLID		<2.5000E+00			2.5	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0			Thorium	SOLID		<1.2500E+00			1.25	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0			Titanium	SOLID		2.1024E+03			25.253	ug/g	7.4611	% Diff	
19	SERDIL	S0907160146	S09V000195	0	0			Uranium	SOLID		<5.0505E+02			505.05	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0			Tungsten	SOLID		<5.0000E+00			5	ug/g	N/A		
19	SERDIL	S0907160146	S09V000195	0	0			Yttrium	SOLID		1.1248E+01			10.101	ug/g	3.2066	% Diff	
19	SERDIL	S0907160146	S09V000195	0	0			Zinc	SOLID		4.9846E+01			25.253	ug/g	2.6535	% Diff	
19	SERDIL	S0907160146	S09V000195	0	0			Zirconium	SOLID		<2.5253E+01			25.253	ug/g	N/A		
Sample Sequence 20																		
20	DUP	S0907130016	S09V000195	0	0	A		Aluminum	SOLID	7.7995E+03	7.4887E+03			30.242	ug/g	4.0654	% RPD	
20	DUP	S0907130016	S09V000195	0	0	A		Boron	SOLID		<3.0242E+01			30.242	ug/g			
20	DUP	S0907130016	S09V000195	0	0	A		Barium	SOLID	7.7113E+01	7.3710E+01			3.0242	ug/g	4.5127	% RPD	
20	DUP	S0907130016	S09V000195	0	0	A		Beryllium	SOLID	<1.0101E+00	<1.0081E+00			1.0081	ug/g			
20	DUP	S0907130016	S09V000195	0	0	A		Bismuth	SOLID		<1.0081E+02			100.81	ug/g			
20	DUP	S0907130016	S09V000195	0	0	A		Calcium	SOLID	1.1799E+04	1.1090E+04			50.403	ug/g	6.1939	% RPD	
20	DUP	S0907130016	S09V000195	0	0	A	*	Cadmium	SOLID		<5.0403E+00			5.0403	ug/g			
20	DUP	S0907130016	S09V000195	0	0	A		Cerium	SOLID		<3.0242E+01			30.242	ug/g			
20	DUP	S0907130016	S09V000195	0	0	A		Cobalt	SOLID		1.4472E+01			10.081	ug/g			
20	DUP	S0907130016	S09V000195	0	0	A		Copper	SOLID	1.2517E+01	1.3657E+01			5.0403	ug/g	8.7096	% RPD	
20	DUP	S0907130016	S09V000195	0	0	A		Europium	SOLID		<5.0403E+00			5.0403	ug/g			
20	DUP	S0907130016	S09V000195	0	0	A		Iron	SOLID	2.5142E+04	2.3876E+04			5.0403	ug/g	5.1636	% RPD	
20	DUP	S0907130016	S09V000195	0	0	A		Potassium	SOLID	1.2673E+03	1.1857E+03			504.03	ug/g	6.6546	% RPD	
20	DUP	S0907130016	S09V000195	0	0	A		Lanthanum	SOLID	1.3770E+01	1.1859E+01			3.0242	ug/g	14.911	% RPD	
20	DUP	S0907130016	S09V000195	0	0	A		Lithium	SOLID	8.2990E+00	7.7137E+00			3.0242	ug/g	7.3103	% RPD	
20	DUP	S0907130016	S09V000195	0	0	A		Magnesium	SOLID	6.2084E+03	5.9733E+03			50.403	ug/g	3.8601	% RPD	
20	DUP	S0907130016	S09V000195	0	0	A		Manganese	SOLID	3.6893E+02	3.4776E+02			3.0242	ug/g	5.9075	% RPD	

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LABCORE Completed Batch Report for Batch# 00015041

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
20	DUP	S0907130016	S09V000195	0	0	A	Molybdenum	SOLID	<2.0202E+01	<2.0161E+01			20.161	ug/g			
20	DUP	S0907130016	S09V000195	0	0	A	Sodium	SOLID	1.9270E+03	1.9074E+03			100.81	ug/g	1.0228	% RPD	
20	DUP	S0907130016	S09V000195	0	0	A	Neodymium	SOLID	2.1152E+01	2.0585E+01			10.081	ug/g	2.7147	% RPD	
20	DUP	S0907130016	S09V000195	0	0	A	Niobium	SOLID		<3.0242E+01			30.242	ug/g			
20	DUP	S0907130016	S09V000195	0	0	A	Phosphorus	SOLID	9.8436E+02	9.2069E+02			50.403	ug/g	6.6845	% RPD	
20	DUP	S0907130016	S09V000195	0	0	A	Palladium	SOLID	1.3215E+02	<1.0081E+02			100.81	ug/g			
20	DUP	S0907130016	S09V000195	0	0	A	Praseodymium	SOLID		<1.0081E+01			10.081	ug/g			
20	DUP	S0907130016	S09V000195	0	0	A	Rubidium	SOLID		<1.0081E+03			1.01E+03	ug/g			
20	DUP	S0907130016	S09V000195	0	0	A	Rhodium	SOLID		<5.0403E+01			50.403	ug/g			
20	DUP	S0907130016	S09V000195	0	0	A	Ruthenium	SOLID		<3.0242E+01			30.242	ug/g			
20	DUP	S0907130016	S09V000195	0	0	A	Sulfur	SOLID		<1.0081E+02			100.81	ug/g			
20	DUP	S0907130016	S09V000195	0	0	A	Silicon	SOLID	1.6270E+03	1.5130E+03			30.242	ug/g	7.2603	% RPD	
20	DUP	S0907130016	S09V000195	0	0	A	Samarium	SOLID		<2.0161E+01			20.161	ug/g			
20	DUP	S0907130016	S09V000195	0	0	A	Tin	SOLID		<3.0242E+01			30.242	ug/g			
20	DUP	S0907130016	S09V000195	0	0	A	Strontium	SOLID	3.2291E+01	3.0907E+01			3.0242	ug/g	4.3796	% RPD	
20	DUP	S0907130016	S09V000195	0	0	A	Tantalum	SOLID	5.8594E+01	<5.0403E+01			50.403	ug/g			
20	DUP	S0907130016	S09V000195	0	0	A	Tellurium	SOLID		<1.0081E+02			100.81	ug/g			
20	DUP	S0907130016	S09V000195	0	0	A	Thorium	SOLID		<5.0403E+01			50.403	ug/g			
20	DUP	S0907130016	S09V000195	0	0	A	Titanium	SOLID	1.9564E+03	1.8715E+03			5.0403	ug/g	4.4363	% RPD	
20	DUP	S0907130016	S09V000195	0	0	A	Uranium	SOLID	<1.0101E+02	<1.0081E+02			100.81	ug/g			
20	DUP	S0907130016	S09V000195	0	0	A	Tungsten	SOLID		<2.0161E+02			201.61	ug/g			
20	DUP	S0907130016	S09V000195	0	0	A	Yttrium	SOLID	1.0899E+01	1.0480E+01			2.0161	ug/g	3.9196	% RPD	
20	DUP	S0907130016	S09V000195	0	0	A	Zinc	SOLID	4.8558E+01	4.5341E+01			5.0403	ug/g	6.8512	% RPD	
20	DUP	S0907130016	S09V000195	0	0	A	Zirconium	SOLID	1.7253E+01	1.5786E+01			5.0403	ug/g	8.8777	% RPD	
Sample Sequence 21																	
25	SPK-POST	S0907160147	S09V000195	0	4		Silver	SOLID	20	1.8578E+01			5.00E-03	ug/mL	92.89	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0	4		Aluminum	SOLID	100	1.3024E+02			0.03	ug/mL	91.637	% Recovery	
21	SPK-POST	S0907160147	S09V000195	0	0		Arsenic	SOLID	12.5	1.1540E+01			0.06	ug/mL	92.321	% Recovery	
21	SPK-POST	S0907160147	S09V000195	0	0		Boron	SOLID	12.5	1.1338E+01			0.03	ug/mL	90.706	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0	4		Barium	SOLID	100	1.0891E+02			3.00E-03	ug/mL	108.53	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0	4		Beryllium	SOLID	100	1.0552E+02			1.00E-03	ug/mL	105.52	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0	4		Bismuth	SOLID	100	1.0326E+02			0.1	ug/mL	103.26	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0	4		Calcium	SOLID	100	1.4150E+02			0.05	ug/mL	83.093	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0	4	*	Cadmium	SOLID	100	1.0251E+02			5.00E-03	ug/mL	102.51	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0	4		Cerium	SOLID	100	1.0298E+02			0.03	ug/mL	102.98	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0	4		Cobalt	SOLID	100	1.0355E+02			0.01	ug/mL	103.47	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0	4		Chromium	SOLID	100	1.0507E+02			5.00E-03	ug/mL	105.04	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0	4		Copper	SOLID	100	1.0338E+02			5.00E-03	ug/mL	103.32	% Recovery	
22	SPK-POST	S0907160147	S09V000195	0	1		Europium	SOLID	14.3	1.3417E+01			5.00E-03	ug/mL	93.824	% Recovery	
23	SPK-POST	S0907160147	S09V000195	0	2		Iron	SOLID	111	2.1218E+02			5.00E-03	ug/mL	79.038	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0	4		Potassium	SOLID	100	1.0675E+02			0.5	ug/mL	100.48	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0	4		Lanthanum	SOLID	100	1.0345E+02			3.00E-03	ug/mL	103.38	% Recovery	

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00015041

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
25	SPK-POST	S0907160147	S09V000195	0 4		Lithium	SOLID	100	1.0179E+02			3.00E-03	ug/mL	101.74	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0 4		Magnesium	SOLID	100	1.2292E+02			0.05	ug/mL	92.188	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0 4		Manganese	SOLID	100	1.0731E+02			3.00E-03	ug/mL	105.48	% Recovery	
21	SPK-POST	S0907160147	S09V000195	0 0		Molybdenum	SOLID	12.5	1.1242E+01			0.02	ug/mL	89.939	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0 4		Sodium	SOLID	100	1.1098E+02			0.1	ug/mL	101.44	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0 4		Neodymium	SOLID	100	1.0419E+02			0.01	ug/mL	104.09	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0 4		Nickel	SOLID	100	1.0146E+02			0.02	ug/mL	101.46	% Recovery	
22	SPK-POST	S0907160147	S09V000195	0 1		Niobium	SOLID	14.3	1.3140E+01			0.03	ug/mL	91.889	% Recovery	
21	SPK-POST	S0907160147	S09V000195	0 0		Phosphorus	SOLID	12.5	1.5646E+01			0.05	ug/mL	86.186	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0 4		Lead	SOLID	100	1.0645E+02			0.05	ug/mL	106.45	% Recovery	
22	SPK-POST	S0907160147	S09V000195	0 1		Palladium	SOLID	14.3	1.2749E+01			0.1	ug/mL	84.577	% Recovery	
22	SPK-POST	S0907160147	S09V000195	0 1		Praseodymium	SOLID	14.3	1.3822E+01			0.01	ug/mL	96.654	% Recovery	
22	SPK-POST	S0907160147	S09V000195	0 1		Rubidium	SOLID	14.3	1.1907E+01			1	ug/mL	83.265	% Recovery	
22	SPK-POST	S0907160147	S09V000195	0 1		Rhodium	SOLID	14.3	1.3070E+01			0.05	ug/mL	91.397	% Recovery	
22	SPK-POST	S0907160147	S09V000195	0 1		Ruthenium	SOLID	14.3	1.3076E+01			0.03	ug/mL	91.44	% Recovery	
21	SPK-POST	S0907160147	S09V000195	0 0		Sulfur	SOLID	12.5	1.1710E+01			0.1	ug/mL	93.683	% Recovery	
21	SPK-POST	S0907160147	S09V000195	0 0		Antimony	SOLID	12.5	1.0820E+01			0.05	ug/mL	86.558	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0 4		Selenium	SOLID	100	1.0842E+02			0.1	ug/mL	108.42	% Recovery	
21	SPK-POST	S0907160147	S09V000195	0 0		Silicon	SOLID	12.5	1.7442E+01			0.03	ug/mL	75.105	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0 4		Samarium	SOLID	100	1.0329E+02			0.02	ug/mL	103.29	% Recovery	
22	SPK-POST	S0907160147	S09V000195	0 1		Tin	SOLID	14.3	1.2921E+01			0.03	ug/mL	90.355	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0 4		Strontium	SOLID	100	1.0400E+02			3.00E-03	ug/mL	103.84	% Recovery	
22	SPK-POST	S0907160147	S09V000195	0 1		Tantalum	SOLID	14.3	1.3254E+01			0.05	ug/mL	90.654	% Recovery	
22	SPK-POST	S0907160147	S09V000195	0 1		Tellurium	SOLID	14.3	1.3074E+01			0.1	ug/mL	91.425	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0 4		Thorium	SOLID	100	1.0263E+02			0.05	ug/mL	102.63	% Recovery	
21	SPK-POST	S0907160147	S09V000195	0 0		Titanium	SOLID	12.5	2.0031E+01			5.00E-03	ug/mL	82.774	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0 4		Thallium	SOLID	100	1.0394E+02			0.1	ug/mL	103.94	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0 4		Uranium	SOLID	200	2.0399E+02			0.1	ug/mL	102	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0 4		Vanadium	SOLID	100	1.0576E+02			5.00E-03	ug/mL	105.47	% Recovery	
22	SPK-POST	S0907160147	S09V000195	0 1		Tungsten	SOLID	14.3	1.3418E+01			0.2	ug/mL	93.831	% Recovery	
22	SPK-POST	S0907160147	S09V000195	0 1		Yttrium	SOLID	14.3	1.3446E+01			2.00E-03	ug/mL	93.649	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0 4		Zinc	SOLID	100	1.0140E+02			5.00E-03	ug/mL	101.16	% Recovery	
25	SPK-POST	S0907160147	S09V000195	0 4		Zirconium	SOLID	100	9.5783E+01			5.00E-03	ug/mL	95.698	% Recovery	
Sample Sequence 26																
26	CCV	S0907160148		0 0		Silver	LIQUID	5	4.9436E+00			5.00E-03	ug/mL	98.872	% Recovery	
26	CCV	S0907160148		0 0		Aluminum	LIQUID	5	5.0259E+00			0.03	ug/mL	100.52	% Recovery	
26	CCV	S0907160148		0 0		Arsenic	LIQUID	5	5.1867E+00			0.05	ug/mL	103.73	% Recovery	
27	CCV	S0907160148		0 1		Boron	LIQUID	5	4.9928E+00			0.03	ug/mL	99.856	% Recovery	
26	CCV	S0907160148		0 0		Barium	LIQUID	5	5.0329E+00			3.00E-03	ug/mL	100.66	% Recovery	
26	CCV	S0907160148		0 0		Beryllium	LIQUID	5	5.1473E+00			1.00E-03	ug/mL	102.95	% Recovery	
26	CCV	S0907160148		0 0		Bismuth	LIQUID	5	5.0522E+00			0.1	ug/mL	101.04	% Recovery	
29	CCV	S0907160148		0 3		Calcium	LIQUID	5	5.1406E+00			0.05	ug/mL	102.81	% Recovery	

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LABCORE Completed Batch Report for Batch# 00015041

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
26	CCV	S0907160148		0	0	Cadmium	LIQUID	5	5.1539E+00			5.00E-03	ug/mL	103.08	% Recovery	
26	CCV	S0907160148		0	0	Cerium	LIQUID	5	5.2156E+00			0.03	ug/mL	104.31	% Recovery	
26	CCV	S0907160148		0	0	Cobalt	LIQUID	5	5.2822E+00			0.01	ug/mL	105.64	% Recovery	
26	CCV	S0907160148		0	0	Chromium	LIQUID	5	5.2244E+00			5.00E-03	ug/mL	104.49	% Recovery	
26	CCV	S0907160148		0	0	Copper	LIQUID	5	4.9992E+00			5.00E-03	ug/mL	99.983	% Recovery	
26	CCV	S0907160148		0	0	Europium	LIQUID	5	4.8956E+00			5.00E-03	ug/mL	97.913	% Recovery	
26	CCV	S0907160148		0	0	Iron	LIQUID	5	5.1016E+00			5.00E-03	ug/mL	102.03	% Recovery	
26	CCV	S0907160148		0	0	Potassium	LIQUID	5	4.7074E+00			0.5	ug/mL	94.147	% Recovery	
26	CCV	S0907160148		0	0	Lanthanum	LIQUID	5	5.0048E+00			3.00E-03	ug/mL	100.1	% Recovery	
26	CCV	S0907160148		0	0	Lithium	LIQUID	5	5.1201E+00			3.00E-03	ug/mL	102.4	% Recovery	
26	CCV	S0907160148		0	0	Magnesium	LIQUID	5	4.9460E+00			0.05	ug/mL	98.92	% Recovery	
26	CCV	S0907160148		0	0	Manganese	LIQUID	5	5.0912E+00			3.00E-03	ug/mL	101.82	% Recovery	
27	CCV	S0907160148		0	1	Molybdenum	LIQUID	5	4.9916E+00			0.02	ug/mL	99.833	% Recovery	
26	CCV	S0907160148		0	0	Sodium	LIQUID	5	5.0919E+00			0.1	ug/mL	101.84	% Recovery	
26	CCV	S0907160148		0	0	Neodymium	LIQUID	5	4.9933E+00			0.01	ug/mL	99.866	% Recovery	
26	CCV	S0907160148		0	0	Nickel	LIQUID	5	5.1334E+00			0.02	ug/mL	102.67	% Recovery	
27	CCV	S0907160148		0	1	Niobium	LIQUID	5	5.0301E+00			0.03	ug/mL	100.6	% Recovery	
26	CCV	S0907160148		0	0	Phosphorus	LIQUID	5	5.0183E+00			0.05	ug/mL	100.37	% Recovery	
26	CCV	S0907160148		0	0	Lead	LIQUID	5	5.3078E+00			0.05	ug/mL	106.16	% Recovery	
28	CCV	S0907160148		0	2	Palladium	LIQUID	5	4.8286E+00			0.1	ug/mL	96.573	% Recovery	
26	CCV	S0907160148		0	0	Praseodymium	LIQUID	5	5.0675E+00			0.01	ug/mL	101.35	% Recovery	
26	CCV	S0907160148		0	0	Rubidium	LIQUID	5	4.8859E+00			1	ug/mL	97.718	% Recovery	
28	CCV	S0907160148		0	2	Rhodium	LIQUID	5	4.7682E+00			0.05	ug/mL	95.363	% Recovery	
28	CCV	S0907160148		0	2	Ruthenium	LIQUID	5	4.9240E+00			0.03	ug/mL	98.48	% Recovery	
27	CCV	S0907160148		0	1	Sulfur	LIQUID	5	5.0120E+00			0.1	ug/mL	100.24	% Recovery	
27	CCV	S0907160148		0	1	Antimony	LIQUID	5	4.8202E+00			0.05	ug/mL	96.404	% Recovery	
26	CCV	S0907160148		0	0	Selenium	LIQUID	5	5.2421E+00			0.1	ug/mL	104.84	% Recovery	
27	CCV	S0907160148		0	1	Silicon	LIQUID	5	4.9199E+00			0.03	ug/mL	98.398	% Recovery	
26	CCV	S0907160148		0	0	Samarium	LIQUID	5	5.0437E+00			0.02	ug/mL	100.87	% Recovery	
27	CCV	S0907160148		0	1	Tin	LIQUID	5	5.1264E+00			0.03	ug/mL	102.53	% Recovery	
26	CCV	S0907160148		0	0	Strontium	LIQUID	5	5.0290E+00			3.00E-03	ug/mL	100.58	% Recovery	
27	CCV	S0907160148		0	1	Tantalum	LIQUID	5	5.2456E+00			0.05	ug/mL	104.91	% Recovery	
27	CCV	S0907160148		0	1	Tellurium	LIQUID	5	5.1896E+00			0.1	ug/mL	103.79	% Recovery	
26	CCV	S0907160148		0	0	Thorium	LIQUID	5	5.0443E+00			0.05	ug/mL	100.89	% Recovery	
27	CCV	S0907160148		0	1	Titanium	LIQUID	5	4.8785E+00			5.00E-03	ug/mL	97.569	% Recovery	
26	CCV	S0907160148		0	0	Thallium	LIQUID	5	5.0798E+00			0.1	ug/mL	101.6	% Recovery	
26	CCV	S0907160148		0	0	Uranium	LIQUID	5	5.0134E+00			0.1	ug/mL	100.27	% Recovery	
26	CCV	S0907160148		0	0	Vanadium	LIQUID	5	5.2218E+00			5.00E-03	ug/mL	104.44	% Recovery	
27	CCV	S0907160148		0	1	Tungsten	LIQUID	5	4.9432E+00			0.2	ug/mL	98.865	% Recovery	
26	CCV	S0907160148		0	0	Yttrium	LIQUID	5	4.9812E+00			2.00E-03	ug/mL	99.623	% Recovery	
26	CCV	S0907160148		0	0	Zinc	LIQUID	5	5.0460E+00			5.00E-03	ug/mL	100.92	% Recovery	
27	CCV	S0907160148		0	1	Zirconium	LIQUID	5	4.7748E+00			5.00E-03	ug/mL	95.497	% Recovery	

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LABCORE Completed Batch Report for Batch# 00015041

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 30															
30 CCB	S0907160149		0	0	Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
30 CCB	S0907160149		0	0	Aluminum	LIQUID		<3.0000E-02			0.03	ug/mL			
30 CCB	S0907160149		0	0	Arsenic	LIQUID		<5.0000E-02			0.05	ug/mL			
30 CCB	S0907160149		0	0	Boron	LIQUID		<3.0000E-02			0.03	ug/mL			
30 CCB	S0907160149		0	0	Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
30 CCB	S0907160149		0	0	Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL			
30 CCB	S0907160149		0	0	Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL			
30 CCB	S0907160149		0	0	Calcium	LIQUID		<5.0000E-02			0.05	ug/mL			
30 CCB	S0907160149		0	0	Cadmium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
30 CCB	S0907160149		0	0	Cerium	LIQUID		<3.0000E-02			0.03	ug/mL			
30 CCB	S0907160149		0	0	Cobalt	LIQUID		<1.0000E-02			0.01	ug/mL			
30 CCB	S0907160149		0	0	Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
30 CCB	S0907160149		0	0	Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
30 CCB	S0907160149		0	0	Europium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
30 CCB	S0907160149		0	0	Iron	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
30 CCB	S0907160149		0	0	Potassium	LIQUID		<5.0000E-01			0.5	ug/mL			
30 CCB	S0907160149		0	0	Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
30 CCB	S0907160149		0	0	Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
30 CCB	S0907160149		0	0	Magnesium	LIQUID		<5.0000E-02			0.05	ug/mL			
30 CCB	S0907160149		0	0	Manganese	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
30 CCB	S0907160149		0	0	Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL			
30 CCB	S0907160149		0	0	Sodium	LIQUID		<1.0000E-01			0.1	ug/mL			
30 CCB	S0907160149		0	0	Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
30 CCB	S0907160149		0	0	Nickel	LIQUID		<2.0000E-02			0.02	ug/mL			
30 CCB	S0907160149		0	0	Niobium	LIQUID		<3.0000E-02			0.03	ug/mL			
30 CCB	S0907160149		0	0	Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL			
30 CCB	S0907160149		0	0	Lead	LIQUID		<5.0000E-02			0.05	ug/mL			
30 CCB	S0907160149		0	0	Palladium	LIQUID		<1.0000E-01			0.1	ug/mL			
30 CCB	S0907160149		0	0	Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
30 CCB	S0907160149		0	0	Rubidium	LIQUID		<1.0000E+00			1	ug/mL			
30 CCB	S0907160149		0	0	Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL			
30 CCB	S0907160149		0	0	Ruthenium	LIQUID		<3.0000E-02			0.03	ug/mL			
30 CCB	S0907160149		0	0	Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL			
30 CCB	S0907160149		0	0	Antimony	LIQUID		<5.0000E-02			0.05	ug/mL			
30 CCB	S0907160149		0	0	Selenium	LIQUID		<1.0000E-01			0.1	ug/mL			
30 CCB	S0907160149		0	0	Silicon	LIQUID		<3.0000E-02			0.03	ug/mL			
30 CCB	S0907160149		0	0	Samarium	LIQUID		<2.0000E-02			0.02	ug/mL			
30 CCB	S0907160149		0	0	Tin	LIQUID		<3.0000E-02			0.03	ug/mL			
30 CCB	S0907160149		0	0	Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
30 CCB	S0907160149		0	0	Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL			
30 CCB	S0907160149		0	0	Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL			

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LABCORE Completed Batch Report for Batch# 00015041

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
30	CCB	S0907160149		0	0		Thorium	LIQUID		<5.0000E-02			0.05	ug/mL			
30	CCB	S0907160149		0	0		Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
30	CCB	S0907160149		0	0		Thallium	LIQUID		<1.0000E-01			0.1	ug/mL			
30	CCB	S0907160149		0	0		Uranium	LIQUID		<1.0000E-01			0.1	ug/mL			
30	CCB	S0907160149		0	0		Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
30	CCB	S0907160149		0	0		Tungsten	LIQUID		<2.0000E-01			0.2	ug/mL			
30	CCB	S0907160149		0	0		Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL			
30	CCB	S0907160149		0	0		Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
30	CCB	S0907160149		0	0		Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
Sample Sequence 31																	
31	SAMPLE	S09V000196		0	0	A	Aluminum	SOLID	N/A	4.8994E+03			6.0386	ug/g			
31	SAMPLE	S09V000196		0	0	A	Barium	SOLID	N/A	6.5797E+01			0.60386	ug/g			
31	SAMPLE	S09V000196		0	0	A	Beryllium	SOLID	N/A	<2.0129E-01			0.20129	ug/g			U
31	SAMPLE	S09V000196		0	0	A	Calcium	SOLID	N/A	5.1698E+03			10.064	ug/g			
31	SAMPLE	S09V000196		0	0	A	Cerium	SOLID	N/A	1.9809E+01			6.0386	ug/g			J
31	SAMPLE	S09V000196		0	0	A	Copper	SOLID	N/A	1.2629E+01			1.0064	ug/g			
31	SAMPLE	S09V000196		0	0	A	Europium	SOLID	N/A	1.4332E+00			1.0064	ug/g			J
31	SAMPLE	S09V000196		0	0	A	Iron	SOLID	N/A	1.7839E+04			1.0064	ug/g			
31	SAMPLE	S09V000196		0	0	A	Potassium	SOLID	N/A	9.2068E+02			100.64	ug/g			J
31	SAMPLE	S09V000196		0	0	A	Lanthanum	SOLID	N/A	8.4481E+00			0.60386	ug/g			
31	SAMPLE	S09V000196		0	0	A	Lithium	SOLID	N/A	6.1171E+00			0.60386	ug/g			
31	SAMPLE	S09V000196		0	0	A	Magnesium	SOLID	N/A	3.3696E+03			10.064	ug/g			
31	SAMPLE	S09V000196		0	0	A	Manganese	SOLID	N/A	2.7396E+02			0.60386	ug/g			
31	SAMPLE	S09V000196		0	0	A	Molybdenum	SOLID	N/A	<4.0258E+00			4.0258	ug/g			U
31	SAMPLE	S09V000196		0	0	A	Sodium	SOLID	N/A	1.1159E+03			20.129	ug/g			
31	SAMPLE	S09V000196		0	0	A	Neodymium	SOLID	N/A	1.5217E+01			2.0129	ug/g			J
31	SAMPLE	S09V000196		0	0	A	Phosphorus	SOLID	N/A	6.2518E+02			10.064	ug/g			
31	SAMPLE	S09V000196		0	0	A	Sulfur	SOLID	N/A	4.7977E+01			20.129	ug/g			J
31	SAMPLE	S09V000196		0	0	A	Silicon	SOLID	N/A	1.4070E+03			6.0386	ug/g			b
31	SAMPLE	S09V000196		0	0	A	Tin	SOLID	N/A	1.2975E+01			6.0386	ug/g			J
31	SAMPLE	S09V000196		0	0	A	Strontium	SOLID	N/A	2.5882E+01			0.60386	ug/g			
31	SAMPLE	S09V000196		0	0	A	Titanium	SOLID	N/A	1.4744E+03			1.0064	ug/g			
31	SAMPLE	S09V000196		0	0	A	Uranium	SOLID	N/A	<2.0129E+01			20.129	ug/g			U
31	SAMPLE	S09V000196		0	0	A	Yttrium	SOLID	N/A	7.5181E+00			0.40258	ug/g			
31	SAMPLE	S09V000196		0	0	A	Zinc	SOLID	N/A	3.3627E+01			1.0064	ug/g			
31	SAMPLE	S09V000196		0	0	A	Zirconium	SOLID	N/A	1.1894E+01			1.0064	ug/g			
Sample Sequence 32																	
32	SAMPLE	S09V000197		0	0	A	Aluminum	SOLID	N/A	6.3939E+03			6.0193	ug/g			
32	SAMPLE	S09V000197		0	0	A	Barium	SOLID	N/A	7.9195E+01			0.60193	ug/g			
32	SAMPLE	S09V000197		0	0	A	Beryllium	SOLID	N/A	2.1669E-01			0.20064	ug/g			J
32	SAMPLE	S09V000197		0	0	A	Calcium	SOLID	N/A	7.2151E+03			10.032	ug/g			
32	SAMPLE	S09V000197		0	0	A	Cerium	SOLID	N/A	1.5263E+01			6.0193	ug/g			J

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LABCORE Completed Batch Report for Batch# 00015041

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
32	SAMPLE	S09V000197		0	0	A	Copper	SOLID	N/A	8.9647E+00			1.0032	ug/g			J
32	SAMPLE	S09V000197		0	0	A	Europium	SOLID	N/A	1.4486E+00			1.0032	ug/g			J
32	SAMPLE	S09V000197		0	0	A	Iron	SOLID	N/A	1.4303E+04			1.0032	ug/g			
32	SAMPLE	S09V000197		0	0	A	Potassium	SOLID	N/A	1.2700E+03			100.32	ug/g			
32	SAMPLE	S09V000197		0	0	A	Lanthanum	SOLID	N/A	6.2661E+00			0.60193	ug/g			
32	SAMPLE	S09V000197		0	0	A	Lithium	SOLID	N/A	8.3086E+00			0.60193	ug/g			
32	SAMPLE	S09V000197		0	0	A	Magnesium	SOLID	N/A	4.1497E+03			10.032	ug/g			
32	SAMPLE	S09V000197		0	0	A	Manganese	SOLID	N/A	2.8465E+02			0.60193	ug/g			
32	SAMPLE	S09V000197		0	0	A	Molybdenum	SOLID	N/A	<4.0128E+00			4.0128	ug/g			U
32	SAMPLE	S09V000197		0	0	A	Sodium	SOLID	N/A	2.2459E+02			20.064	ug/g			
32	SAMPLE	S09V000197		0	0	A	Neodymium	SOLID	N/A	1.1663E+01			2.0064	ug/g			J
32	SAMPLE	S09V000197		0	0	A	Phosphorus	SOLID	N/A	4.6373E+02			10.032	ug/g			
32	SAMPLE	S09V000197		0	0	A	Sulfur	SOLID	N/A	3.9607E+01			20.064	ug/g			J
32	SAMPLE	S09V000197		0	0	A	Silicon	SOLID	N/A	2.3291E+03			6.0193	ug/g			b
32	SAMPLE	S09V000197		0	0	A	Strontium	SOLID	N/A	3.3094E+01			0.60193	ug/g			
32	SAMPLE	S09V000197		0	0	A	Titanium	SOLID	N/A	9.1759E+02			1.0032	ug/g			
32	SAMPLE	S09V000197		0	0	A	Uranium	SOLID	N/A	<2.0064E+01			20.064	ug/g			U
32	SAMPLE	S09V000197		0	0	A	Yttrium	SOLID	N/A	5.0542E+00			0.40128	ug/g			
32	SAMPLE	S09V000197		0	0	A	Zinc	SOLID	N/A	3.1820E+01			1.0032	ug/g			
32	SAMPLE	S09V000197		0	0	A	Zirconium	SOLID	N/A	7.5080E+00			1.0032	ug/g			J
Sample Sequence 33																	
33	SAMPLE	S09V000198		0	0	A	Aluminum	SOLID	N/A	3.7937E+03			6.0411	ug/g			
33	SAMPLE	S09V000198		0	0	A	Barium	SOLID	N/A	5.7181E+01			0.60411	ug/g			
33	SAMPLE	S09V000198		0	0	A	Beryllium	SOLID	N/A	<2.0137E-01			0.20137	ug/g			U
33	SAMPLE	S09V000198		0	0	A	Calcium	SOLID	N/A	6.5299E+03			10.068	ug/g			
33	SAMPLE	S09V000198		0	0	A	Cerium	SOLID	N/A	1.4227E+01			6.0411	ug/g			J
33	SAMPLE	S09V000198		0	0	A	Copper	SOLID	N/A	6.8264E+00			1.0068	ug/g			J
33	SAMPLE	S09V000198		0	0	A	Iron	SOLID	N/A	1.2358E+04			1.0068	ug/g			
33	SAMPLE	S09V000198		0	0	A	Potassium	SOLID	N/A	6.0799E+02			100.68	ug/g			J
33	SAMPLE	S09V000198		0	0	A	Lanthanum	SOLID	N/A	6.9412E+00			0.60411	ug/g			
33	SAMPLE	S09V000198		0	0	A	Lithium	SOLID	N/A	5.3484E+00			0.60411	ug/g			J
33	SAMPLE	S09V000198		0	0	A	Magnesium	SOLID	N/A	2.6461E+03			10.068	ug/g			
33	SAMPLE	S09V000198		0	0	A	Manganese	SOLID	N/A	1.9321E+02			0.60411	ug/g			
33	SAMPLE	S09V000198		0	0	A	Molybdenum	SOLID	N/A	<4.0274E+00			4.0274	ug/g			U
33	SAMPLE	S09V000198		0	0	A	Sodium	SOLID	N/A	2.4905E+02			20.137	ug/g			
33	SAMPLE	S09V000198		0	0	A	Neodymium	SOLID	N/A	1.2026E+01			2.0137	ug/g			J
33	SAMPLE	S09V000198		0	0	A	Phosphorus	SOLID	N/A	5.1000E+02			10.068	ug/g			
33	SAMPLE	S09V000198		0	0	A	Sulfur	SOLID	N/A	5.3486E+01			20.137	ug/g			J
33	SAMPLE	S09V000198		0	0	A	Silicon	SOLID	N/A	1.6059E+03			6.0411	ug/g			b
33	SAMPLE	S09V000198		0	0	A	Strontium	SOLID	N/A	1.8747E+01			0.60411	ug/g			
33	SAMPLE	S09V000198		0	0	A	Titanium	SOLID	N/A	9.1828E+02			1.0068	ug/g			
33	SAMPLE	S09V000198		0	0	A	Uranium	SOLID	N/A	<2.0137E+01			20.137	ug/g			U

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LABCORE Completed Batch Report for Batch# 00015041

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
33	SAMPLE	S09V000198		0	0	A	Yttrium	SOLID	N/A	5.5618E+00			0.40274	ug/g			
33	SAMPLE	S09V000198		0	0	A	Zinc	SOLID	N/A	2.5427E+01			1.0068	ug/g			
33	SAMPLE	S09V000198		0	0	A	Zirconium	SOLID	N/A	6.5747E+00			1.0068	ug/g			J
Sample Sequence 34																	
34	ICSA	S0907160150		0	0		Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Aluminum	LIQUID	200	1.9172E+02			0.03	ug/mL	95.859	% Recovery	
34	ICSA	S0907160150		0	0		Arsenic	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Boron	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Calcium	LIQUID	200	2.0394E+02			0.05	ug/mL	101.97	% Recovery	
34	ICSA	S0907160150		0	0		Cadmium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Cerium	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Cobalt	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Europium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Iron	LIQUID	200	1.8982E+02			5.00E-03	ug/mL	94.908	% Recovery	
34	ICSA	S0907160150		0	0		Potassium	LIQUID		<5.0000E-01			0.5	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Magnesium	LIQUID	200	1.9409E+02			0.05	ug/mL	97.044	% Recovery	
34	ICSA	S0907160150		0	0		Manganese	LIQUID		<1.5000E-02			0.015	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Sodium	LIQUID	200	1.7890E+02			0.1	ug/mL	89.448	% Recovery	
34	ICSA	S0907160150		0	0		Neodymium	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Nickel	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Niobium	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Lead	LIQUID		<2.0000E-01			0.2	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Palladium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Rubidium	LIQUID		<1.0000E+00			1	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Ruthenium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Antimony	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Selenium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Silicon	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Samarium	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
34	ICSA	S0907160150		0	0		Tin	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		

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LABCORE Completed Batch Report for Batch# 00015041

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
34	ICSA	S0907160150		0	0	Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
34	ICSA	S0907160150		0	0	Tantalum	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
34	ICSA	S0907160150		0	0	Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
34	ICSA	S0907160150		0	0	Thorium	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
34	ICSA	S0907160150		0	0	Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
34	ICSA	S0907160150		0	0	Thallium	LIQUID		<3.0000E-01			0.3	ug/mL	N/A		
34	ICSA	S0907160150		0	0	Uranium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
34	ICSA	S0907160150		0	0	Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
34	ICSA	S0907160150		0	0	Tungsten	LIQUID		<5.0000E-01			0.5	ug/mL	N/A		
34	ICSA	S0907160150		0	0	Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL	N/A		
34	ICSA	S0907160150		0	0	Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
34	ICSA	S0907160150		0	0	Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
Sample Sequence 35																
35	ICSAB	S0907160151		0	0	Silver	LIQUID	1	9.6777E-01			5.00E-03	ug/mL	96.777	% Recovery	
35	ICSAB	S0907160151		0	0	Aluminum	LIQUID	200	1.9326E+02			0.03	ug/mL	96.63	% Recovery	
35	ICSAB	S0907160151		0	0	Arsenic	LIQUID	5	5.0823E+00			0.05	ug/mL	101.65	% Recovery	
35	ICSAB	S0907160151		0	0	Boron	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
35	ICSAB	S0907160151		0	0	Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
35	ICSAB	S0907160151		0	0	Beryllium	LIQUID	.02	1.8140E-02			1.00E-03	ug/mL	90.7	% Recovery	
35	ICSAB	S0907160151		0	0	Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
35	ICSAB	S0907160151		0	0	Calcium	LIQUID	200	2.0542E+02			0.05	ug/mL	102.71	% Recovery	
35	ICSAB	S0907160151		0	0	Cadmium	LIQUID	.2	1.6272E-01			5.00E-03	ug/mL	81.36	% Recovery	
35	ICSAB	S0907160151		0	0	Cerium	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
35	ICSAB	S0907160151		0	0	Cobalt	LIQUID	5	4.9549E+00			0.01	ug/mL	99.099	% Recovery	
35	ICSAB	S0907160151		0	0	Chromium	LIQUID	5	4.9335E+00			5.00E-03	ug/mL	98.669	% Recovery	
35	ICSAB	S0907160151		0	0	Copper	LIQUID	5	4.7806E+00			5.00E-03	ug/mL	95.613	% Recovery	
35	ICSAB	S0907160151		0	0	Europium	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
35	ICSAB	S0907160151		0	0	Iron	LIQUID	200	1.9008E+02			5.00E-03	ug/mL	95.04	% Recovery	
35	ICSAB	S0907160151		0	0	Potassium	LIQUID		<5.0000E-01			0.5	ug/mL	N/A		
35	ICSAB	S0907160151		0	0	Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
35	ICSAB	S0907160151		0	0	Lithium	LIQUID	1	9.0525E-01			3.00E-03	ug/mL	90.525	% Recovery	
35	ICSAB	S0907160151		0	0	Magnesium	LIQUID	200	1.9635E+02			0.05	ug/mL	98.173	% Recovery	
35	ICSAB	S0907160151		0	0	Manganese	LIQUID	5	4.8512E+00			3.00E-03	ug/mL	97.025	% Recovery	
35	ICSAB	S0907160151		0	0	Molybdenum	LIQUID	5	4.7540E+00			0.02	ug/mL	95.079	% Recovery	
35	ICSAB	S0907160151		0	0	Sodium	LIQUID	200	1.7924E+02			0.1	ug/mL	89.621	% Recovery	
35	ICSAB	S0907160151		0	0	Neodymium	LIQUID		<2.0000E-01			0.2	ug/mL	N/A		
35	ICSAB	S0907160151		0	0	Nickel	LIQUID	5	4.7794E+00			0.02	ug/mL	95.588	% Recovery	
35	ICSAB	S0907160151		0	0	Niobium	LIQUID	5	4.3731E+00			0.03	ug/mL	87.462	% Recovery	
35	ICSAB	S0907160151		0	0	Phosphorus	LIQUID	1	9.9488E-01			0.05	ug/mL	99.488	% Recovery	
35	ICSAB	S0907160151		0	0	Lead	LIQUID	1	1.1299E+00			0.05	ug/mL	112.99	% Recovery	
35	ICSAB	S0907160151		0	0	Palladium	LIQUID	1	1.2022E+00			0.1	ug/mL	120.22	% Recovery	
35	ICSAB	S0907160151		0	0	Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00015041

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
35	ICSAB	S0907160151		0	0	Rubidium	LIQUID		<1.0000E+00			1	ug/mL	N/A		
35	ICSAB	S0907160151		0	0	Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
35	ICSAB	S0907160151		0	0	Ruthenium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
35	ICSAB	S0907160151		0	0	Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
35	ICSAB	S0907160151		0	0	Antimony	LIQUID	5	4.9003E+00			0.05	ug/mL	98.007	% Recovery	
35	ICSAB	S0907160151		0	0	Selenium	LIQUID	5	5.0558E+00			0.1	ug/mL	101.12	% Recovery	
35	ICSAB	S0907160151		0	0	Silicon	LIQUID		<4.0000E-01			0.4	ug/mL	N/A		
35	ICSAB	S0907160151		0	0	Samarium	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
35	ICSAB	S0907160151		0	0	Tin	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
35	ICSAB	S0907160151		0	0	Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
35	ICSAB	S0907160151		0	0	Tantalum	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
35	ICSAB	S0907160151		0	0	Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
35	ICSAB	S0907160151		0	0	Thorium	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
35	ICSAB	S0907160151		0	0	Titanium	LIQUID	50	4.6980E+01			5.00E-03	ug/mL	93.96	% Recovery	
35	ICSAB	S0907160151		0	0	Thallium	LIQUID		<2.0000E-01			0.2	ug/mL	N/A		
35	ICSAB	S0907160151		0	0	Uranium	LIQUID	5	4.4366E+00			0.1	ug/mL	88.732	% Recovery	
35	ICSAB	S0907160151		0	0	Vanadium	LIQUID	1	9.9687E-01			5.00E-03	ug/mL	99.687	% Recovery	
35	ICSAB	S0907160151		0	0	Tungsten	LIQUID	1	1.0068E+00			0.2	ug/mL	100.68	% Recovery	
35	ICSAB	S0907160151		0	0	Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL	N/A		
35	ICSAB	S0907160151		0	0	Zinc	LIQUID	5	4.9760E+00			5.00E-03	ug/mL	99.52	% Recovery	
35	ICSAB	S0907160151		0	0	Zirconium	LIQUID	5	4.4924E+00			5.00E-03	ug/mL	89.848	% Recovery	
Sample Sequence 36																
36	CCV	S0907160152		0	0	Silver	LIQUID	5	5.0045E+00			5.00E-03	ug/mL	100.09	% Recovery	
36	CCV	S0907160152		0	0	Aluminum	LIQUID	5	4.9976E+00			0.03	ug/mL	99.951	% Recovery	
36	CCV	S0907160152		0	0	Arsenic	LIQUID	5	5.2772E+00			0.05	ug/mL	105.54	% Recovery	
37	CCV	S0907160152		0	1	Boron	LIQUID	5	5.0436E+00			0.03	ug/mL	100.87	% Recovery	
36	CCV	S0907160152		0	0	Barium	LIQUID	5	5.0042E+00			3.00E-03	ug/mL	100.08	% Recovery	
36	CCV	S0907160152		0	0	Beryllium	LIQUID	5	5.2045E+00			1.00E-03	ug/mL	104.09	% Recovery	
36	CCV	S0907160152		0	0	Bismuth	LIQUID	5	5.0060E+00			0.1	ug/mL	100.12	% Recovery	
39	CCV	S0907160152		0	3	Calcium	LIQUID	5	5.2154E+00			0.05	ug/mL	104.31	% Recovery	
36	CCV	S0907160152		0	0	Cadmium	LIQUID	5	5.2618E+00			5.00E-03	ug/mL	105.24	% Recovery	
36	CCV	S0907160152		0	0	Cerium	LIQUID	5	5.2088E+00			0.03	ug/mL	104.18	% Recovery	
36	CCV	S0907160152		0	0	Cobalt	LIQUID	5	5.3697E+00			0.01	ug/mL	107.39	% Recovery	
36	CCV	S0907160152		0	0	Chromium	LIQUID	5	5.3384E+00			5.00E-03	ug/mL	106.77	% Recovery	
36	CCV	S0907160152		0	0	Copper	LIQUID	5	4.9540E+00			5.00E-03	ug/mL	99.079	% Recovery	
36	CCV	S0907160152		0	0	Europium	LIQUID	5	4.8667E+00			5.00E-03	ug/mL	97.334	% Recovery	
36	CCV	S0907160152		0	0	Iron	LIQUID	5	5.1540E+00			5.00E-03	ug/mL	103.08	% Recovery	
36	CCV	S0907160152		0	0	Potassium	LIQUID	5	4.7161E+00			0.5	ug/mL	94.321	% Recovery	
36	CCV	S0907160152		0	0	Lanthanum	LIQUID	5	4.9736E+00			3.00E-03	ug/mL	99.472	% Recovery	
36	CCV	S0907160152		0	0	Lithium	LIQUID	5	4.9285E+00			3.00E-03	ug/mL	98.57	% Recovery	
36	CCV	S0907160152		0	0	Magnesium	LIQUID	5	4.9182E+00			0.05	ug/mL	98.364	% Recovery	
36	CCV	S0907160152		0	0	Manganese	LIQUID	5	5.1738E+00			3.00E-03	ug/mL	103.48	% Recovery	

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LABCORE Completed Batch Report for Batch# 00015041

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
37	CCV	S0907160152		0 1		Molybdenum	LIQUID	5	5.0958E+00			0.02	ug/mL	101.92	% Recovery	
36	CCV	S0907160152		0 0		Sodium	LIQUID	5	4.9374E+00			0.1	ug/mL	98.748	% Recovery	
36	CCV	S0907160152		0 0		Neodymium	LIQUID	5	4.9464E+00			0.01	ug/mL	98.928	% Recovery	
36	CCV	S0907160152		0 0		Nickel	LIQUID	5	5.1932E+00			0.02	ug/mL	103.86	% Recovery	
37	CCV	S0907160152		0 1		Niobium	LIQUID	5	5.1217E+00			0.03	ug/mL	102.43	% Recovery	
36	CCV	S0907160152		0 0		Phosphorus	LIQUID	5	5.1705E+00			0.05	ug/mL	103.41	% Recovery	
36	CCV	S0907160152		0 0		Lead	LIQUID	5	5.4346E+00			0.05	ug/mL	108.69	% Recovery	
38	CCV	S0907160152		0 2		Palladium	LIQUID	5	4.8266E+00			0.1	ug/mL	96.531	% Recovery	
36	CCV	S0907160152		0 0		Praseodymium	LIQUID	5	4.9976E+00			0.01	ug/mL	99.953	% Recovery	
36	CCV	S0907160152		0 0		Rubidium	LIQUID	5	4.7276E+00			1	ug/mL	94.553	% Recovery	
38	CCV	S0907160152		0 2		Rhodium	LIQUID	5	4.8090E+00			0.05	ug/mL	96.179	% Recovery	
38	CCV	S0907160152		0 2		Ruthenium	LIQUID	5	4.9804E+00			0.03	ug/mL	99.608	% Recovery	
37	CCV	S0907160152		0 1		Sulfur	LIQUID	5	5.1654E+00			0.1	ug/mL	103.31	% Recovery	
37	CCV	S0907160152		0 1		Antimony	LIQUID	5	4.9059E+00			0.05	ug/mL	98.117	% Recovery	
36	CCV	S0907160152		0 0		Selenium	LIQUID	5	5.3110E+00			0.1	ug/mL	106.22	% Recovery	
37	CCV	S0907160152		0 1		Silicon	LIQUID	5	4.9578E+00			0.03	ug/mL	99.156	% Recovery	
36	CCV	S0907160152		0 0		Samarium	LIQUID	5	4.9747E+00			0.02	ug/mL	99.494	% Recovery	
37	CCV	S0907160152		0 1		Tin	LIQUID	5	5.2476E+00			0.03	ug/mL	104.95	% Recovery	
36	CCV	S0907160152		0 0		Strontium	LIQUID	5	5.0069E+00			3.00E-03	ug/mL	100.14	% Recovery	
37	CCV	S0907160152		0 1		Tantalum	LIQUID	5	5.3308E+00			0.05	ug/mL	106.62	% Recovery	
37	CCV	S0907160152		0 1		Tellurium	LIQUID	5	5.3113E+00			0.1	ug/mL	106.23	% Recovery	
36	CCV	S0907160152		0 0		Thorium	LIQUID	5	5.1183E+00			0.05	ug/mL	102.37	% Recovery	
37	CCV	S0907160152		0 1		Titanium	LIQUID	5	4.9363E+00			5.00E-03	ug/mL	98.726	% Recovery	
36	CCV	S0907160152		0 0		Thallium	LIQUID	5	5.1478E+00			0.1	ug/mL	102.96	% Recovery	
36	CCV	S0907160152		0 0		Uranium	LIQUID	5	4.9224E+00			0.1	ug/mL	98.448	% Recovery	
36	CCV	S0907160152		0 0		Vanadium	LIQUID	5	5.2836E+00			5.00E-03	ug/mL	105.67	% Recovery	
37	CCV	S0907160152		0 1		Tungsten	LIQUID	5	5.0899E+00			0.2	ug/mL	101.8	% Recovery	
36	CCV	S0907160152		0 0		Yttrium	LIQUID	5	4.9879E+00			2.00E-03	ug/mL	99.758	% Recovery	
36	CCV	S0907160152		0 0		Zinc	LIQUID	5	5.1536E+00			5.00E-03	ug/mL	103.07	% Recovery	
37	CCV	S0907160152		0 1		Zirconium	LIQUID	5	4.8284E+00			5.00E-03	ug/mL	96.568	% Recovery	
Sample Sequence 40																
40	LLS	S0907160155		0 0		Silver	LIQUID	.02	2.0930E-02			5.00E-03	ug/mL	104.65	% Recovery	
40	LLS	S0907160155		0 0		Aluminum	LIQUID	.1	1.0463E-01			0.03	ug/mL	104.63	% Recovery	
40	LLS	S0907160155		0 0		Arsenic	LIQUID	.2	2.3017E-01			0.05	ug/mL	115.08	% Recovery	
41	LLS	S0907160155		0 1		Boron	LIQUID	.1	9.3870E-02			0.03	ug/mL	93.87	% Recovery	
40	LLS	S0907160155		0 0		Barium	LIQUID	.01	1.0090E-02			3.00E-03	ug/mL	100.9	% Recovery	
40	LLS	S0907160155		0 0		Beryllium	LIQUID	.001	1.0000E-03			1.00E-03	ug/mL	100	% Recovery	
40	LLS	S0907160155		0 0		Bismuth	LIQUID	.2	1.9566E-01			0.1	ug/mL	97.83	% Recovery	
40	LLS	S0907160155		0 0		Calcium	LIQUID	.2	2.1107E-01			0.05	ug/mL	105.54	% Recovery	
40	LLS	S0907160155		0 0		Cadmium	LIQUID	.01	1.2400E-02			5.00E-03	ug/mL	124	% Recovery	
40	LLS	S0907160155		0 0		Cerium	LIQUID	.2	2.0387E-01			0.03	ug/mL	101.94	% Recovery	
41	LLS	S0907160155		0 1		Cobalt	LIQUID	.04	4.7140E-02			0.01	ug/mL	117.85	% Recovery	

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LABCORE Completed Batch Report for Batch# 00015041

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
40	LLS	S0907160155		0 0		Chromium	LIQUID	.02	1.4950E-02			5.00E-03	ug/mL	74.75	% Recovery	
41	LLS	S0907160155		0 1		Copper	LIQUID	.02	1.8460E-02			5.00E-03	ug/mL	92.3	% Recovery	
42	LLS	S0907160155		0 2		Europium	LIQUID	.1	9.3970E-02			5.00E-03	ug/mL	93.97	% Recovery	
40	LLS	S0907160155		0 0		Iron	LIQUID	.04	3.7460E-02			5.00E-03	ug/mL	93.65	% Recovery	
40	LLS	S0907160155		0 0		Potassium	LIQUID	.5	5.3587E-01			0.5	ug/mL	107.17	% Recovery	
40	LLS	S0907160155		0 0		Lanthanum	LIQUID	.01	1.1770E-02			3.00E-03	ug/mL	117.7	% Recovery	
40	LLS	S0907160155		0 0		Lithium	LIQUID	.02	2.1720E-02			3.00E-03	ug/mL	108.6	% Recovery	
40	LLS	S0907160155		0 0		Magnesium	LIQUID	.2	2.0684E-01			0.05	ug/mL	103.42	% Recovery	
40	LLS	S0907160155		0 0		Manganese	LIQUID	.02	2.0880E-02			3.00E-03	ug/mL	104.4	% Recovery	
41	LLS	S0907160155		0 1		Molybdenum	LIQUID	.1	9.7130E-02			0.02	ug/mL	97.13	% Recovery	
40	LLS	S0907160155		0 0		Sodium	LIQUID	.2	2.0157E-01			0.1	ug/mL	100.78	% Recovery	
40	LLS	S0907160155		0 0		Neodymium	LIQUID	.1	1.0605E-01			0.01	ug/mL	106.05	% Recovery	
40	LLS	S0907160155		0 0		Nickel	LIQUID	.04	4.1990E-02			0.02	ug/mL	104.98	% Recovery	
44	LLS	S0907160155		0 4		Niobium	LIQUID	.1	1.0438E-01			0.03	ug/mL	104.38	% Recovery	
41	LLS	S0907160155		0 1		Phosphorus	LIQUID	.4	4.0349E-01			0.05	ug/mL	100.87	% Recovery	
40	LLS	S0907160155		0 0		Lead	LIQUID	.2	2.0499E-01			0.05	ug/mL	102.5	% Recovery	
43	LLS	S0907160155		0 3		Palladium	LIQUID	1	1.0201E+00			0.1	ug/mL	102.01	% Recovery	
42	LLS	S0907160155		0 2		Praseodymium	LIQUID	.1	9.4510E-02			0.01	ug/mL	94.51	% Recovery	
42	LLS	S0907160155		0 2		Rubidium	LIQUID	1	9.8971E-01			0.1	ug/mL	98.971	% Recovery	
43	LLS	S0907160155		0 3		Rhodium	LIQUID	.1	1.2425E-01			0.05	ug/mL	124.25	% Recovery	
43	LLS	S0907160155		0 3		Ruthenium	LIQUID	.1	1.1487E-01			0.03	ug/mL	114.87	% Recovery	
41	LLS	S0907160155		0 1		Sulfur	LIQUID	.2	2.0704E-01			0.1	ug/mL	103.52	% Recovery	
41	LLS	S0907160155		0 1		Antimony	LIQUID	.1	8.7630E-02			0.05	ug/mL	87.63	% Recovery	
40	LLS	S0907160155		0 0		Selenium	LIQUID	.2	2.0000E-01			0.1	ug/mL	100	% Recovery	
41	LLS	S0907160155		0 1		Silicon	LIQUID	.1	1.0111E-01			0.03	ug/mL	101.11	% Recovery	
40	LLS	S0907160155		0 0		Samarium	LIQUID	.1	1.0108E-01			0.02	ug/mL	101.08	% Recovery	
44	LLS	S0907160155		0 4		Tin	LIQUID	.1	1.0716E-01			0.03	ug/mL	107.16	% Recovery	
40	LLS	S0907160155		0 0		Strontium	LIQUID	.02	1.9910E-02			3.00E-03	ug/mL	99.55	% Recovery	
44	LLS	S0907160155		0 4		Tantalum	LIQUID	1	1.0311E+00			0.05	ug/mL	103.11	% Recovery	
44	LLS	S0907160155		0 4		Tellurium	LIQUID	1	1.0495E+00			0.1	ug/mL	104.95	% Recovery	
42	LLS	S0907160155		0 2		Thorium	LIQUID	.1	1.0635E-01			0.05	ug/mL	106.35	% Recovery	
41	LLS	S0907160155		0 1		Titanium	LIQUID	.02	2.0470E-02			5.00E-03	ug/mL	102.35	% Recovery	
40	LLS	S0907160155		0 0		Thallium	LIQUID	.4	3.8877E-01			0.1	ug/mL	97.192	% Recovery	
41	LLS	S0907160155		0 1		Uranium	LIQUID	.5	4.8021E-01			0.1	ug/mL	96.042	% Recovery	
41	LLS	S0907160155		0 1		Vanadium	LIQUID	.05	5.1360E-02			5.00E-03	ug/mL	102.72	% Recovery	
44	LLS	S0907160155		0 4		Tungsten	LIQUID	1	8.8942E-01			0.2	ug/mL	88.942	% Recovery	
42	LLS	S0907160155		0 2		Yttrium	LIQUID	.1	9.7530E-02			2.00E-03	ug/mL	97.53	% Recovery	
41	LLS	S0907160155		0 1		Zinc	LIQUID	.02	1.9900E-02			5.00E-03	ug/mL	99.5	% Recovery	
41	LLS	S0907160155		0 1		Zirconium	LIQUID	.02	1.7860E-02			5.00E-03	ug/mL	89.3	% Recovery	
Sample Sequence 45																
45	CCB	S0907160153		0 0		Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
45	CCB	S0907160153		0 0		Aluminum	LIQUID		<3.0000E-02			0.03	ug/mL			

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LABCORE Completed Batch Report for Batch# 00015041

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
45	CCB	S0907160153		0	0	Arsenic	LIQUID		<5.0000E-02			0.05	ug/mL			
45	CCB	S0907160153		0	0	Boron	LIQUID		<3.0000E-02			0.03	ug/mL			
45	CCB	S0907160153		0	0	Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
45	CCB	S0907160153		0	0	Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL			
45	CCB	S0907160153		0	0	Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL			
45	CCB	S0907160153		0	0	Calcium	LIQUID		<5.0000E-02			0.05	ug/mL			
45	CCB	S0907160153		0	0	Cadmium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
45	CCB	S0907160153		0	0	Cerium	LIQUID		<3.0000E-02			0.03	ug/mL			
45	CCB	S0907160153		0	0	Cobalt	LIQUID		<1.0000E-02			0.01	ug/mL			
45	CCB	S0907160153		0	0	Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
45	CCB	S0907160153		0	0	Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
45	CCB	S0907160153		0	0	Europium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
45	CCB	S0907160153		0	0	Iron	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
45	CCB	S0907160153		0	0	Potassium	LIQUID		<5.0000E-01			0.5	ug/mL			
45	CCB	S0907160153		0	0	Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
45	CCB	S0907160153		0	0	Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
45	CCB	S0907160153		0	0	Magnesium	LIQUID		<5.0000E-02			0.05	ug/mL			
45	CCB	S0907160153		0	0	Manganese	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
45	CCB	S0907160153		0	0	Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL			
45	CCB	S0907160153		0	0	Sodium	LIQUID		<1.0000E-01			0.1	ug/mL			
45	CCB	S0907160153		0	0	Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
45	CCB	S0907160153		0	0	Nickel	LIQUID		<2.0000E-02			0.02	ug/mL			
45	CCB	S0907160153		0	0	Niobium	LIQUID		<3.0000E-02			0.03	ug/mL			
45	CCB	S0907160153		0	0	Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL			
45	CCB	S0907160153		0	0	Lead	LIQUID		<5.0000E-02			0.05	ug/mL			
45	CCB	S0907160153		0	0	Palladium	LIQUID		<1.0000E-01			0.1	ug/mL			
45	CCB	S0907160153		0	0	Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
45	CCB	S0907160153		0	0	Rubidium	LIQUID		<1.0000E+00			1	ug/mL			
45	CCB	S0907160153		0	0	Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL			
45	CCB	S0907160153		0	0	Ruthenium	LIQUID		<3.0000E-02			0.03	ug/mL			
45	CCB	S0907160153		0	0	Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL			
45	CCB	S0907160153		0	0	Antimony	LIQUID		<5.0000E-02			0.05	ug/mL			
45	CCB	S0907160153		0	0	Selenium	LIQUID		<1.0000E-01			0.1	ug/mL			
45	CCB	S0907160153		0	0	Silicon	LIQUID		<3.0000E-02			0.03	ug/mL			
45	CCB	S0907160153		0	0	Samarium	LIQUID		<2.0000E-02			0.02	ug/mL			
45	CCB	S0907160153		0	0	Tin	LIQUID		<3.0000E-02			0.03	ug/mL			
45	CCB	S0907160153		0	0	Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
45	CCB	S0907160153		0	0	Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL			
45	CCB	S0907160153		0	0	Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL			
45	CCB	S0907160153		0	0	Thorium	LIQUID		<5.0000E-02			0.05	ug/mL			
45	CCB	S0907160153		0	0	Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
45	CCB	S0907160153		0	0	Thallium	LIQUID		<1.0000E-01			0.1	ug/mL			

Units shown for QC (BLK/BKG) may not reflect the actual units.

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00015041

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
45	CCB	S0907160153		0 0		Uranium	LIQUID		<1.0000E-01			0.1	ug/mL			
45	CCB	S0907160153		0 0		Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
45	CCB	S0907160153		0 0		Tungsten	LIQUID		<2.0000E-01			0.2	ug/mL			
45	CCB	S0907160153		0 0		Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL			
45	CCB	S0907160153		0 0		Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
45	CCB	S0907160153		0 0		Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00015041

Reviewer Signature — Date: 1/6/2010

LABCORE Completed Batch Report for Batch# 00015041

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0907160141	ICV				
2	S0907160141	ICV				
3	S0907160141	ICV				
4	S0907160141	ICV				
5	S0907160143	LLS				
6	S0907160143	LLS				
7	S0907160143	LLS				
8	S0907160143	LLS				
9	S0907160143	LLS				
10	S0907160142	ICB				
11	S0907160144	ICSA				
12	S0907160145	ICSAB				
13	S0907130014	BLNK-PREP				
14	S0907130015	STD-PREP				
15	S0907130015	STD-PREP				
16	S09V000195	SAMPLE		20090160	B1YT71	C Farm WMA C
17	S0907130017	SPK-PREDIG	S09V000195			
18	S0907130018	SPK-PREDIG	S09V000195			
19	S0907160146	SERDIL	S09V000195			
20	S0907130016	DUP	S09V000195			
21	S0907160147	SPK-POST	S09V000195			
22	S0907160147	SPK-POST	S09V000195			
23	S0907160147	SPK-POST	S09V000195			
24	S0907160147	SPK-POST	S09V000195			
25	S0907160147	SPK-POST	S09V000195			
26	S0907160148	CCV				
27	S0907160148	CCV				
28	S0907160148	CCV				
29	S0907160148	CCV				
30	S0907160149	CCB				
31	S09V000196	SAMPLE		20090160	B1YT74	C Farm WMA C
32	S09V000197	SAMPLE		20090160	B1YT77	C Farm WMA C
33	S09V000198	SAMPLE		20090160	B1YT80	C Farm WMA C
34	S0907160150	ICSA				
35	S0907160151	ICSAB				

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LABCORE Completed Batch Report for Batch# 00015041

36	S0907160152	CCV
37	S0907160152	CCV
38	S0907160152	CCV
39	S0907160152	CCV
40	S0907160155	LLS
41	S0907160155	LLS
42	S0907160155	LLS
43	S0907160155	LLS
44	S0907160155	LLS
45	S0907160153	CCB

222-S Advanced Technologies and Laboratories Batch # 15041

ICP-AES DATA REVIEW CHECKLIST

Worklist/Project Information: C Farm WMAC Check Procedure Used: ☒ LA-505-161 (TJA) ☐ LA-505-170 (JY) ☐ LA-505-171 (TJA-IH)

Run Date: 7/14/09 Instrument ID: ICAP 61E Prep Batches Analyzed (Worklist #): 14929 Prep Method: LA-505-163

Review Items	Yes	No	N/A	Comments/Samples Affected
A. Calibration/Instrument Run QC				
1. Instrument calibrated per procedure and at specified levels?	X			LLS: K = 68.7%
2. ICV/CCV analyzed at appropriate frequency and within control limits (Recovery: 90-110%)?	X			ICSAB: Cd = 77.5%
3. ICB/CCB analyzed at required frequency and < EQL (or RL) or <5% of the lowest sample result with client consent. N/A if all samples are ND.	X			Note: Ending LLS % Rec. of Cr is within 100 ± 30% as required by LA-505-161 but QAPP has 100 ± 25% as required limits. 7/27/09
4. LLS run and within control limits (Recovery: 70-130%)? For IH, recovery is mandatory to verify RL.	X			
5. ICSA or ICSA/ICSAB run at required frequency and within control limits (Recovery: 80-120%)?	X			
B. Sample Results				
1. Were samples with concentrations > linear range for any analyte diluted and reanalyzed?				
2. Are all reported results bracketed by in-control QC?				
3. Are there 10 or fewer samples run between bracketed, in-control QC?				
C. Preparation/Matrix QC				
1. LCS/Prep Std prepared per prep batch and within control limits? Recovery: ☒ 80-120% or ☐ Statistical	X			LCS: Rb = 78%
2. LCS Dup (Prep Std Dup) prepared per prep batch, if required, and within control limits? Recovery: ☐ 80-120% or ☐ Statistical RPD: ☐ ≤20% or ☐ Statistical			X	Matrix Spike: % Rec. of Ag, Si and Ta are out of control limits. % Rec. of Al, Ca + Fe are out of control limits but sample conc. are > 4 x spiking amount.
3. IH RLS run (when required) and within mandatory control limits (Recovery: 75-125%)?			X	
4. Method/Media Blank prepared per prep batch and < EQL (or RL) or <5% of the lowest sample result?	X			
5. Duplicate or MS Duplicate run at required frequency and within control limits? %RPD: ☒ ≤20% or ☐ Client-specified	X			
6. MS run at required frequency and within control limit? Recovery: ☒ 75-125% or ☐ Client-specified	X			Serdil: % Diff. of Na is >10% but sample conc. is < 50 x MDL.
7. PDS analyzed if required and within control limit (Recovery: 75-125%)?	X			
8. 5x serial dilution analyzed per prep batch and within control limit (% Diff <10%) and the sample result is 50x MDL?	X			
D. Other				
1. Are all problems and nonconformance issues documented appropriately?			X	
2. Are current IDL / MDL / EQL / RL / IEC data on file?	X			
3. Calculations/transcriptions checked for errors?	X			
4. Are all raw data complete and verified in OmniLIMS?	X			
5. Is calibration data included?	X			
6. All client/project specific requirements met (e.g., MDL, holding times, etc.)?	X			PM Review: DP Peterson 10/29/09
7. Date/time of analysis verified as correct?	X			
8. Prep/Breakdown Batch Benchsheet/Worklist properly completed and included, as required?			X	
9. IH Only: Media Blank subtracted from Sample results?			X	

1st Data Reviewer: Saul M. Pang Date: 7/23/09 2nd Data Reviewer: Roxie R. Ross Date: 7/27/09

A-6004-348 (REV 1)

LABCORE Completed Batch Report for Batch# 00016229

Analyst: Monteith, Kenneth

Book#:

Instrument: ICP-TJA

Method: ICP-TOTAL METALS, LA-505-161 Rev/Mod I-0

Specification: C Farm WMA C

Prep Batch: 00015032

Batch Comment:

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1																
4	ICV	S0909220051		0	3	Silver	LIQUID	5	4.7022E+00			5.00E-03	ug/mL	94.045	% Recovery	
1	ICV	S0909220051		0	0	Aluminum	LIQUID	5	4.8940E+00			0.03	ug/mL	97.879	% Recovery	
1	ICV	S0909220051		0	0	Arsenic	LIQUID	5	5.0512E+00			0.05	ug/mL	101.02	% Recovery	
1	ICV	S0909220051		0	0	Boron	LIQUID	5	4.9368E+00			0.03	ug/mL	98.735	% Recovery	
1	ICV	S0909220051		0	0	Barium	LIQUID	5	5.0742E+00			3.00E-03	ug/mL	101.48	% Recovery	
1	ICV	S0909220051		0	0	Beryllium	LIQUID	5	5.0141E+00			1.00E-03	ug/mL	100.28	% Recovery	
1	ICV	S0909220051		0	0	Bismuth	LIQUID	5	5.1978E+00			0.1	ug/mL	103.96	% Recovery	
1	ICV	S0909220051		0	0	Calcium	LIQUID	5	4.9910E+00			0.05	ug/mL	99.819	% Recovery	
1	ICV	S0909220051		0	0	Cadmium	LIQUID	5	5.1259E+00			5.00E-03	ug/mL	102.52	% Recovery	
4	ICV	S0909220051		0	3	Cerium	LIQUID	5	5.1588E+00			0.03	ug/mL	103.18	% Recovery	
1	ICV	S0909220051		0	0	Cobalt	LIQUID	5	5.1225E+00			0.01	ug/mL	102.45	% Recovery	
1	ICV	S0909220051		0	0	Chromium	LIQUID	5	5.1146E+00			5.00E-03	ug/mL	102.29	% Recovery	
1	ICV	S0909220051		0	0	Copper	LIQUID	5	4.9550E+00			5.00E-03	ug/mL	99.099	% Recovery	
2	ICV	S0909220051		0	1	Europium	LIQUID	5	4.8933E+00			5.00E-03	ug/mL	97.865	% Recovery	
1	ICV	S0909220051		0	0	Iron	LIQUID	5	4.8388E+00			5.00E-03	ug/mL	96.777	% Recovery	
1	ICV	S0909220051		0	0	Potassium	LIQUID	5	5.0893E+00			0.5	ug/mL	101.79	% Recovery	
1	ICV	S0909220051		0	0	Lanthanum	LIQUID	5	4.9661E+00			3.00E-03	ug/mL	99.322	% Recovery	
1	ICV	S0909220051		0	0	Lithium	LIQUID	5	5.0514E+00			3.00E-03	ug/mL	101.03	% Recovery	
1	ICV	S0909220051		0	0	Magnesium	LIQUID	5	5.0014E+00			0.05	ug/mL	100.03	% Recovery	
1	ICV	S0909220051		0	0	Manganese	LIQUID	5	5.0838E+00			3.00E-03	ug/mL	101.68	% Recovery	
1	ICV	S0909220051		0	0	Molybdenum	LIQUID	5	5.0494E+00			0.02	ug/mL	100.99	% Recovery	
1	ICV	S0909220051		0	0	Sodium	LIQUID	5	4.9993E+00			0.1	ug/mL	99.986	% Recovery	
2	ICV	S0909220051		0	1	Neodymium	LIQUID	5	4.9761E+00			0.01	ug/mL	99.521	% Recovery	
1	ICV	S0909220051		0	0	Nickel	LIQUID	5	5.1166E+00			0.02	ug/mL	102.33	% Recovery	
3	ICV	S0909220051		0	2	Niobium	LIQUID	5	5.0717E+00			0.03	ug/mL	101.43	% Recovery	
1	ICV	S0909220051		0	0	Phosphorus	LIQUID	5	5.0160E+00			0.05	ug/mL	100.32	% Recovery	
1	ICV	S0909220051		0	0	Lead	LIQUID	5	5.2840E+00			0.05	ug/mL	105.68	% Recovery	
2	ICV	S0909220051		0	1	Palladium	LIQUID	5	4.8637E+00			0.1	ug/mL	97.274	% Recovery	
2	ICV	S0909220051		0	1	Praseodymium	LIQUID	5	4.9384E+00			0.01	ug/mL	98.768	% Recovery	
2	ICV	S0909220051		0	1	Rubidium	LIQUID	5	4.8975E+00			1	ug/mL	97.95	% Recovery	
2	ICV	S0909220051		0	1	Rhodium	LIQUID	5	4.9660E+00			0.05	ug/mL	99.319	% Recovery	

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
2	ICV	S0909220051		0 1		Ruthenium	LIQUID	5	4.8830E+00			0.03	ug/mL	97.66	% Recovery	
1	ICV	S0909220051		0 0		Sulfur	LIQUID	5	5.0533E+00			0.1	ug/mL	101.07	% Recovery	
1	ICV	S0909220051		0 0		Antimony	LIQUID	5	4.8701E+00			0.05	ug/mL	97.402	% Recovery	
1	ICV	S0909220051		0 0		Selenium	LIQUID	5	5.2534E+00			0.1	ug/mL	105.07	% Recovery	
1	ICV	S0909220051		0 0		Silicon	LIQUID	5	4.7048E+00			0.03	ug/mL	94.095	% Recovery	
2	ICV	S0909220051		0 1		Samarium	LIQUID	5	5.0120E+00			0.02	ug/mL	100.24	% Recovery	
3	ICV	S0909220051		0 2		Tin	LIQUID	5	5.0428E+00			0.03	ug/mL	100.86	% Recovery	
1	ICV	S0909220051		0 0		Strontium	LIQUID	5	4.9805E+00			3.00E-03	ug/mL	99.609	% Recovery	
3	ICV	S0909220051		0 2		Tantalum	LIQUID	5	5.1646E+00			0.05	ug/mL	103.29	% Recovery	
3	ICV	S0909220051		0 2		Tellurium	LIQUID	5	5.0169E+00			0.1	ug/mL	100.34	% Recovery	
2	ICV	S0909220051		0 1		Thorium	LIQUID	5	5.1025E+00			0.05	ug/mL	102.05	% Recovery	
1	ICV	S0909220051		0 0		Titanium	LIQUID	5	4.9580E+00			5.00E-03	ug/mL	99.161	% Recovery	
4	ICV	S0909220051		0 3		Thallium	LIQUID	5	5.0702E+00			0.1	ug/mL	101.4	% Recovery	
2	ICV	S0909220051		0 1		Uranium	LIQUID	5	5.0057E+00			0.1	ug/mL	100.11	% Recovery	
1	ICV	S0909220051		0 0		Vanadium	LIQUID	5	5.1625E+00			5.00E-03	ug/mL	103.25	% Recovery	
3	ICV	S0909220051		0 2		Tungsten	LIQUID	5	5.0569E+00			0.2	ug/mL	101.14	% Recovery	
2	ICV	S0909220051		0 1		Yttrium	LIQUID	5	4.9913E+00			2.00E-03	ug/mL	99.825	% Recovery	
1	ICV	S0909220051		0 0		Zinc	LIQUID	5	5.0600E+00			5.00E-03	ug/mL	101.2	% Recovery	
1	ICV	S0909220051		0 0		Zirconium	LIQUID	5	4.5684E+00			5.00E-03	ug/mL	91.369	% Recovery	
Sample Sequence 5																
5	LLS	S0909220053		0 0		Silver	LIQUID	.02	1.8230E-02			5.00E-03	ug/mL	91.15	% Recovery	
5	LLS	S0909220053		0 0		Aluminum	LIQUID	.1	7.2840E-02			0.03	ug/mL	72.84	% Recovery	
5	LLS	S0909220053		0 0		Arsenic	LIQUID	.2	1.9641E-01			0.05	ug/mL	98.205	% Recovery	
6	LLS	S0909220053		0 1		Boron	LIQUID	.1	1.0128E-01			0.03	ug/mL	101.28	% Recovery	
5	LLS	S0909220053		0 0		Barium	LIQUID	.01	8.7800E-03			3.00E-03	ug/mL	87.8	% Recovery	
5	LLS	S0909220053		0 0		Beryllium	LIQUID	.001	1.1500E-03			1.00E-03	ug/mL	115	% Recovery	
5	LLS	S0909220053		0 0		Bismuth	LIQUID	.2	1.7247E-01			0.1	ug/mL	86.235	% Recovery	
5	LLS	S0909220053		0 0		Calcium	LIQUID	.2	1.8937E-01			0.05	ug/mL	94.685	% Recovery	
5	LLS	S0909220053		0 0		Cadmium	LIQUID	.01	7.1900E-03			5.00E-03	ug/mL	71.9	% Recovery	
5	LLS	S0909220053		0 0		Cerium	LIQUID	.2	2.1226E-01			0.03	ug/mL	106.13	% Recovery	
6	LLS	S0909220053		0 1		Cobalt	LIQUID	.04	3.4320E-02			0.01	ug/mL	85.8	% Recovery	
5	LLS	S0909220053		0 0		Chromium	LIQUID	.02	1.8940E-02			5.00E-03	ug/mL	94.7	% Recovery	
6	LLS	S0909220053		0 1		Copper	LIQUID	.02	1.7560E-02			5.00E-03	ug/mL	87.8	% Recovery	
7	LLS	S0909220053		0 2		Europium	LIQUID	.1	1.0031E-01			5.00E-03	ug/mL	100.31	% Recovery	
5	LLS	S0909220053		0 0		Iron	LIQUID	.04	3.7830E-02			5.00E-03	ug/mL	94.575	% Recovery	
5	LLS	S0909220053		0 0		Potassium	LIQUID	.5	5.3382E-01			0.5	ug/mL	106.76	% Recovery	
5	LLS	S0909220053		0 0		Lanthanum	LIQUID	.01	8.3900E-03			3.00E-03	ug/mL	83.9	% Recovery	
5	LLS	S0909220053		0 0		Lithium	LIQUID	.02	1.9280E-02			3.00E-03	ug/mL	96.4	% Recovery	
5	LLS	S0909220053		0 0		Magnesium	LIQUID	.2	1.6584E-01			0.05	ug/mL	82.92	% Recovery	
5	LLS	S0909220053		0 0		Manganese	LIQUID	.02	1.9760E-02			3.00E-03	ug/mL	98.8	% Recovery	
6	LLS	S0909220053		0 1		Molybdenum	LIQUID	.1	1.0302E-01			0.02	ug/mL	103.02	% Recovery	
5	LLS	S0909220053		0 0		Sodium	LIQUID	.2	1.7700E-01			0.1	ug/mL	88.5	% Recovery	

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LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
5	LLS	S0909220053		0	0	Neodymium	LIQUID	.1	9.6900E-02			0.01	ug/mL	96.9	% Recovery	
5	LLS	S0909220053		0	0	Nickel	LIQUID	.04	3.8520E-02			0.02	ug/mL	96.3	% Recovery	
9	LLS	S0909220053		0	4	Niobium	LIQUID	.1	9.9960E-02			0.03	ug/mL	99.96	% Recovery	
6	LLS	S0909220053		0	1	Phosphorus	LIQUID	.4	3.9646E-01			0.05	ug/mL	99.115	% Recovery	
5	LLS	S0909220053		0	0	Lead	LIQUID	.2	2.1510E-01			0.05	ug/mL	107.55	% Recovery	
8	LLS	S0909220053		0	3	Palladium	LIQUID	1	1.0213E+00			0.1	ug/mL	102.13	% Recovery	
7	LLS	S0909220053		0	2	Praseodymium	LIQUID	.1	9.7640E-02			0.01	ug/mL	97.64	% Recovery	
7	LLS	S0909220053		0	2	Rubidium	LIQUID	1	1.1239E+00			1	ug/mL	112.39	% Recovery	
8	LLS	S0909220053		0	3	Rhodium	LIQUID	.1	1.0170E-01			0.05	ug/mL	101.7	% Recovery	
8	LLS	S0909220053		0	3	Ruthenium	LIQUID	.1	9.7600E-02			0.03	ug/mL	97.6	% Recovery	
6	LLS	S0909220053		0	1	Sulfur	LIQUID	.2	2.2869E-01			0.1	ug/mL	114.34	% Recovery	
6	LLS	S0909220053		0	1	Antimony	LIQUID	.1	1.1519E-01			0.05	ug/mL	115.19	% Recovery	
5	LLS	S0909220053		0	0	Selenium	LIQUID	.2	2.2586E-01			0.1	ug/mL	112.93	% Recovery	
6	LLS	S0909220053		0	1	Silicon	LIQUID	.1	9.3750E-02			0.03	ug/mL	93.75	% Recovery	
5	LLS	S0909220053		0	0	Samarium	LIQUID	.1	1.0262E-01			0.02	ug/mL	102.62	% Recovery	
9	LLS	S0909220053		0	4	Tin	LIQUID	.1	1.0213E-01			0.03	ug/mL	102.13	% Recovery	
5	LLS	S0909220053		0	0	Strontium	LIQUID	.02	1.8850E-02			3.00E-03	ug/mL	94.25	% Recovery	
9	LLS	S0909220053		0	4	Tantalum	LIQUID	1	1.0536E+00			0.05	ug/mL	105.36	% Recovery	
9	LLS	S0909220053		0	4	Tellurium	LIQUID	1	9.8307E-01			0.1	ug/mL	98.307	% Recovery	
7	LLS	S0909220053		0	2	Thorium	LIQUID	.1	9.2710E-02			0.05	ug/mL	92.71	% Recovery	
6	LLS	S0909220053		0	1	Titanium	LIQUID	.02	1.6590E-02			5.00E-03	ug/mL	82.95	% Recovery	
5	LLS	S0909220053		0	0	Thallium	LIQUID	.4	3.6330E-01			0.1	ug/mL	90.825	% Recovery	
6	LLS	S0909220053		0	1	Uranium	LIQUID	.5	4.9003E-01			0.1	ug/mL	98.006	% Recovery	
6	LLS	S0909220053		0	1	Vanadium	LIQUID	.05	4.9230E-02			5.00E-03	ug/mL	98.46	% Recovery	
9	LLS	S0909220053		0	4	Tungsten	LIQUID	1	1.0869E+00			0.2	ug/mL	108.69	% Recovery	
7	LLS	S0909220053		0	2	Yttrium	LIQUID	.1	9.9410E-02			2.00E-03	ug/mL	99.41	% Recovery	
6	LLS	S0909220053		0	1	Zinc	LIQUID	.02	1.8280E-02			5.00E-03	ug/mL	91.4	% Recovery	
6	LLS	S0909220053		0	1	Zirconium	LIQUID	.02	1.9770E-02			5.00E-03	ug/mL	98.85	% Recovery	
Sample Sequence 10																
10	ICB	S0909220052		0	0	Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
10	ICB	S0909220052		0	0	Aluminum	LIQUID		<3.0000E-02			0.03	ug/mL			
10	ICB	S0909220052		0	0	Arsenic	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S0909220052		0	0	Boron	LIQUID		<3.0000E-02			0.03	ug/mL			
10	ICB	S0909220052		0	0	Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
10	ICB	S0909220052		0	0	Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL			
10	ICB	S0909220052		0	0	Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL			
10	ICB	S0909220052		0	0	Calcium	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S0909220052		0	0	Cadmium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
10	ICB	S0909220052		0	0	Cerium	LIQUID		<3.0000E-02			0.03	ug/mL			
10	ICB	S0909220052		0	0	Cobalt	LIQUID		<1.0000E-02			0.01	ug/mL			
10	ICB	S0909220052		0	0	Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
10	ICB	S0909220052		0	0	Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL			

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LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
10	ICB	S0909220052		0	0	Europium	LIQUID		6.4300E-03			5.00E-03	ug/mL			
10	ICB	S0909220052		0	0	Iron	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
10	ICB	S0909220052		0	0	Potassium	LIQUID		<5.0000E-01			0.5	ug/mL			
10	ICB	S0909220052		0	0	Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
10	ICB	S0909220052		0	0	Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
10	ICB	S0909220052		0	0	Magnesium	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S0909220052		0	0	Manganese	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
10	ICB	S0909220052		0	0	Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL			
10	ICB	S0909220052		0	0	Sodium	LIQUID		<1.0000E-01			0.1	ug/mL			
10	ICB	S0909220052		0	0	Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
10	ICB	S0909220052		0	0	Nickel	LIQUID		<2.0000E-02			0.02	ug/mL			
10	ICB	S0909220052		0	0	Niobium	LIQUID		<3.0000E-02			0.03	ug/mL			
10	ICB	S0909220052		0	0	Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S0909220052		0	0	Lead	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S0909220052		0	0	Palladium	LIQUID		<1.0000E-01			0.1	ug/mL			
10	ICB	S0909220052		0	0	Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
10	ICB	S0909220052		0	0	Rubidium	LIQUID		<1.0000E+00			1	ug/mL			
10	ICB	S0909220052		0	0	Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S0909220052		0	0	Ruthenium	LIQUID		<3.0000E-02			0.03	ug/mL			
10	ICB	S0909220052		0	0	Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL			
10	ICB	S0909220052		0	0	Antimony	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S0909220052		0	0	Selenium	LIQUID		<1.0000E-01			0.1	ug/mL			
10	ICB	S0909220052		0	0	Silicon	LIQUID		<3.0000E-02			0.03	ug/mL			
10	ICB	S0909220052		0	0	Samarium	LIQUID		<2.0000E-02			0.02	ug/mL			
10	ICB	S0909220052		0	0	Tin	LIQUID		<3.0000E-02			0.03	ug/mL			
10	ICB	S0909220052		0	0	Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
10	ICB	S0909220052		0	0	Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S0909220052		0	0	Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL			
10	ICB	S0909220052		0	0	Thorium	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S0909220052		0	0	Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
10	ICB	S0909220052		0	0	Thallium	LIQUID		<1.0000E-01			0.1	ug/mL			
10	ICB	S0909220052		0	0	Uranium	LIQUID		<1.0000E-01			0.1	ug/mL			
10	ICB	S0909220052		0	0	Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
10	ICB	S0909220052		0	0	Tungsten	LIQUID		<2.0000E-01			0.2	ug/mL			
10	ICB	S0909220052		0	0	Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL			
10	ICB	S0909220052		0	0	Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
10	ICB	S0909220052		0	0	Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
Sample Sequence 11																
11	ICSA	S0909220054		0	0	Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Aluminum	LIQUID	200	1.9494E+02			0.03	ug/mL	97.47	% Recovery	
11	ICSA	S0909220054		0	0	Arsenic	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Boron	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		

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LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
11	ICSA	S0909220054		0	0	Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Calcium	LIQUID	200	2.0334E+02			0.05	ug/mL	101.67	% Recovery	
11	ICSA	S0909220054		0	0	Cadmium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Cerium	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Cobalt	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Europium	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Iron	LIQUID	200	1.8726E+02			5.00E-03	ug/mL	93.629	% Recovery	
11	ICSA	S0909220054		0	0	Potassium	LIQUID		<5.0000E-01			0.5	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Magnesium	LIQUID	200	1.8786E+02			0.05	ug/mL	93.932	% Recovery	
11	ICSA	S0909220054		0	0	Manganese	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Sodium	LIQUID	200	1.7180E+02			0.1	ug/mL	85.902	% Recovery	
11	ICSA	S0909220054		0	0	Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Nickel	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Niobium	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Lead	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Palladium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Rubidium	LIQUID		<1.0000E+00			1	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Ruthenium	LIQUID		<2.0000E-01			0.2	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Antimony	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Selenium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Silicon	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Samarium	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Tin	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Thorium	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Thallium	LIQUID		<4.0000E-01			0.4	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Uranium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		

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LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
11	ICSA	S0909220054		0	0	Tungsten	LIQUID		<2.0000E-01			0.2	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
11	ICSA	S0909220054		0	0	Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
Sample Sequence 12																
12	ICSAB	S0909220055		0	0	Silver	LIQUID	1	9.8352E-01			5.00E-03	ug/mL	98.352	% Recovery	
12	ICSAB	S0909220055		0	0	Aluminum	LIQUID	200	1.9115E+02			0.03	ug/mL	95.577	% Recovery	
12	ICSAB	S0909220055		0	0	Arsenic	LIQUID	5	4.9362E+00			0.05	ug/mL	98.724	% Recovery	
12	ICSAB	S0909220055		0	0	Boron	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
12	ICSAB	S0909220055		0	0	Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
12	ICSAB	S0909220055		0	0	Beryllium	LIQUID	.02	1.6430E-02			1.00E-03	ug/mL	82.15	% Recovery	
12	ICSAB	S0909220055		0	0	Bismuth	LIQUID		<3.0000E-01			0.3	ug/mL	N/A		
12	ICSAB	S0909220055		0	0	Calcium	LIQUID	200	2.0371E+02			0.05	ug/mL	101.86	% Recovery	
12	ICSAB	S0909220055		0	0	Cadmium	LIQUID	.2	1.7042E-01			5.00E-03	ug/mL	85.21	% Recovery	
12	ICSAB	S0909220055		0	0	Cerium	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
12	ICSAB	S0909220055		0	0	Cobalt	LIQUID	5	4.7873E+00			0.01	ug/mL	95.746	% Recovery	
12	ICSAB	S0909220055		0	0	Chromium	LIQUID	5	4.8616E+00			5.00E-03	ug/mL	97.232	% Recovery	
12	ICSAB	S0909220055		0	0	Copper	LIQUID	5	4.8397E+00			5.00E-03	ug/mL	96.794	% Recovery	
12	ICSAB	S0909220055		0	0	Europium	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
12	ICSAB	S0909220055		0	0	Iron	LIQUID	200	1.8508E+02			5.00E-03	ug/mL	92.539	% Recovery	
12	ICSAB	S0909220055		0	0	Potassium	LIQUID		<5.0000E-01			0.5	ug/mL	N/A		
12	ICSAB	S0909220055		0	0	Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
12	ICSAB	S0909220055		0	0	Lithium	LIQUID	1	8.8197E-01			3.00E-03	ug/mL	88.197	% Recovery	
12	ICSAB	S0909220055		0	0	Magnesium	LIQUID	200	1.8551E+02			0.05	ug/mL	92.755	% Recovery	
12	ICSAB	S0909220055		0	0	Manganese	LIQUID	5	4.8064E+00			3.00E-03	ug/mL	96.127	% Recovery	
12	ICSAB	S0909220055		0	0	Molybdenum	LIQUID	5	4.7356E+00			0.02	ug/mL	94.713	% Recovery	
12	ICSAB	S0909220055		0	0	Sodium	LIQUID	200	1.6558E+02			0.1	ug/mL	82.789	% Recovery	
12	ICSAB	S0909220055		0	0	Neodymium	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
12	ICSAB	S0909220055		0	0	Nickel	LIQUID	5	4.8039E+00			0.02	ug/mL	96.078	% Recovery	
12	ICSAB	S0909220055		0	0	Niobium	LIQUID	5	4.4344E+00			0.03	ug/mL	88.688	% Recovery	
12	ICSAB	S0909220055		0	0	Phosphorus	LIQUID	1	1.0040E+00			0.05	ug/mL	100.4	% Recovery	
12	ICSAB	S0909220055		0	0	Lead	LIQUID	1	9.0489E-01			0.05	ug/mL	90.489	% Recovery	
12	ICSAB	S0909220055		0	0	Palladium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
12	ICSAB	S0909220055		0	0	Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
12	ICSAB	S0909220055		0	0	Rubidium	LIQUID		<1.0000E+00			1	ug/mL	N/A		
12	ICSAB	S0909220055		0	0	Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
12	ICSAB	S0909220055		0	0	Ruthenium	LIQUID		<2.0000E-01			0.2	ug/mL	N/A		
12	ICSAB	S0909220055		0	0	Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
12	ICSAB	S0909220055		0	0	Antimony	LIQUID	5	4.9473E+00			0.05	ug/mL	98.946	% Recovery	
12	ICSAB	S0909220055		0	0	Selenium	LIQUID	5	4.9866E+00			0.1	ug/mL	99.733	% Recovery	
12	ICSAB	S0909220055		0	0	Silicon	LIQUID		<3.0000E-01			0.3	ug/mL	N/A		
12	ICSAB	S0909220055		0	0	Samarium	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
12	ICSAB	S0909220055		0	0		Tin	LIQUID		<6.0000E-02			0.06	ug/mL	N/A		
12	ICSAB	S0909220055		0	0		Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
12	ICSAB	S0909220055		0	0		Tantalum	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
12	ICSAB	S0909220055		0	0		Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
12	ICSAB	S0909220055		0	0		Thorium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
12	ICSAB	S0909220055		0	0		Titanium	LIQUID	50	4.7439E+01			5.00E-03	ug/mL	94.879	% Recovery	
12	ICSAB	S0909220055		0	0		Thallium	LIQUID		<4.0000E-01			0.4	ug/mL	N/A		
12	ICSAB	S0909220055		0	0		Uranium	LIQUID	5	4.5105E+00			0.1	ug/mL	90.21	% Recovery	
12	ICSAB	S0909220055		0	0		Vanadium	LIQUID	1	9.6784E-01			5.00E-03	ug/mL	96.784	% Recovery	
12	ICSAB	S0909220055		0	0		Tungsten	LIQUID		<3.0000E-01			0.3	ug/mL	N/A		
12	ICSAB	S0909220055		0	0		Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL	N/A		
12	ICSAB	S0909220055		0	0		Zinc	LIQUID	5	4.9684E+00			5.00E-03	ug/mL	99.368	% Recovery	
12	ICSAB	S0909220055		0	0		Zirconium	LIQUID	5	4.0824E+00			5.00E-03	ug/mL	81.649	% Recovery	
Sample Sequence 13																	
13	SAMPLE	S09V000464		0	0	A	Aluminum	SOLID	N/A	5.8123E+03			5.823	ug/g			
13	SAMPLE	S09V000464		0	0	A	Barium	SOLID	N/A	6.8835E+01			0.5823	ug/g			
13	SAMPLE	S09V000464		0	0	A	Beryllium	SOLID	N/A	<1.9410E-01			0.1941	ug/g			U
13	SAMPLE	S09V000464		0	0	A	Calcium	SOLID	N/A	7.2472E+03			9.705	ug/g			
13	SAMPLE	S09V000464		0	0	A	Cerium	SOLID	N/A	2.4257E+01			5.823	ug/g			J
13	SAMPLE	S09V000464		0	0	A	Chromium	SOLID	N/A	6.7993E+00			0.9705	ug/g			
13	SAMPLE	S09V000464		0	0	A	Copper	SOLID	N/A	1.1349E+01			0.9705	ug/g			
13	SAMPLE	S09V000464		0	0	A	Europium	SOLID	N/A	3.2667E+00			0.9705	ug/g			J
13	SAMPLE	S09V000464		0	0	A	Iron	SOLID	N/A	2.0664E+04			0.9705	ug/g			
13	SAMPLE	S09V000464		0	0	A	Potassium	SOLID	N/A	1.0521E+03			97.05	ug/g			
13	SAMPLE	S09V000464		0	0	A	Lanthanum	SOLID	N/A	1.0625E+01			0.5823	ug/g			
13	SAMPLE	S09V000464		0	0	A	Lithium	SOLID	N/A	6.7411E+00			0.5823	ug/g			
13	SAMPLE	S09V000464		0	0	A	Magnesium	SOLID	N/A	4.3365E+03			9.705	ug/g			
13	SAMPLE	S09V000464		0	0	A	Manganese	SOLID	N/A	2.9137E+02			0.5823	ug/g			e
13	SAMPLE	S09V000464		0	0	A	Molybdenum	SOLID	N/A	<3.8820E+00			3.882	ug/g			U
13	SAMPLE	S09V000464		0	0	A	Sodium	SOLID	N/A	3.2317E+02			19.41	ug/g			e
13	SAMPLE	S09V000464		0	0	A	Neodymium	SOLID	N/A	1.3339E+01			1.941	ug/g			J
13	SAMPLE	S09V000464		0	0	A	Phosphorus	SOLID	N/A	7.9112E+02			9.705	ug/g			
13	SAMPLE	S09V000464		0	0	A	Sulfur	SOLID	N/A	5.9983E+01			19.41	ug/g			J
13	SAMPLE	S09V000464		0	0	A	Silicon	SOLID	N/A	1.1309E+03			5.823	ug/g			b
13	SAMPLE	S09V000464		0	0	A	Tin	SOLID	N/A	9.1984E+00			5.823	ug/g			J
13	SAMPLE	S09V000464		0	0	A	Strontium	SOLID	N/A	2.6345E+01			0.5823	ug/g			
13	SAMPLE	S09V000464		0	0	A	Tantalum	SOLID	N/A	1.0794E+01			9.705	ug/g			J
13	SAMPLE	S09V000464		0	0	A	Titanium	SOLID	N/A	1.7523E+03			0.9705	ug/g			b
13	SAMPLE	S09V000464		0	0	A	Uranium	SOLID	N/A	<1.9410E+01			19.41	ug/g			U
13	SAMPLE	S09V000464		0	0	A	Yttrium	SOLID	N/A	8.5773E+00			0.3882	ug/g			
13	SAMPLE	S09V000464		0	0	A	Zinc	SOLID	N/A	3.9930E+01			0.9705	ug/g			
13	SAMPLE	S09V000464		0	0	A	Zirconium	SOLID	N/A	1.6333E+01			0.9705	ug/g			

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LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 14																	
14	BLNK-PREP	S0907160098		0	0	A	Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Aluminum	LIQUID		<3.0000E-02			0.03	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Arsenic	LIQUID		<5.0000E-02			0.05	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Boron	LIQUID		<3.0000E-02			0.03	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Calcium	LIQUID		6.0830E-02			0.05	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Cadmium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Cerium	LIQUID		<3.0000E-02			0.03	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Cobalt	LIQUID		<1.0000E-02			0.01	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Europium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Iron	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Potassium	LIQUID		<5.0000E-01			0.5	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Magnesium	LIQUID		<5.0000E-02			0.05	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Manganese	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Sodium	LIQUID		<1.0000E-01			0.1	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Nickel	LIQUID		<2.0000E-02			0.02	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Niobium	LIQUID		<3.0000E-02			0.03	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Lead	LIQUID		<5.0000E-02			0.05	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Palladium	LIQUID		<1.0000E-01			0.1	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Rubidium	LIQUID		<1.0000E+00			1	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Ruthenium	LIQUID		<3.0000E-02			0.03	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Antimony	LIQUID		<5.0000E-02			0.05	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Selenium	LIQUID		<1.0000E-01			0.1	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Silicon	LIQUID		<3.0000E-02			0.03	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Samarium	LIQUID		<2.0000E-02			0.02	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Tin	LIQUID		<3.0000E-02			0.03	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL			

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LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
14	BLNK-PREP	S0907160098		0	0	A	Thorium	LIQUID		<5.0000E-02			0.05	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Thallium	LIQUID		<1.0000E-01			0.1	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Uranium	LIQUID		<1.0000E-01			0.1	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Tungsten	LIQUID		<2.0000E-01			0.2	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
14	BLNK-PREP	S0907160098		0	0	A	Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
Sample Sequence 15																	
15	STD-PREP	S0907160099		0	0	A	Silver	LIQUID	1	8.6692E-01			5.00E-03	ug/mL	86.692	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Aluminum	LIQUID	5	4.1042E+00			0.03	ug/mL	82.083	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Arsenic	LIQUID	5	4.4097E+00			0.05	ug/mL	88.194	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Boron	LIQUID	5	4.3106E+00			0.03	ug/mL	86.213	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Barium	LIQUID	5	4.4496E+00			3.00E-03	ug/mL	88.991	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Beryllium	LIQUID	5	4.6085E+00			1.00E-03	ug/mL	92.17	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Bismuth	LIQUID	5	4.2045E+00			0.1	ug/mL	84.09	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Calcium	LIQUID	5	4.0379E+00			0.05	ug/mL	80.757	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Cadmium	LIQUID	5	4.2827E+00			5.00E-03	ug/mL	85.654	% Recovery	
16	STD-PREP	S0907160099		0	1	A	Cerium	LIQUID	5	4.8047E+00			0.03	ug/mL	96.093	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Cobalt	LIQUID	5	4.2966E+00			0.01	ug/mL	85.931	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Chromium	LIQUID	5	4.3606E+00			5.00E-03	ug/mL	87.213	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Copper	LIQUID	5	4.4244E+00			5.00E-03	ug/mL	88.488	% Recovery	
16	STD-PREP	S0907160099		0	1	A	Europium	LIQUID	5	4.6642E+00			5.00E-03	ug/mL	93.284	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Iron	LIQUID	5	4.3178E+00			5.00E-03	ug/mL	86.356	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Potassium	LIQUID	5	4.0890E+00			0.5	ug/mL	81.78	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Lanthanum	LIQUID	5	4.4658E+00			3.00E-03	ug/mL	89.315	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Lithium	LIQUID	5	4.5145E+00			3.00E-03	ug/mL	90.29	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Magnesium	LIQUID	5	4.1368E+00			0.05	ug/mL	82.736	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Manganese	LIQUID	5	4.2892E+00			3.00E-03	ug/mL	85.785	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Molybdenum	LIQUID	5	4.4456E+00			0.02	ug/mL	88.913	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Sodium	LIQUID	5	4.4798E+00			0.1	ug/mL	89.596	% Recovery	
16	STD-PREP	S0907160099		0	1	A	Neodymium	LIQUID	5	4.7015E+00			0.01	ug/mL	94.03	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Nickel	LIQUID	5	4.2595E+00			0.02	ug/mL	85.19	% Recovery	
16	STD-PREP	S0907160099		0	1	A	Niobium	LIQUID	5	4.6457E+00			0.03	ug/mL	92.914	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Phosphorus	LIQUID	5	4.4841E+00			0.05	ug/mL	89.681	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Lead	LIQUID	5	4.2570E+00			0.05	ug/mL	85.141	% Recovery	
16	STD-PREP	S0907160099		0	1	A	Palladium	LIQUID	5	4.4818E+00			0.1	ug/mL	89.635	% Recovery	
16	STD-PREP	S0907160099		0	1	A	Praseodymium	LIQUID	5	4.6996E+00			0.01	ug/mL	93.992	% Recovery	
16	STD-PREP	S0907160099		0	1	A	Rubidium	LIQUID	5	3.6954E+00			1	ug/mL	73.909	% Recovery	
16	STD-PREP	S0907160099		0	1	A	Rhodium	LIQUID	5	4.7884E+00			0.05	ug/mL	95.767	% Recovery	
16	STD-PREP	S0907160099		0	1	A	Ruthenium	LIQUID	5	4.4662E+00			0.03	ug/mL	89.324	% Recovery	

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LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
15	STD-PREP	S0907160099		0	0	A	Sulfur	LIQUID	5	4.3183E+00			0.1	ug/mL	86.365	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Antimony	LIQUID	5	4.2342E+00			0.05	ug/mL	84.684	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Selenium	LIQUID	5	4.4604E+00			0.1	ug/mL	89.207	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Silicon	LIQUID	5	4.0425E+00			0.03	ug/mL	80.849	% Recovery	
16	STD-PREP	S0907160099		0	1	A	Samarium	LIQUID	5	4.7738E+00			0.02	ug/mL	95.475	% Recovery	
16	STD-PREP	S0907160099		0	1	A	Tin	LIQUID	5	4.4142E+00			0.03	ug/mL	88.285	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Strontium	LIQUID	5	4.4243E+00			3.00E-03	ug/mL	88.486	% Recovery	
16	STD-PREP	S0907160099		0	1	A	Tantalum	LIQUID	5	4.5864E+00			0.05	ug/mL	91.727	% Recovery	
16	STD-PREP	S0907160099		0	1	A	Tellurium	LIQUID	5	4.5248E+00			0.1	ug/mL	90.495	% Recovery	
16	STD-PREP	S0907160099		0	1	A	Thorium	LIQUID	5	4.6779E+00			0.05	ug/mL	93.559	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Titanium	LIQUID	5	4.4452E+00			5.00E-03	ug/mL	88.903	% Recovery	
16	STD-PREP	S0907160099		0	1	A	Thallium	LIQUID	5	4.8623E+00			0.1	ug/mL	97.246	% Recovery	
16	STD-PREP	S0907160099		0	1	A	Uranium	LIQUID	5	4.8864E+00			0.1	ug/mL	97.727	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Vanadium	LIQUID	5	4.4361E+00			5.00E-03	ug/mL	88.722	% Recovery	
16	STD-PREP	S0907160099		0	1	A	Tungsten	LIQUID	5	4.6120E+00			0.2	ug/mL	92.24	% Recovery	
16	STD-PREP	S0907160099		0	1	A	Yttrium	LIQUID	5	4.5977E+00			2.00E-03	ug/mL	91.954	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Zinc	LIQUID	5	4.2421E+00			5.00E-03	ug/mL	84.841	% Recovery	
15	STD-PREP	S0907160099		0	0	A	Zirconium	LIQUID	5	4.0583E+00			5.00E-03	ug/mL	81.166	% Recovery	
Sample Sequence 17																	
17	SERDIL	S0909220056	S09V000464	0	0		Aluminum	SOLID		6.1926E+03			29.115	ug/g	6.5423	% Diff	
17	SERDIL	S0909220056	S09V000464	0	0		Boron	SOLID		<1.5000E-01			0.15	ug/g	N/A		
17	SERDIL	S0909220056	S09V000464	0	0		Barium	SOLID		7.0646E+01			2.9115	ug/g	2.6314	% Diff	
17	SERDIL	S0909220056	S09V000464	0	0		Beryllium	SOLID		<9.7050E-01			0.9705	ug/g	N/A		
17	SERDIL	S0909220056	S09V000464	0	0		Bismuth	SOLID		<5.0000E-01			0.5	ug/g	N/A		
17	SERDIL	S0909220056	S09V000464	0	0		Calcium	SOLID		7.1170E+03			48.525	ug/g	1.7962	% Diff	
17	SERDIL	S0909220056	S09V000464	0	0		Cerium	SOLID		3.5115E+01			29.115	ug/g	44.76	% Diff	
17	SERDIL	S0909220056	S09V000464	0	0		Cobalt	SOLID		<9.7050E+00			9.705	ug/g	N/A		
17	SERDIL	S0909220056	S09V000464	0	0		Copper	SOLID		1.0877E+01			4.8525	ug/g	4.1561	% Diff	
17	SERDIL	S0909220056	S09V000464	0	0		Europium	SOLID		4.8874E+00			4.8525	ug/g	49.613	% Diff	
17	SERDIL	S0909220056	S09V000464	0	0		Iron	SOLID		2.2495E+04			4.8525	ug/g	8.8598	% Diff	
17	SERDIL	S0909220056	S09V000464	0	0		Potassium	SOLID		1.1476E+03			485.25	ug/g	9.0801	% Diff	
17	SERDIL	S0909220056	S09V000464	0	0		Lanthanum	SOLID		1.1167E+01			2.9115	ug/g	5.0968	% Diff	
17	SERDIL	S0909220056	S09V000464	0	0		Lithium	SOLID		6.4130E+00			2.9115	ug/g	4.8665	% Diff	
17	SERDIL	S0909220056	S09V000464	0	0		Magnesium	SOLID		4.6119E+03			48.525	ug/g	6.3502	% Diff	
17	SERDIL	S0909220056	S09V000464	0	0		Manganese	SOLID		3.4764E+02			2.9115	ug/g	19.311	% Diff	
17	SERDIL	S0909220056	S09V000464	0	0		Molybdenum	SOLID		<1.9410E+01			19.41	ug/g	N/A		
17	SERDIL	S0909220056	S09V000464	0	0		Sodium	SOLID		3.6172E+02			97.05	ug/g	11.929	% Diff	
17	SERDIL	S0909220056	S09V000464	0	0		Neodymium	SOLID		1.1621E+01			9.705	ug/g	12.882	% Diff	
17	SERDIL	S0909220056	S09V000464	0	0		Niobium	SOLID		<1.5000E-01			0.15	ug/g	N/A		
17	SERDIL	S0909220056	S09V000464	0	0		Phosphorus	SOLID		8.0731E+02			48.525	ug/g	2.0467	% Diff	
17	SERDIL	S0909220056	S09V000464	0	0		Palladium	SOLID		<5.0000E-01			0.5	ug/g	N/A		
17	SERDIL	S0909220056	S09V000464	0	0		Praseodymium	SOLID		<5.0000E-02			0.05	ug/g	N/A		

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
17	SERDIL	S0909220056	S09V000464	0	0		Rubidium	SOLID		<5.0000E+00			5	ug/g	N/A		
17	SERDIL	S0909220056	S09V000464	0	0		Rhodium	SOLID		<2.5000E-01			0.25	ug/g	N/A		
17	SERDIL	S0909220056	S09V000464	0	0		Ruthenium	SOLID		<1.5000E-01			0.15	ug/g	N/A		
17	SERDIL	S0909220056	S09V000464	0	0		Sulfur	SOLID		<9.7050E+01			97.05	ug/g	N/A		
17	SERDIL	S0909220056	S09V000464	0	0		Silicon	SOLID		1.1988E+03			29.115	ug/g	6.0055	% Diff	
17	SERDIL	S0909220056	S09V000464	0	0		Samarium	SOLID		<1.0000E-01			0.1	ug/g	N/A		
17	SERDIL	S0909220056	S09V000464	0	0		Tin	SOLID		<2.9115E+01			29.115	ug/g	N/A		
17	SERDIL	S0909220056	S09V000464	0	0		Strontium	SOLID		2.8585E+01			2.9115	ug/g	8.5026	% Diff	
17	SERDIL	S0909220056	S09V000464	0	0		Tantalum	SOLID		<4.8525E+01			48.525	ug/g	N/A		
17	SERDIL	S0909220056	S09V000464	0	0		Tellurium	SOLID		<5.0000E-01			0.5	ug/g	N/A		
17	SERDIL	S0909220056	S09V000464	0	0		Thorium	SOLID		<2.5000E-01			0.25	ug/g	N/A		
17	SERDIL	S0909220056	S09V000464	0	0		Titanium	SOLID		1.8130E+03			4.8525	ug/g	3.4632	% Diff	
17	SERDIL	S0909220056	S09V000464	0	0		Uranium	SOLID		<9.7050E+01			97.05	ug/g	N/A		
17	SERDIL	S0909220056	S09V000464	0	0		Tungsten	SOLID		<1.0000E+00			1	ug/g	N/A		
17	SERDIL	S0909220056	S09V000464	0	0		Yttrium	SOLID		9.4274E+00			1.941	ug/g	9.9111	% Diff	
17	SERDIL	S0909220056	S09V000464	0	0		Zinc	SOLID		4.2585E+01			4.8525	ug/g	6.6501	% Diff	
17	SERDIL	S0909220056	S09V000464	0	0		Zirconium	SOLID		1.7597E+01			4.8525	ug/g	7.7392	% Diff	
Sample Sequence 18																	
18	DUP	S0907160100	S09V000464	0	0	A	Aluminum	SOLID	5.8123E+03	5.5246E+03			5.8388	ug/g	5.0755	% RPD	
18	DUP	S0907160100	S09V000464	0	0	A	Barium	SOLID	6.8835E+01	6.3351E+01			0.58388	ug/g	8.2980	% RPD	
18	DUP	S0907160100	S09V000464	0	0	A	Beryllium	SOLID	<1.9410E-01	<1.9463E-01			0.19463	ug/g			
18	DUP	S0907160100	S09V000464	0	0	A	Calcium	SOLID	7.2472E+03	6.7672E+03			9.7314	ug/g	6.8497	% RPD	
18	DUP	S0907160100	S09V000464	0	0	A	Cerium	SOLID	2.4257E+01	2.5559E+01			5.8388	ug/g	5.2289	% RPD	
18	DUP	S0907160100	S09V000464	0	0	A	Cobalt	SOLID		6.2748E+00			1.9463	ug/g			
18	DUP	S0907160100	S09V000464	0	0	A	Copper	SOLID	1.1349E+01	1.1069E+01			0.97314	ug/g	2.4979	% RPD	
18	DUP	S0907160100	S09V000464	0	0	A	Europium	SOLID	3.2667E+00	3.5598E+00			0.97314	ug/g	8.5874	% RPD	
18	DUP	S0907160100	S09V000464	0	0	A	Iron	SOLID	2.0664E+04	2.0117E+04			0.97314	ug/g	2.6824	% RPD	
18	DUP	S0907160100	S09V000464	0	0	A	Potassium	SOLID	1.0521E+03	1.0112E+03			97.314	ug/g	3.9675	% RPD	
18	DUP	S0907160100	S09V000464	0	0	A	Lanthanum	SOLID	1.0625E+01	1.0535E+01			0.58388	ug/g	0.85066	% RPD	
18	DUP	S0907160100	S09V000464	0	0	A	Lithium	SOLID	6.7411E+00	5.9517E+00			0.58388	ug/g	12.438	% RPD	
18	DUP	S0907160100	S09V000464	0	0	A	Magnesium	SOLID	4.3365E+03	4.1040E+03			9.7314	ug/g	5.5084	% RPD	
18	DUP	S0907160100	S09V000464	0	0	A	Manganese	SOLID	2.9137E+02	2.9049E+02			0.58388	ug/g	0.30126	% RPD	
18	DUP	S0907160100	S09V000464	0	0	A	Molybdenum	SOLID	<3.8820E+00	<3.8926E+00			3.8926	ug/g			
18	DUP	S0907160100	S09V000464	0	0	A	Sodium	SOLID	3.2317E+02	2.6860E+02			19.463	ug/g	18.444	% RPD	
18	DUP	S0907160100	S09V000464	0	0	A	Neodymium	SOLID	1.3339E+01	1.3206E+01			1.9463	ug/g	0.99839	% RPD	
18	DUP	S0907160100	S09V000464	0	0	A	Phosphorus	SOLID	7.9112E+02	7.9696E+02			9.7314	ug/g	0.73573	% RPD	
18	DUP	S0907160100	S09V000464	0	0	A	Sulfur	SOLID	5.9983E+01	6.1985E+01			19.463	ug/g	3.2836	% RPD	
18	DUP	S0907160100	S09V000464	0	0	A	Silicon	SOLID	1.1309E+03	1.0648E+03			5.8388	ug/g	6.0177	% RPD	
18	DUP	S0907160100	S09V000464	0	0	A	Tin	SOLID	9.1984E+00	8.1043E+00			5.8388	ug/g	12.646	% RPD	
18	DUP	S0907160100	S09V000464	0	0	A	Strontium	SOLID	2.6345E+01	2.4506E+01			0.58388	ug/g	7.2333	% RPD	
18	DUP	S0907160100	S09V000464	0	0	A	Titanium	SOLID	1.7523E+03	1.7656E+03			0.97314	ug/g	0.75857	% RPD	
18	DUP	S0907160100	S09V000464	0	0	A	Uranium	SOLID	<1.9410E+01	<1.9463E+01			19.463	ug/g			

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LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
18	DUP	S0907160100	S09V000464	0	0	A	Zinc	SOLID	3.9930E+01	3.7540E+01			0.97314	ug/g	6.1704	% RPD	
18	DUP	S0907160100	S09V000464	0	0	A	Zirconium	SOLID	1.6333E+01	1.6279E+01			0.97314	ug/g	0.33400	% RPD	
Sample Sequence 19																	
22	CCV	S0909220058		0	3		Silver	LIQUID	5	4.7611E+00			5.00E-03	ug/mL	95.222	% Recovery	
19	CCV	S0909220058		0	0		Aluminum	LIQUID	5	4.9979E+00			0.03	ug/mL	99.958	% Recovery	
22	CCV	S0909220058		0	3		Arsenic	LIQUID	5	5.0827E+00			0.05	ug/mL	101.65	% Recovery	
19	CCV	S0909220058		0	0		Boron	LIQUID	5	5.0341E+00			0.03	ug/mL	100.68	% Recovery	
19	CCV	S0909220058		0	0		Barium	LIQUID	5	5.1590E+00			3.00E-03	ug/mL	103.18	% Recovery	
22	CCV	S0909220058		0	3		Beryllium	LIQUID	5	5.0165E+00			1.00E-03	ug/mL	100.33	% Recovery	
19	CCV	S0909220058		0	0		Bismuth	LIQUID	5	5.2144E+00			0.1	ug/mL	104.29	% Recovery	
19	CCV	S0909220058		0	0		Calcium	LIQUID	5	5.2506E+00			0.05	ug/mL	105.01	% Recovery	
19	CCV	S0909220058		0	0		Cadmium	LIQUID	5	5.3076E+00			5.00E-03	ug/mL	106.15	% Recovery	
22	CCV	S0909220058		0	3		Cerium	LIQUID	5	5.1497E+00			0.03	ug/mL	102.99	% Recovery	
22	CCV	S0909220058		0	3		Cobalt	LIQUID	5	5.0495E+00			0.01	ug/mL	100.99	% Recovery	
22	CCV	S0909220058		0	3		Chromium	LIQUID	5	5.0678E+00			5.00E-03	ug/mL	101.36	% Recovery	
19	CCV	S0909220058		0	0		Copper	LIQUID	5	4.9947E+00			5.00E-03	ug/mL	99.893	% Recovery	
20	CCV	S0909220058		0	1		Europium	LIQUID	5	4.9132E+00			5.00E-03	ug/mL	98.263	% Recovery	
22	CCV	S0909220058		0	3		Iron	LIQUID	5	5.0098E+00			5.00E-03	ug/mL	100.2	% Recovery	
19	CCV	S0909220058		0	0		Potassium	LIQUID	5	4.9897E+00			0.5	ug/mL	99.795	% Recovery	
19	CCV	S0909220058		0	0		Lanthanum	LIQUID	5	5.0582E+00			3.00E-03	ug/mL	101.16	% Recovery	
19	CCV	S0909220058		0	0		Lithium	LIQUID	5	5.0000E+00			3.00E-03	ug/mL	99.999	% Recovery	
19	CCV	S0909220058		0	0		Magnesium	LIQUID	5	5.0824E+00			0.05	ug/mL	101.65	% Recovery	
19	CCV	S0909220058		0	0		Manganese	LIQUID	5	5.3059E+00			3.00E-03	ug/mL	106.12	% Recovery	
19	CCV	S0909220058		0	0		Molybdenum	LIQUID	5	5.2584E+00			0.02	ug/mL	105.17	% Recovery	
19	CCV	S0909220058		0	0		Sodium	LIQUID	5	4.9950E+00			0.1	ug/mL	99.899	% Recovery	
20	CCV	S0909220058		0	1		Neodymium	LIQUID	5	4.9454E+00			0.01	ug/mL	98.908	% Recovery	
19	CCV	S0909220058		0	0		Nickel	LIQUID	5	5.2835E+00			0.02	ug/mL	105.67	% Recovery	
21	CCV	S0909220058		0	2		Niobium	LIQUID	5	5.1048E+00			0.03	ug/mL	102.1	% Recovery	
19	CCV	S0909220058		0	0		Phosphorus	LIQUID	5	5.0861E+00			0.05	ug/mL	101.72	% Recovery	
19	CCV	S0909220058		0	0		Lead	LIQUID	5	5.4821E+00			0.05	ug/mL	109.64	% Recovery	
20	CCV	S0909220058		0	1		Palladium	LIQUID	5	4.9297E+00			0.1	ug/mL	98.595	% Recovery	
20	CCV	S0909220058		0	1		Praseodymium	LIQUID	5	4.9541E+00			0.01	ug/mL	99.081	% Recovery	
20	CCV	S0909220058		0	1		Rubidium	LIQUID	5	4.8609E+00			1	ug/mL	97.217	% Recovery	
20	CCV	S0909220058		0	1		Rhodium	LIQUID	5	5.0221E+00			0.05	ug/mL	100.44	% Recovery	
20	CCV	S0909220058		0	1		Ruthenium	LIQUID	5	4.9524E+00			0.03	ug/mL	99.048	% Recovery	
19	CCV	S0909220058		0	0		Sulfur	LIQUID	5	5.2625E+00			0.1	ug/mL	105.25	% Recovery	
19	CCV	S0909220058		0	0		Antimony	LIQUID	5	5.0349E+00			0.05	ug/mL	100.7	% Recovery	
19	CCV	S0909220058		0	0		Selenium	LIQUID	5	5.3295E+00			0.1	ug/mL	106.59	% Recovery	
19	CCV	S0909220058		0	0		Silicon	LIQUID	5	4.8347E+00			0.03	ug/mL	96.694	% Recovery	
20	CCV	S0909220058		0	1		Samarium	LIQUID	5	5.0184E+00			0.02	ug/mL	100.37	% Recovery	
21	CCV	S0909220058		0	2		Tin	LIQUID	5	5.1631E+00			0.03	ug/mL	103.26	% Recovery	
19	CCV	S0909220058		0	0		Strontium	LIQUID	5	5.0809E+00			3.00E-03	ug/mL	101.62	% Recovery	

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LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
21	CCV	S0909220058		0 2		Tantalum	LIQUID	5	5.2123E+00			0.05	ug/mL	104.25	% Recovery	
21	CCV	S0909220058		0 2		Tellurium	LIQUID	5	5.1478E+00			0.1	ug/mL	102.96	% Recovery	
20	CCV	S0909220058		0 1		Thorium	LIQUID	5	5.1573E+00			0.05	ug/mL	103.15	% Recovery	
19	CCV	S0909220058		0 0		Titanium	LIQUID	5	5.0806E+00			5.00E-03	ug/mL	101.61	% Recovery	
22	CCV	S0909220058		0 3		Thallium	LIQUID	5	5.0943E+00			0.1	ug/mL	101.89	% Recovery	
20	CCV	S0909220058		0 1		Uranium	LIQUID	5	5.0123E+00			0.1	ug/mL	100.25	% Recovery	
22	CCV	S0909220058		0 3		Vanadium	LIQUID	5	5.0944E+00			5.00E-03	ug/mL	101.89	% Recovery	
21	CCV	S0909220058		0 2		Tungsten	LIQUID	5	4.9960E+00			0.2	ug/mL	99.92	% Recovery	
20	CCV	S0909220058		0 1		Yttrium	LIQUID	5	5.0345E+00			2.00E-03	ug/mL	100.69	% Recovery	
22	CCV	S0909220058		0 3		Zinc	LIQUID	5	4.9504E+00			5.00E-03	ug/mL	99.007	% Recovery	
19	CCV	S0909220058		0 0		Zirconium	LIQUID	5	4.7006E+00			5.00E-03	ug/mL	94.012	% Recovery	
Sample Sequence 23																
23	CCB	S0909220059		0 0		Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
23	CCB	S0909220059		0 0		Aluminum	LIQUID		<3.0000E-02			0.03	ug/mL			
23	CCB	S0909220059		0 0		Arsenic	LIQUID		<5.0000E-02			0.05	ug/mL			
23	CCB	S0909220059		0 0		Boron	LIQUID		<3.0000E-02			0.03	ug/mL			
23	CCB	S0909220059		0 0		Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
23	CCB	S0909220059		0 0		Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL			
23	CCB	S0909220059		0 0		Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL			
23	CCB	S0909220059		0 0		Calcium	LIQUID		<5.0000E-02			0.05	ug/mL			
23	CCB	S0909220059		0 0		Cadmium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
23	CCB	S0909220059		0 0		Cerium	LIQUID		<3.0000E-02			0.03	ug/mL			
23	CCB	S0909220059		0 0		Cobalt	LIQUID		<1.0000E-02			0.01	ug/mL			
23	CCB	S0909220059		0 0		Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
23	CCB	S0909220059		0 0		Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
23	CCB	S0909220059		0 0		Europium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
23	CCB	S0909220059		0 0		Iron	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
23	CCB	S0909220059		0 0		Potassium	LIQUID		<5.0000E-01			0.5	ug/mL			
23	CCB	S0909220059		0 0		Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
23	CCB	S0909220059		0 0		Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
23	CCB	S0909220059		0 0		Magnesium	LIQUID		<5.0000E-02			0.05	ug/mL			
23	CCB	S0909220059		0 0		Manganese	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
23	CCB	S0909220059		0 0		Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL			
23	CCB	S0909220059		0 0		Sodium	LIQUID		<1.0000E-01			0.1	ug/mL			
23	CCB	S0909220059		0 0		Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
23	CCB	S0909220059		0 0		Nickel	LIQUID		<2.0000E-02			0.02	ug/mL			
23	CCB	S0909220059		0 0		Niobium	LIQUID		<3.0000E-02			0.03	ug/mL			
23	CCB	S0909220059		0 0		Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL			
23	CCB	S0909220059		0 0		Lead	LIQUID		<5.0000E-02			0.05	ug/mL			
23	CCB	S0909220059		0 0		Palladium	LIQUID		<1.0000E-01			0.1	ug/mL			
23	CCB	S0909220059		0 0		Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
23	CCB	S0909220059		0 0		Rubidium	LIQUID		<1.0000E+00			1	ug/mL			

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LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
23	CCB	S0909220059		0	0		Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL			
23	CCB	S0909220059		0	0		Ruthenium	LIQUID		<3.0000E-02			0.03	ug/mL			
23	CCB	S0909220059		0	0		Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL			
23	CCB	S0909220059		0	0		Antimony	LIQUID		<5.0000E-02			0.05	ug/mL			
23	CCB	S0909220059		0	0		Selenium	LIQUID		<1.0000E-01			0.1	ug/mL			
23	CCB	S0909220059		0	0		Silicon	LIQUID		<3.0000E-02			0.03	ug/mL			
23	CCB	S0909220059		0	0		Samarium	LIQUID		<2.0000E-02			0.02	ug/mL			
23	CCB	S0909220059		0	0		Tin	LIQUID		<3.0000E-02			0.03	ug/mL			
23	CCB	S0909220059		0	0		Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
23	CCB	S0909220059		0	0		Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL			
23	CCB	S0909220059		0	0		Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL			
23	CCB	S0909220059		0	0		Thorium	LIQUID		<5.0000E-02			0.05	ug/mL			
23	CCB	S0909220059		0	0		Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
23	CCB	S0909220059		0	0		Thallium	LIQUID		<1.0000E-01			0.1	ug/mL			
23	CCB	S0909220059		0	0		Uranium	LIQUID		<1.0000E-01			0.1	ug/mL			
23	CCB	S0909220059		0	0		Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
23	CCB	S0909220059		0	0		Tungsten	LIQUID		<2.0000E-01			0.2	ug/mL			
23	CCB	S0909220059		0	0		Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL			
23	CCB	S0909220059		0	0		Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
23	CCB	S0909220059		0	0		Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
Sample Sequence 24																	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Silver	SOLID	197.4723539	1.5855E+02			0.98736	ug/g	80.29	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Aluminum	SOLID	987.3617695	9.8042E+03			5.9242	ug/g	404.3	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Arsenic	SOLID	987.3617695	8.9723E+02			11.848	ug/g	90.871	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Boron	SOLID	987.3617695	8.6922E+02			5.9242	ug/g	N/A		
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Barium	SOLID	987.3617695	9.7575E+02			0.59242	ug/g	91.852	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Beryllium	SOLID	987.3617695	9.2229E+02			0.19747	ug/g	93.41	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Bismuth	SOLID	987.3617695	8.4590E+02			19.747	ug/g	N/A		
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Calcium	SOLID	987.3617695	1.0010E+04			9.8736	ug/g	279.77	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Cadmium	SOLID	987.3617695	8.5076E+02			0.98736	ug/g	86.165	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Cobalt	SOLID	987.3617695	8.7331E+02			1.9747	ug/g	87.76	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Chromium	SOLID	987.3617695	8.8076E+02			0.98736	ug/g	88.515	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Copper	SOLID	987.3617695	9.3093E+02			0.98736	ug/g	93.136	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Iron	SOLID	987.3617695	2.4263E+04			0.98736	ug/g	364.52	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Potassium	SOLID	987.3617695	2.2539E+03			98.736	ug/g	121.71	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Lanthanum	SOLID	987.3617695	8.9979E+02			0.59242	ug/g	90.055	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Lithium	SOLID	987.3617695	9.1292E+02			0.59242	ug/g	91.778	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Magnesium	SOLID	987.3617695	5.7386E+03			9.8736	ug/g	142	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Manganese	SOLID	987.3617695	1.2156E+03			0.59242	ug/g	93.604	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Molybdenum	SOLID	987.3617695	8.8112E+02			3.9494	ug/g	89.24	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Sodium	SOLID	987.3617695	1.4879E+03			19.747	ug/g	117.97	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Nickel	SOLID	987.3617695	8.5161E+02			3.9494	ug/g	85.82	% Recovery	

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LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Phosphorus	SOLID	987.3617695	1.7507E+03			9.8736	ug/g	97.19	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Lead	SOLID	987.3617695	8.5039E+02			9.8736	ug/g	86.127	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Sulfur	SOLID	987.3617695	9.3240E+02			19.747	ug/g	88.358	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Antimony	SOLID	987.3617695	8.0440E+02			9.8736	ug/g	81.469	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Selenium	SOLID	987.3617695	9.1094E+02			19.747	ug/g	92.26	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Silicon	SOLID	987.3617695	4.0562E+03			5.9242	ug/g	296.27	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Strontium	SOLID	987.3617695	9.1557E+02			0.59242	ug/g	90.061	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Titanium	SOLID	987.3617695	3.0562E+03			0.98736	ug/g	132.06	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Vanadium	SOLID	987.3617695	9.5476E+02			0.98736	ug/g	91.561	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Zinc	SOLID	987.3617695	9.0775E+02			0.98736	ug/g	87.893	% Recovery	
24	SPK-PREDIG	S0907160101	S09V000464	0	0	A	Zirconium	SOLID	987.3617695	8.1997E+02			0.98736	ug/g	81.392	% Recovery	
Sample Sequence 25																	
25	SPK-PREDIG	S0907160102	S09V000464	0	0	A	Cerium	SOLID	990.8838685	9.2216E+02			5.9453	ug/g	90.616	% Recovery	
25	SPK-PREDIG	S0907160102	S09V000464	0	0	A	Europium	SOLID	990.8838685	8.7762E+02			0.99088	ug/g	88.24	% Recovery	
25	SPK-PREDIG	S0907160102	S09V000464	0	0	A	Neodymium	SOLID	990.8838685	9.0164E+02			1.9818	ug/g	89.647	% Recovery	
25	SPK-PREDIG	S0907160102	S09V000464	0	0	A	Niobium	SOLID	990.8838685	8.3503E+02			5.9453	ug/g	N/A		
25	SPK-PREDIG	S0907160102	S09V000464	0	0	A	Palladium	SOLID	990.8838685	8.0574E+02			19.818	ug/g	N/A		
25	SPK-PREDIG	S0907160102	S09V000464	0	0	A	Praseodymium	SOLID	990.8838685	8.9284E+02			1.9818	ug/g	N/A		
25	SPK-PREDIG	S0907160102	S09V000464	0	0	A	Rubidium	SOLID	990.8838685	8.1705E+02			198.18	ug/g	N/A		
25	SPK-PREDIG	S0907160102	S09V000464	0	0	A	Rhodium	SOLID	990.8838685	9.2279E+02			9.9088	ug/g	N/A		
25	SPK-PREDIG	S0907160102	S09V000464	0	0	A	Ruthenium	SOLID	990.8838685	8.1362E+02			5.9453	ug/g	N/A		
25	SPK-PREDIG	S0907160102	S09V000464	0	0	A	Samarium	SOLID	990.8838685	9.0102E+02			3.9635	ug/g	N/A		
25	SPK-PREDIG	S0907160102	S09V000464	0	0	A	Tin	SOLID	990.8838685	8.2326E+02			5.9453	ug/g	82.155	% Recovery	
25	SPK-PREDIG	S0907160102	S09V000464	0	0	A	Tantalum	SOLID	990.8838685	3.1576E+02			9.9088	ug/g	30.777	% Recovery	
25	SPK-PREDIG	S0907160102	S09V000464	0	0	A	Tellurium	SOLID	990.8838685	8.5862E+02			19.818	ug/g	N/A		
25	SPK-PREDIG	S0907160102	S09V000464	0	0	A	Thorium	SOLID	990.8838685	8.4124E+02			9.9088	ug/g	N/A		
25	SPK-PREDIG	S0907160102	S09V000464	0	0	A	Thallium	SOLID	990.8838685	9.1721E+02			19.818	ug/g	89.251	% Recovery	
25	SPK-PREDIG	S0907160102	S09V000464	0	0	A	Uranium	SOLID	990.8838685	9.6342E+02			19.818	ug/g	97.229	% Recovery	
25	SPK-PREDIG	S0907160102	S09V000464	0	0	A	Tungsten	SOLID	990.8838685	8.1940E+02			39.635	ug/g	N/A		
25	SPK-PREDIG	S0907160102	S09V000464	0	0	A	Yttrium	SOLID	990.8838685	8.4299E+02			0.39635	ug/g	84.209	% Recovery	
Sample Sequence 26																	
26	SPK-POST	S0909220057	S09V000464	0	0		Silver	SOLID	2.5	2.0368E+00			5.00E-03	ug/g	81.471	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Aluminum	SOLID	12.5	4.1959E+01			0.03	ug/g	96.113	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Arsenic	SOLID	12.5	1.1577E+01			0.06	ug/g	92.62	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Boron	SOLID	12.5	1.1544E+01			0.03	ug/g	92.356	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Barium	SOLID	12.5	1.2047E+01			3.00E-03	ug/g	93.542	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Beryllium	SOLID	12.5	1.1549E+01			1.00E-03	ug/g	92.389	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Bismuth	SOLID	12.5	1.1322E+01			0.1	ug/g	90.579	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Calcium	SOLID	12.5	4.9121E+01			0.05	ug/g	94.266	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Cadmium	SOLID	12.5	1.1052E+01			5.00E-03	ug/g	88.416	% Recovery	
27	SPK-POST	S0909220057	S09V000464	0	1		Cerium	SOLID	14.3	1.3767E+01			0.03	ug/g	95.401	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Cobalt	SOLID	12.5	1.1090E+01			0.01	ug/g	88.437	% Recovery	

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LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
26	SPK-POST	S0909220057	S09V000464	0	0		Chromium	SOLID	12.5	1.1336E+01			5.00E-03	ug/g	90.409	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Copper	SOLID	12.5	1.1841E+01			5.00E-03	ug/g	94.259	% Recovery	
27	SPK-POST	S0909220057	S09V000464	0	1		Europium	SOLID	14.3	1.3242E+01			5.00E-03	ug/g	92.483	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Iron	SOLID	12.5	1.1909E+02			5.00E-03	ug/g	101	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Potassium	SOLID	12.5	1.6514E+01			0.5	ug/g	88.747	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Lanthanum	SOLID	12.5	1.1568E+01			3.00E-03	ug/g	92.107	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Lithium	SOLID	12.5	1.1391E+01			3.00E-03	ug/g	90.846	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Magnesium	SOLID	12.5	3.3353E+01			0.05	ug/g	88.089	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Manganese	SOLID	12.5	1.2827E+01			3.00E-03	ug/g	90.607	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Molybdenum	SOLID	12.5	1.1307E+01			0.02	ug/g	90.458	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Sodium	SOLID	12.5	1.3090E+01			0.1	ug/g	91.4	% Recovery	
27	SPK-POST	S0909220057	S09V000464	0	1		Neodymium	SOLID	14.3	1.3289E+01			0.01	ug/g	92.45	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Nickel	SOLID	12.5	1.1100E+01			0.02	ug/g	88.626	% Recovery	
27	SPK-POST	S0909220057	S09V000464	0	1		Niobium	SOLID	14.3	1.3280E+01			0.03	ug/g	92.87	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Phosphorus	SOLID	12.5	1.5714E+01			0.05	ug/g	93.104	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Lead	SOLID	12.5	1.0942E+01			0.05	ug/g	87.539	% Recovery	
27	SPK-POST	S0909220057	S09V000464	0	1		Palladium	SOLID	14.3	1.2690E+01			0.1	ug/g	88.74	% Recovery	
27	SPK-POST	S0909220057	S09V000464	0	1		Praseodymium	SOLID	14.3	1.3315E+01			0.01	ug/g	93.111	% Recovery	
27	SPK-POST	S0909220057	S09V000464	0	1		Rubidium	SOLID	14.3	1.1371E+01			1	ug/g	79.514	% Recovery	
27	SPK-POST	S0909220057	S09V000464	0	1		Rhodium	SOLID	14.3	1.3851E+01			0.05	ug/g	96.858	% Recovery	
27	SPK-POST	S0909220057	S09V000464	0	1		Ruthenium	SOLID	14.3	1.2656E+01			0.03	ug/g	88.5	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Sulfur	SOLID	12.5	1.1778E+01			0.1	ug/g	91.749	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Antimony	SOLID	12.5	1.0904E+01			0.05	ug/g	87.23	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Selenium	SOLID	12.5	1.1889E+01			0.1	ug/g	95.111	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Silicon	SOLID	12.5	1.6319E+01			0.03	ug/g	83.94	% Recovery	
27	SPK-POST	S0909220057	S09V000464	0	1		Samarium	SOLID	14.3	1.3425E+01			0.02	ug/g	93.879	% Recovery	
27	SPK-POST	S0909220057	S09V000464	0	1		Tin	SOLID	14.3	1.2797E+01			0.03	ug/g	89.156	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Strontium	SOLID	12.5	1.1541E+01			3.00E-03	ug/g	91.242	% Recovery	
27	SPK-POST	S0909220057	S09V000464	0	1		Tantalum	SOLID	14.3	1.3337E+01			0.05	ug/g	92.874	% Recovery	
27	SPK-POST	S0909220057	S09V000464	0	1		Tellurium	SOLID	14.3	1.3175E+01			0.1	ug/g	92.134	% Recovery	
27	SPK-POST	S0909220057	S09V000464	0	1		Thorium	SOLID	14.3	1.2975E+01			0.05	ug/g	90.738	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Titanium	SOLID	12.5	2.0515E+01			5.00E-03	ug/g	91.9	% Recovery	
27	SPK-POST	S0909220057	S09V000464	0	1		Thallium	SOLID	14.3	1.3485E+01			0.1	ug/g	93.121	% Recovery	
27	SPK-POST	S0909220057	S09V000464	0	1		Uranium	SOLID	14.3	1.3703E+01			0.1	ug/g	95.824	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Vanadium	SOLID	12.5	1.1713E+01			5.00E-03	ug/g	91.614	% Recovery	
27	SPK-POST	S0909220057	S09V000464	0	1		Tungsten	SOLID	14.3	1.3283E+01			0.2	ug/g	92.886	% Recovery	
27	SPK-POST	S0909220057	S09V000464	0	1		Yttrium	SOLID	14.3	1.2908E+01			2.00E-03	ug/g	89.957	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Zinc	SOLID	12.5	1.1340E+01			5.00E-03	ug/g	89.075	% Recovery	
26	SPK-POST	S0909220057	S09V000464	0	0		Zirconium	SOLID	12.5	1.0186E+01			5.00E-03	ug/g	80.816	% Recovery	
Sample Sequence 28																	
28	SAMPLE	S09V000471		0	0	A	Aluminum	SOLID	N/A	5.7094E+03			5.8117	ug/g			
28	SAMPLE	S09V000471		0	0	A	Barium	SOLID	N/A	6.5544E+01			0.58117	ug/g			

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
28	SAMPLE	S09V000471		0	0	A	Beryllium	SOLID	N/A	<1.9372E-01			0.19372	ug/g			U
28	SAMPLE	S09V000471		0	0	A	Calcium	SOLID	N/A	7.8478E+03			9.6862	ug/g			
28	SAMPLE	S09V000471		0	0	A	Cerium	SOLID	N/A	2.5089E+01			5.8117	ug/g			J
28	SAMPLE	S09V000471		0	0	A	Chromium	SOLID	N/A	6.7086E+00			0.96862	ug/g			
28	SAMPLE	S09V000471		0	0	A	Copper	SOLID	N/A	1.0765E+01			0.96862	ug/g			
28	SAMPLE	S09V000471		0	0	A	Europium	SOLID	N/A	3.8880E+00			0.96862	ug/g			J
28	SAMPLE	S09V000471		0	0	A	Iron	SOLID	N/A	2.1611E+04			0.96862	ug/g			
28	SAMPLE	S09V000471		0	0	A	Potassium	SOLID	N/A	1.0650E+03			96.862	ug/g			
28	SAMPLE	S09V000471		0	0	A	Lanthanum	SOLID	N/A	1.0558E+01			0.58117	ug/g			
28	SAMPLE	S09V000471		0	0	A	Lithium	SOLID	N/A	6.5478E+00			0.58117	ug/g			
28	SAMPLE	S09V000471		0	0	A	Magnesium	SOLID	N/A	4.3942E+03			9.6862	ug/g			
28	SAMPLE	S09V000471		0	0	A	Manganese	SOLID	N/A	3.0603E+02			0.58117	ug/g			
28	SAMPLE	S09V000471		0	0	A	Molybdenum	SOLID	N/A	<3.8745E+00			3.8745	ug/g			U
28	SAMPLE	S09V000471		0	0	A	Sodium	SOLID	N/A	3.3732E+02			19.372	ug/g			
28	SAMPLE	S09V000471		0	0	A	Neodymium	SOLID	N/A	1.2685E+01			1.9372	ug/g			J
28	SAMPLE	S09V000471		0	0	A	Phosphorus	SOLID	N/A	8.7040E+02			9.6862	ug/g			
28	SAMPLE	S09V000471		0	0	A	Sulfur	SOLID	N/A	6.5308E+01			19.372	ug/g			J
28	SAMPLE	S09V000471		0	0	A	Silicon	SOLID	N/A	1.2278E+03			5.8117	ug/g			b
28	SAMPLE	S09V000471		0	0	A	Strontium	SOLID	N/A	2.7650E+01			0.58117	ug/g			
28	SAMPLE	S09V000471		0	0	A	Titanium	SOLID	N/A	1.8001E+03			0.96862	ug/g			b
28	SAMPLE	S09V000471		0	0	A	Uranium	SOLID	N/A	<1.9372E+01			19.372	ug/g			U
28	SAMPLE	S09V000471		0	0	A	Yttrium	SOLID	N/A	9.0081E+00			0.38745	ug/g			
28	SAMPLE	S09V000471		0	0	A	Zinc	SOLID	N/A	3.9855E+01			0.96862	ug/g			
28	SAMPLE	S09V000471		0	0	A	Zirconium	SOLID	N/A	1.6929E+01			0.96862	ug/g			
Sample Sequence 29																	
29	SAMPLE	S09V000406		0	0	A	Aluminum	SOLID	N/A	4.7307E+03			5.9032	ug/g			
29	SAMPLE	S09V000406		0	0	A	Barium	SOLID	N/A	6.1108E+01			0.59032	ug/g			
29	SAMPLE	S09V000406		0	0	A	Beryllium	SOLID	N/A	<1.9677E-01			0.19677	ug/g			U
29	SAMPLE	S09V000406		0	0	A	Calcium	SOLID	N/A	5.2824E+03			9.8386	ug/g			
29	SAMPLE	S09V000406		0	0	A	Cerium	SOLID	N/A	2.2769E+01			5.9032	ug/g			J
29	SAMPLE	S09V000406		0	0	A	Chromium	SOLID	N/A	5.5411E+00			0.98386	ug/g			
29	SAMPLE	S09V000406		0	0	A	Copper	SOLID	N/A	1.0504E+01			0.98386	ug/g			
29	SAMPLE	S09V000406		0	0	A	Europium	SOLID	N/A	2.7725E+00			0.98386	ug/g			J
29	SAMPLE	S09V000406		0	0	A	Iron	SOLID	N/A	1.7077E+04			0.98386	ug/g			
29	SAMPLE	S09V000406		0	0	A	Potassium	SOLID	N/A	8.9642E+02			98.386	ug/g			J
29	SAMPLE	S09V000406		0	0	A	Lanthanum	SOLID	N/A	9.5612E+00			0.59032	ug/g			
29	SAMPLE	S09V000406		0	0	A	Lithium	SOLID	N/A	5.0197E+00			0.59032	ug/g			J
29	SAMPLE	S09V000406		0	0	A	Magnesium	SOLID	N/A	2.9448E+03			9.8386	ug/g			
29	SAMPLE	S09V000406		0	0	A	Manganese	SOLID	N/A	2.4622E+02			0.59032	ug/g			
29	SAMPLE	S09V000406		0	0	A	Molybdenum	SOLID	N/A	<3.9355E+00			3.9355	ug/g			U
29	SAMPLE	S09V000406		0	0	A	Sodium	SOLID	N/A	7.3369E+02			19.677	ug/g			
29	SAMPLE	S09V000406		0	0	A	Neodymium	SOLID	N/A	1.1631E+01			1.9677	ug/g			J

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LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
29	SAMPLE	S09V000406		0	0	A	Phosphorus	SOLID	N/A	6.4028E+02			9.8386	ug/g			
29	SAMPLE	S09V000406		0	0	A	Praseodymium	SOLID	N/A	2.0956E+00			1.9677	ug/g			J
29	SAMPLE	S09V000406		0	0	A	Sulfur	SOLID	N/A	4.5893E+01			19.677	ug/g			J
29	SAMPLE	S09V000406		0	0	A	Silicon	SOLID	N/A	1.1729E+03			5.9032	ug/g			b
29	SAMPLE	S09V000406		0	0	A	Tin	SOLID	N/A	7.0858E+00			5.9032	ug/g			J
29	SAMPLE	S09V000406		0	0	A	Strontium	SOLID	N/A	2.0840E+01			0.59032	ug/g			
29	SAMPLE	S09V000406		0	0	A	Titanium	SOLID	N/A	1.7359E+03			0.98386	ug/g			b
29	SAMPLE	S09V000406		0	0	A	Uranium	SOLID	N/A	<1.9677E+01			19.677	ug/g			U
29	SAMPLE	S09V000406		0	0	A	Yttrium	SOLID	N/A	8.2684E+00			0.39355	ug/g			
29	SAMPLE	S09V000406		0	0	A	Zinc	SOLID	N/A	3.4193E+01			0.98386	ug/g			
29	SAMPLE	S09V000406		0	0	A	Zirconium	SOLID	N/A	1.4321E+01			0.98386	ug/g			
Sample Sequence 30																	
30	SAMPLE	S09V000421		0	0	A	Aluminum	SOLID	N/A	5.5644E+03			5.6754	ug/g			
30	SAMPLE	S09V000421		0	0	A	Barium	SOLID	N/A	6.5267E+01			0.56754	ug/g			
30	SAMPLE	S09V000421		0	0	A	Beryllium	SOLID	N/A	<1.8918E-01			0.18918	ug/g			U
30	SAMPLE	S09V000421		0	0	A	Calcium	SOLID	N/A	8.2431E+03			9.4589	ug/g			
30	SAMPLE	S09V000421		0	0	A	Cerium	SOLID	N/A	2.3676E+01			5.6754	ug/g			J
30	SAMPLE	S09V000421		0	0	A	Chromium	SOLID	N/A	1.0246E+01			0.94589	ug/g			
30	SAMPLE	S09V000421		0	0	A	Copper	SOLID	N/A	1.2219E+01			0.94589	ug/g			
30	SAMPLE	S09V000421		0	0	A	Europium	SOLID	N/A	3.8120E+00			0.94589	ug/g			J
30	SAMPLE	S09V000421		0	0	A	Iron	SOLID	N/A	1.9608E+04			0.94589	ug/g			
30	SAMPLE	S09V000421		0	0	A	Potassium	SOLID	N/A	1.0177E+03			94.589	ug/g			
30	SAMPLE	S09V000421		0	0	A	Lanthanum	SOLID	N/A	9.0068E+00			0.56754	ug/g			
30	SAMPLE	S09V000421		0	0	A	Lithium	SOLID	N/A	6.7007E+00			0.56754	ug/g			
30	SAMPLE	S09V000421		0	0	A	Magnesium	SOLID	N/A	3.7846E+03			9.4589	ug/g			
30	SAMPLE	S09V000421		0	0	A	Manganese	SOLID	N/A	3.0336E+02			0.56754	ug/g			
30	SAMPLE	S09V000421		0	0	A	Molybdenum	SOLID	N/A	<3.7836E+00			3.7836	ug/g			U
30	SAMPLE	S09V000421		0	0	A	Sodium	SOLID	N/A	7.3232E+02			18.918	ug/g			
30	SAMPLE	S09V000421		0	0	A	Neodymium	SOLID	N/A	1.1610E+01			1.8918	ug/g			J
30	SAMPLE	S09V000421		0	0	A	Phosphorus	SOLID	N/A	7.3478E+02			9.4589	ug/g			
30	SAMPLE	S09V000421		0	0	A	Sulfur	SOLID	N/A	7.0755E+01			18.918	ug/g			J
30	SAMPLE	S09V000421		0	0	A	Silicon	SOLID	N/A	1.8794E+03			5.6754	ug/g			b
30	SAMPLE	S09V000421		0	0	A	Strontium	SOLID	N/A	2.4344E+01			0.56754	ug/g			
30	SAMPLE	S09V000421		0	0	A	Titanium	SOLID	N/A	1.6894E+03			0.94589	ug/g			b
30	SAMPLE	S09V000421		0	0	A	Uranium	SOLID	N/A	<1.8918E+01			18.918	ug/g			U
30	SAMPLE	S09V000421		0	0	A	Yttrium	SOLID	N/A	8.0836E+00			0.37836	ug/g			
30	SAMPLE	S09V000421		0	0	A	Zinc	SOLID	N/A	3.6171E+01			0.94589	ug/g			
30	SAMPLE	S09V000421		0	0	A	Zirconium	SOLID	N/A	1.4001E+01			0.94589	ug/g			
Sample Sequence 31																	
34	CCV	S0909220062		0	3		Silver	LIQUID	5	4.8345E+00			5.00E-03	ug/mL	96.691	% Recovery	
31	CCV	S0909220062		0	0		Aluminum	LIQUID	5	4.9899E+00			0.03	ug/mL	99.798	% Recovery	
31	CCV	S0909220062		0	0		Arsenic	LIQUID	5	5.2112E+00			0.05	ug/mL	104.22	% Recovery	

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LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
31	CCV	S0909220062		0	0	Boron	LIQUID	5	5.0116E+00			0.03	ug/mL	100.23	% Recovery	
31	CCV	S0909220062		0	0	Barium	LIQUID	5	5.1520E+00			3.00E-03	ug/mL	103.04	% Recovery	
31	CCV	S0909220062		0	0	Beryllium	LIQUID	5	5.1174E+00			1.00E-03	ug/mL	102.35	% Recovery	
31	CCV	S0909220062		0	0	Bismuth	LIQUID	5	5.0867E+00			0.1	ug/mL	101.73	% Recovery	
31	CCV	S0909220062		0	0	Calcium	LIQUID	5	5.1149E+00			0.05	ug/mL	102.3	% Recovery	
31	CCV	S0909220062		0	0	Cadmium	LIQUID	5	5.2147E+00			5.00E-03	ug/mL	104.29	% Recovery	
34	CCV	S0909220062		0	3	Cerium	LIQUID	5	5.0742E+00			0.03	ug/mL	101.48	% Recovery	
31	CCV	S0909220062		0	0	Cobalt	LIQUID	5	5.2483E+00			0.01	ug/mL	104.97	% Recovery	
34	CCV	S0909220062		0	3	Chromium	LIQUID	5	5.1339E+00			5.00E-03	ug/mL	102.68	% Recovery	
31	CCV	S0909220062		0	0	Copper	LIQUID	5	5.0278E+00			5.00E-03	ug/mL	100.56	% Recovery	
32	CCV	S0909220062		0	1	Europium	LIQUID	5	4.9222E+00			5.00E-03	ug/mL	98.445	% Recovery	
31	CCV	S0909220062		0	0	Iron	LIQUID	5	5.0981E+00			5.00E-03	ug/mL	101.96	% Recovery	
34	CCV	S0909220062		0	3	Potassium	LIQUID	5	5.1862E+00			0.5	ug/mL	103.72	% Recovery	
31	CCV	S0909220062		0	0	Lanthanum	LIQUID	5	5.0245E+00			3.00E-03	ug/mL	100.49	% Recovery	
31	CCV	S0909220062		0	0	Lithium	LIQUID	5	5.2389E+00			3.00E-03	ug/mL	104.78	% Recovery	
31	CCV	S0909220062		0	0	Magnesium	LIQUID	5	5.0629E+00			0.05	ug/mL	101.26	% Recovery	
31	CCV	S0909220062		0	0	Manganese	LIQUID	5	5.1995E+00			3.00E-03	ug/mL	103.99	% Recovery	
31	CCV	S0909220062		0	0	Molybdenum	LIQUID	5	5.1442E+00			0.02	ug/mL	102.88	% Recovery	
31	CCV	S0909220062		0	0	Sodium	LIQUID	5	5.2785E+00			0.1	ug/mL	105.57	% Recovery	
32	CCV	S0909220062		0	1	Neodymium	LIQUID	5	4.9348E+00			0.01	ug/mL	98.696	% Recovery	
31	CCV	S0909220062		0	0	Nickel	LIQUID	5	5.2471E+00			0.02	ug/mL	104.94	% Recovery	
33	CCV	S0909220062		0	2	Niobium	LIQUID	5	5.0777E+00			0.03	ug/mL	101.55	% Recovery	
31	CCV	S0909220062		0	0	Phosphorus	LIQUID	5	5.0570E+00			0.05	ug/mL	101.14	% Recovery	
31	CCV	S0909220062		0	0	Lead	LIQUID	5	5.4346E+00			0.05	ug/mL	108.69	% Recovery	
32	CCV	S0909220062		0	1	Palladium	LIQUID	5	4.9471E+00			0.1	ug/mL	98.942	% Recovery	
32	CCV	S0909220062		0	1	Praseodymium	LIQUID	5	4.9313E+00			0.01	ug/mL	98.626	% Recovery	
32	CCV	S0909220062		0	1	Rubidium	LIQUID	5	4.9283E+00			1	ug/mL	98.566	% Recovery	
32	CCV	S0909220062		0	1	Rhodium	LIQUID	5	5.0638E+00			0.05	ug/mL	101.28	% Recovery	
32	CCV	S0909220062		0	1	Ruthenium	LIQUID	5	4.9506E+00			0.03	ug/mL	99.011	% Recovery	
31	CCV	S0909220062		0	0	Sulfur	LIQUID	5	5.1849E+00			0.1	ug/mL	103.7	% Recovery	
31	CCV	S0909220062		0	0	Antimony	LIQUID	5	4.9593E+00			0.05	ug/mL	99.186	% Recovery	
31	CCV	S0909220062		0	0	Selenium	LIQUID	5	5.2472E+00			0.1	ug/mL	104.94	% Recovery	
31	CCV	S0909220062		0	0	Silicon	LIQUID	5	4.8132E+00			0.03	ug/mL	96.264	% Recovery	
32	CCV	S0909220062		0	1	Samarium	LIQUID	5	5.0037E+00			0.02	ug/mL	100.07	% Recovery	
33	CCV	S0909220062		0	2	Tin	LIQUID	5	5.1571E+00			0.03	ug/mL	103.14	% Recovery	
31	CCV	S0909220062		0	0	Strontium	LIQUID	5	5.0377E+00			3.00E-03	ug/mL	100.75	% Recovery	
33	CCV	S0909220062		0	2	Tantalum	LIQUID	5	5.2380E+00			0.05	ug/mL	104.76	% Recovery	
33	CCV	S0909220062		0	2	Tellurium	LIQUID	5	5.0212E+00			0.1	ug/mL	100.42	% Recovery	
32	CCV	S0909220062		0	1	Thorium	LIQUID	5	5.1502E+00			0.05	ug/mL	103	% Recovery	
31	CCV	S0909220062		0	0	Titanium	LIQUID	5	5.0094E+00			5.00E-03	ug/mL	100.19	% Recovery	
32	CCV	S0909220062		0	1	Thallium	LIQUID	5	5.2865E+00			0.1	ug/mL	105.73	% Recovery	
32	CCV	S0909220062		0	1	Uranium	LIQUID	5	4.9587E+00			0.1	ug/mL	99.175	% Recovery	

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LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
31	CCV	S0909220062		0 0		Vanadium	LIQUID	5	5.2844E+00			5.00E-03	ug/mL	105.69	% Recovery	
33	CCV	S0909220062		0 2		Tungsten	LIQUID	5	5.0968E+00			0.2	ug/mL	101.94	% Recovery	
32	CCV	S0909220062		0 1		Yttrium	LIQUID	5	5.0173E+00			2.00E-03	ug/mL	100.35	% Recovery	
34	CCV	S0909220062		0 3		Zinc	LIQUID	5	5.0346E+00			5.00E-03	ug/mL	100.69	% Recovery	
31	CCV	S0909220062		0 0		Zirconium	LIQUID	5	4.6421E+00			5.00E-03	ug/mL	92.842	% Recovery	
Sample Sequence 35																
35	CCB	S0909220063		0 0		Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
35	CCB	S0909220063		0 0		Aluminum	LIQUID		<3.0000E-02			0.03	ug/mL			
35	CCB	S0909220063		0 0		Arsenic	LIQUID		<5.0000E-02			0.05	ug/mL			
35	CCB	S0909220063		0 0		Boron	LIQUID		<3.0000E-02			0.03	ug/mL			
35	CCB	S0909220063		0 0		Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
35	CCB	S0909220063		0 0		Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL			
35	CCB	S0909220063		0 0		Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL			
35	CCB	S0909220063		0 0		Calcium	LIQUID		<5.0000E-02			0.05	ug/mL			
35	CCB	S0909220063		0 0		Cadmium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
35	CCB	S0909220063		0 0		Cerium	LIQUID		<3.0000E-02			0.03	ug/mL			
35	CCB	S0909220063		0 0		Cobalt	LIQUID		<1.0000E-02			0.01	ug/mL			
35	CCB	S0909220063		0 0		Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
35	CCB	S0909220063		0 0		Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
35	CCB	S0909220063		0 0		Europium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
35	CCB	S0909220063		0 0		Iron	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
35	CCB	S0909220063		0 0		Potassium	LIQUID		<5.0000E-01			0.5	ug/mL			
35	CCB	S0909220063		0 0		Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
35	CCB	S0909220063		0 0		Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
35	CCB	S0909220063		0 0		Magnesium	LIQUID		<5.0000E-02			0.05	ug/mL			
35	CCB	S0909220063		0 0		Manganese	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
35	CCB	S0909220063		0 0		Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL			
35	CCB	S0909220063		0 0		Sodium	LIQUID		<1.0000E-01			0.1	ug/mL			
35	CCB	S0909220063		0 0		Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
35	CCB	S0909220063		0 0		Nickel	LIQUID		<2.0000E-02			0.02	ug/mL			
35	CCB	S0909220063		0 0		Niobium	LIQUID		<3.0000E-02			0.03	ug/mL			
35	CCB	S0909220063		0 0		Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL			
35	CCB	S0909220063		0 0		Lead	LIQUID		<5.0000E-02			0.05	ug/mL			
35	CCB	S0909220063		0 0		Palladium	LIQUID		<1.0000E-01			0.1	ug/mL			
35	CCB	S0909220063		0 0		Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
35	CCB	S0909220063		0 0		Rubidium	LIQUID		<1.0000E+00			1	ug/mL			
35	CCB	S0909220063		0 0		Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL			
35	CCB	S0909220063		0 0		Ruthenium	LIQUID		<3.0000E-02			0.03	ug/mL			
35	CCB	S0909220063		0 0		Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL			
35	CCB	S0909220063		0 0		Antimony	LIQUID		<5.0000E-02			0.05	ug/mL			
35	CCB	S0909220063		0 0		Selenium	LIQUID		<1.0000E-01			0.1	ug/mL			
35	CCB	S0909220063		0 0		Silicon	LIQUID		<3.0000E-02			0.03	ug/mL			

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LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
35	CCB	S0909220063		0	0		Samarium	LIQUID		<2.0000E-02			0.02	ug/mL			
35	CCB	S0909220063		0	0		Tin	LIQUID		<3.0000E-02			0.03	ug/mL			
35	CCB	S0909220063		0	0		Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
35	CCB	S0909220063		0	0		Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL			
35	CCB	S0909220063		0	0		Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL			
35	CCB	S0909220063		0	0		Thorium	LIQUID		<5.0000E-02			0.05	ug/mL			
35	CCB	S0909220063		0	0		Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
35	CCB	S0909220063		0	0		Thallium	LIQUID		<1.0000E-01			0.1	ug/mL			
35	CCB	S0909220063		0	0		Uranium	LIQUID		<1.0000E-01			0.1	ug/mL			
35	CCB	S0909220063		0	0		Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
35	CCB	S0909220063		0	0		Tungsten	LIQUID		<2.0000E-01			0.2	ug/mL			
35	CCB	S0909220063		0	0		Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL			
35	CCB	S0909220063		0	0		Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
35	CCB	S0909220063		0	0		Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
Sample Sequence 36																	
36	SAMPLE	S09V000438		0	0	A	Aluminum	SOLID	N/A	6.4982E+03			5.7781	ug/g			
36	SAMPLE	S09V000438		0	0	A	Barium	SOLID	N/A	5.7949E+01			0.57781	ug/g			
36	SAMPLE	S09V000438		0	0	A	Beryllium	SOLID	N/A	<1.9260E-01			0.1926	ug/g			U
36	SAMPLE	S09V000438		0	0	A	Calcium	SOLID	N/A	7.3310E+03			9.6302	ug/g			
36	SAMPLE	S09V000438		0	0	A	Cerium	SOLID	N/A	3.0343E+01			5.7781	ug/g			J
36	SAMPLE	S09V000438		0	0	A	Chromium	SOLID	N/A	6.6660E+00			0.96302	ug/g			
36	SAMPLE	S09V000438		0	0	A	Copper	SOLID	N/A	1.0493E+01			0.96302	ug/g			
36	SAMPLE	S09V000438		0	0	A	Europium	SOLID	N/A	3.9908E+00			0.96302	ug/g			J
36	SAMPLE	S09V000438		0	0	A	Iron	SOLID	N/A	2.1379E+04			0.96302	ug/g			
36	SAMPLE	S09V000438		0	0	A	Potassium	SOLID	N/A	1.2757E+03			96.302	ug/g			
36	SAMPLE	S09V000438		0	0	A	Lanthanum	SOLID	N/A	1.3286E+01			0.57781	ug/g			
36	SAMPLE	S09V000438		0	0	A	Lithium	SOLID	N/A	5.8455E+00			0.57781	ug/g			
36	SAMPLE	S09V000438		0	0	A	Magnesium	SOLID	N/A	3.9889E+03			9.6302	ug/g			
36	SAMPLE	S09V000438		0	0	A	Manganese	SOLID	N/A	2.4343E+02			0.57781	ug/g			
36	SAMPLE	S09V000438		0	0	A	Molybdenum	SOLID	N/A	<3.8521E+00			3.8521	ug/g			U
36	SAMPLE	S09V000438		0	0	A	Sodium	SOLID	N/A	8.8832E+02			19.26	ug/g			
36	SAMPLE	S09V000438		0	0	A	Neodymium	SOLID	N/A	1.6874E+01			1.926	ug/g			J
36	SAMPLE	S09V000438		0	0	A	Phosphorus	SOLID	N/A	1.1366E+03			9.6302	ug/g			
36	SAMPLE	S09V000438		0	0	A	Praseodymium	SOLID	N/A	2.9526E+00			1.926	ug/g			J
36	SAMPLE	S09V000438		0	0	A	Sulfur	SOLID	N/A	6.9570E+01			19.26	ug/g			J
36	SAMPLE	S09V000438		0	0	A	Silicon	SOLID	N/A	1.0728E+03			5.7781	ug/g			b
36	SAMPLE	S09V000438		0	0	A	Tin	SOLID	N/A	6.7816E+00			5.7781	ug/g			J
36	SAMPLE	S09V000438		0	0	A	Strontium	SOLID	N/A	2.5770E+01			0.57781	ug/g			
36	SAMPLE	S09V000438		0	0	A	Titanium	SOLID	N/A	1.4757E+03			0.96302	ug/g			b
36	SAMPLE	S09V000438		0	0	A	Uranium	SOLID	N/A	<1.9260E+01			19.26	ug/g			U
36	SAMPLE	S09V000438		0	0	A	Yttrium	SOLID	N/A	1.2067E+01			0.38521	ug/g			
36	SAMPLE	S09V000438		0	0	A	Zinc	SOLID	N/A	4.0331E+01			0.96302	ug/g			

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LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
36	SAMPLE	S09V000438		0	0	A	Zirconium	SOLID	N/A	1.7835E+01			0.96302	ug/g			
Sample Sequence 37																	
37	SAMPLE	S09V000453		0	0	A	Aluminum	SOLID	N/A	4.6141E+03			5.6264	ug/g			
37	SAMPLE	S09V000453		0	0	A	Barium	SOLID	N/A	5.1665E+01			0.56264	ug/g			
37	SAMPLE	S09V000453		0	0	A	Beryllium	SOLID	N/A	<1.8755E-01			0.18755	ug/g			U
37	SAMPLE	S09V000453		0	0	A	Calcium	SOLID	N/A	5.2570E+03			9.3773	ug/g			
37	SAMPLE	S09V000453		0	0	A	Cerium	SOLID	N/A	2.3303E+01			5.6264	ug/g			J
37	SAMPLE	S09V000453		0	0	A	Chromium	SOLID	N/A	1.5431E+01			0.93773	ug/g			
37	SAMPLE	S09V000453		0	0	A	Copper	SOLID	N/A	9.5143E+00			0.93773	ug/g			
37	SAMPLE	S09V000453		0	0	A	Europium	SOLID	N/A	2.4962E+00			0.93773	ug/g			J
37	SAMPLE	S09V000453		0	0	A	Iron	SOLID	N/A	1.4234E+04			0.93773	ug/g			
37	SAMPLE	S09V000453		0	0	A	Potassium	SOLID	N/A	1.0473E+03			93.773	ug/g			
37	SAMPLE	S09V000453		0	0	A	Lanthanum	SOLID	N/A	8.9685E+00			0.56264	ug/g			
37	SAMPLE	S09V000453		0	0	A	Lithium	SOLID	N/A	7.6069E+00			0.56264	ug/g			
37	SAMPLE	S09V000453		0	0	A	Magnesium	SOLID	N/A	3.9598E+03			9.3773	ug/g			
37	SAMPLE	S09V000453		0	0	A	Manganese	SOLID	N/A	2.1297E+02			0.56264	ug/g			
37	SAMPLE	S09V000453		0	0	A	Molybdenum	SOLID	N/A	<3.7509E+00			3.7509	ug/g			U
37	SAMPLE	S09V000453		0	0	A	Sodium	SOLID	N/A	1.4034E+02			18.755	ug/g			J
37	SAMPLE	S09V000453		0	0	A	Neodymium	SOLID	N/A	1.0105E+01			1.8755	ug/g			J
37	SAMPLE	S09V000453		0	0	A	Phosphorus	SOLID	N/A	4.6858E+02			9.3773	ug/g			
37	SAMPLE	S09V000453		0	0	A	Sulfur	SOLID	N/A	6.0510E+01			18.755	ug/g			J
37	SAMPLE	S09V000453		0	0	A	Silicon	SOLID	N/A	9.3433E+02			5.6264	ug/g			b
37	SAMPLE	S09V000453		0	0	A	Strontium	SOLID	N/A	1.7541E+01			0.56264	ug/g			
37	SAMPLE	S09V000453		0	0	A	Titanium	SOLID	N/A	8.0128E+02			0.93773	ug/g			b
37	SAMPLE	S09V000453		0	0	A	Uranium	SOLID	N/A	<1.8755E+01			18.755	ug/g			U
37	SAMPLE	S09V000453		0	0	A	Yttrium	SOLID	N/A	4.8743E+00			0.37509	ug/g			
37	SAMPLE	S09V000453		0	0	A	Zinc	SOLID	N/A	2.7826E+01			0.93773	ug/g			
37	SAMPLE	S09V000453		0	0	A	Zirconium	SOLID	N/A	5.6620E+00			0.93773	ug/g			J
Sample Sequence 38																	
38	SAMPLE	S09V000199		0	0	A	Aluminum	SOLID	N/A	5.3028E+03			5.6243	ug/g			
38	SAMPLE	S09V000199		0	0	A	Barium	SOLID	N/A	6.2490E+01			0.56243	ug/g			
38	SAMPLE	S09V000199		0	0	A	Beryllium	SOLID	N/A	<1.8748E-01			0.18748	ug/g			U
38	SAMPLE	S09V000199		0	0	A	Calcium	SOLID	N/A	5.6852E+03			9.3738	ug/g			
38	SAMPLE	S09V000199		0	0	A	Cerium	SOLID	N/A	1.8211E+01			5.6243	ug/g			J
38	SAMPLE	S09V000199		0	0	A	Chromium	SOLID	N/A	1.5259E+01			0.93738	ug/g			
38	SAMPLE	S09V000199		0	0	A	Copper	SOLID	N/A	9.7900E+00			0.93738	ug/g			
38	SAMPLE	S09V000199		0	0	A	Europium	SOLID	N/A	2.5816E+00			0.93738	ug/g			J
38	SAMPLE	S09V000199		0	0	A	Iron	SOLID	N/A	1.3515E+04			0.93738	ug/g			
38	SAMPLE	S09V000199		0	0	A	Potassium	SOLID	N/A	1.0939E+03			93.738	ug/g			
38	SAMPLE	S09V000199		0	0	A	Lanthanum	SOLID	N/A	7.2722E+00			0.56243	ug/g			
38	SAMPLE	S09V000199		0	0	A	Lithium	SOLID	N/A	8.0652E+00			0.56243	ug/g			
38	SAMPLE	S09V000199		0	0	A	Magnesium	SOLID	N/A	3.6068E+03			9.3738	ug/g			

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LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
38	SAMPLE	S09V000199		0	0	A	Manganese	SOLID	N/A	2.6615E+02			0.56243	ug/g			
38	SAMPLE	S09V000199		0	0	A	Molybdenum	SOLID	N/A	<3.7495E+00			3.7495	ug/g			U
38	SAMPLE	S09V000199		0	0	A	Sodium	SOLID	N/A	1.7833E+02			18.748	ug/g			J
38	SAMPLE	S09V000199		0	0	A	Neodymium	SOLID	N/A	8.9126E+00			1.8748	ug/g			J
38	SAMPLE	S09V000199		0	0	A	Phosphorus	SOLID	N/A	4.1337E+02			9.3738	ug/g			
38	SAMPLE	S09V000199		0	0	A	Sulfur	SOLID	N/A	4.4717E+01			18.748	ug/g			J
38	SAMPLE	S09V000199		0	0	A	Silicon	SOLID	N/A	1.1102E+03			5.6243	ug/g			b
38	SAMPLE	S09V000199		0	0	A	Strontium	SOLID	N/A	2.3037E+01			0.56243	ug/g			
38	SAMPLE	S09V000199		0	0	A	Titanium	SOLID	N/A	8.6107E+02			0.93738	ug/g			b
38	SAMPLE	S09V000199		0	0	A	Uranium	SOLID	N/A	<1.8748E+01			18.748	ug/g			U
38	SAMPLE	S09V000199		0	0	A	Yttrium	SOLID	N/A	4.6888E+00			0.37495	ug/g			
38	SAMPLE	S09V000199		0	0	A	Zinc	SOLID	N/A	2.9430E+01			0.93738	ug/g			
38	SAMPLE	S09V000199		0	0	A	Zirconium	SOLID	N/A	6.4698E+00			0.93738	ug/g			J
Sample Sequence 39																	
39	ICSA	S0909220060		0	0		Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
39	ICSA	S0909220060		0	0		Aluminum	LIQUID	200	2.0008E+02			0.03	ug/mL	100.04	% Recovery	
39	ICSA	S0909220060		0	0		Arsenic	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
39	ICSA	S0909220060		0	0		Boron	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
39	ICSA	S0909220060		0	0		Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
39	ICSA	S0909220060		0	0		Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL	N/A		
39	ICSA	S0909220060		0	0		Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
39	ICSA	S0909220060		0	0		Calcium	LIQUID	200	2.1150E+02			0.05	ug/mL	105.75	% Recovery	
39	ICSA	S0909220060		0	0		Cadmium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
39	ICSA	S0909220060		0	0		Cerium	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
39	ICSA	S0909220060		0	0		Cobalt	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
39	ICSA	S0909220060		0	0		Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
39	ICSA	S0909220060		0	0		Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
39	ICSA	S0909220060		0	0		Europium	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
39	ICSA	S0909220060		0	0		Iron	LIQUID	200	1.9123E+02			5.00E-03	ug/mL	95.614	% Recovery	
39	ICSA	S0909220060		0	0		Potassium	LIQUID		<5.0000E-01			0.5	ug/mL	N/A		
39	ICSA	S0909220060		0	0		Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
39	ICSA	S0909220060		0	0		Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
39	ICSA	S0909220060		0	0		Magnesium	LIQUID	200	1.9139E+02			0.05	ug/mL	95.696	% Recovery	
39	ICSA	S0909220060		0	0		Manganese	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
39	ICSA	S0909220060		0	0		Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
39	ICSA	S0909220060		0	0		Sodium	LIQUID	200	1.8043E+02			0.1	ug/mL	90.213	% Recovery	
39	ICSA	S0909220060		0	0		Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
39	ICSA	S0909220060		0	0		Nickel	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
39	ICSA	S0909220060		0	0		Niobium	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
39	ICSA	S0909220060		0	0		Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
39	ICSA	S0909220060		0	0		Lead	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
39	ICSA	S0909220060		0	0		Palladium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		

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LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
39	ICSA	S0909220060		0	0	Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
39	ICSA	S0909220060		0	0	Rubidium	LIQUID		<1.0000E+00			1	ug/mL	N/A		
39	ICSA	S0909220060		0	0	Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
39	ICSA	S0909220060		0	0	Ruthenium	LIQUID		<2.0000E-01			0.2	ug/mL	N/A		
39	ICSA	S0909220060		0	0	Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
39	ICSA	S0909220060		0	0	Antimony	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
39	ICSA	S0909220060		0	0	Selenium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
39	ICSA	S0909220060		0	0	Silicon	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
39	ICSA	S0909220060		0	0	Samarium	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
39	ICSA	S0909220060		0	0	Tin	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
39	ICSA	S0909220060		0	0	Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
39	ICSA	S0909220060		0	0	Tantalum	LIQUID		<6.0000E-02			0.06	ug/mL	N/A		
39	ICSA	S0909220060		0	0	Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
39	ICSA	S0909220060		0	0	Thorium	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
39	ICSA	S0909220060		0	0	Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
39	ICSA	S0909220060		0	0	Thallium	LIQUID		<6.0000E-01			0.6	ug/mL	N/A		
39	ICSA	S0909220060		0	0	Uranium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
39	ICSA	S0909220060		0	0	Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
39	ICSA	S0909220060		0	0	Tungsten	LIQUID		<2.0000E-01			0.2	ug/mL	N/A		
39	ICSA	S0909220060		0	0	Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL	N/A		
39	ICSA	S0909220060		0	0	Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
39	ICSA	S0909220060		0	0	Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
Sample Sequence 40																
40	ICSAB	S0909220061		0	0	Silver	LIQUID	1	1.0036E+00			5.00E-03	ug/mL	100.36	% Recovery	
40	ICSAB	S0909220061		0	0	Aluminum	LIQUID	200	1.9760E+02			0.03	ug/mL	98.801	% Recovery	
40	ICSAB	S0909220061		0	0	Arsenic	LIQUID	5	5.0554E+00			0.05	ug/mL	101.11	% Recovery	
40	ICSAB	S0909220061		0	0	Boron	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
40	ICSAB	S0909220061		0	0	Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
40	ICSAB	S0909220061		0	0	Beryllium	LIQUID	.02	1.6960E-02			1.00E-03	ug/mL	84.8	% Recovery	
40	ICSAB	S0909220061		0	0	Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
40	ICSAB	S0909220061		0	0	Calcium	LIQUID	200	2.0531E+02			0.05	ug/mL	102.65	% Recovery	
40	ICSAB	S0909220061		0	0	Cadmium	LIQUID	.2	1.7431E-01			5.00E-03	ug/mL	87.155	% Recovery	
40	ICSAB	S0909220061		0	0	Cerium	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
40	ICSAB	S0909220061		0	0	Cobalt	LIQUID	5	4.8765E+00			0.01	ug/mL	97.529	% Recovery	
40	ICSAB	S0909220061		0	0	Chromium	LIQUID	5	4.9246E+00			5.00E-03	ug/mL	98.493	% Recovery	
40	ICSAB	S0909220061		0	0	Copper	LIQUID	5	5.0379E+00			5.00E-03	ug/mL	100.76	% Recovery	
40	ICSAB	S0909220061		0	0	Europium	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
40	ICSAB	S0909220061		0	0	Iron	LIQUID	200	1.8693E+02			5.00E-03	ug/mL	93.466	% Recovery	
40	ICSAB	S0909220061		0	0	Potassium	LIQUID		<5.0000E-01			0.5	ug/mL	N/A		
40	ICSAB	S0909220061		0	0	Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
40	ICSAB	S0909220061		0	0	Lithium	LIQUID	1	9.6226E-01			3.00E-03	ug/mL	96.226	% Recovery	
40	ICSAB	S0909220061		0	0	Magnesium	LIQUID	200	1.9039E+02			0.05	ug/mL	95.194	% Recovery	

Units shown for QC (BLK/BKG) may not reflect the actual units.

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
40	ICSAB	S0909220061		0	0	Manganese	LIQUID	5	4.8734E+00			3.00E-03	ug/mL	97.468	% Recovery	
40	ICSAB	S0909220061		0	0	Molybdenum	LIQUID	5	4.7797E+00			0.02	ug/mL	95.593	% Recovery	
40	ICSAB	S0909220061		0	0	Sodium	LIQUID	200	1.8139E+02			0.1	ug/mL	90.694	% Recovery	
40	ICSAB	S0909220061		0	0	Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
40	ICSAB	S0909220061		0	0	Nickel	LIQUID	5	4.8411E+00			0.02	ug/mL	96.822	% Recovery	
40	ICSAB	S0909220061		0	0	Niobium	LIQUID	5	4.5076E+00			0.03	ug/mL	90.151	% Recovery	
40	ICSAB	S0909220061		0	0	Phosphorus	LIQUID	1	9.6630E-01			0.05	ug/mL	96.63	% Recovery	
40	ICSAB	S0909220061		0	0	Lead	LIQUID	1	8.2016E-01			0.05	ug/mL	82.016	% Recovery	
40	ICSAB	S0909220061		0	0	Palladium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
40	ICSAB	S0909220061		0	0	Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
40	ICSAB	S0909220061		0	0	Rubidium	LIQUID		<1.0000E+00			1	ug/mL	N/A		
40	ICSAB	S0909220061		0	0	Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
40	ICSAB	S0909220061		0	0	Ruthenium	LIQUID		<2.0000E-01			0.2	ug/mL	N/A		
40	ICSAB	S0909220061		0	0	Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
40	ICSAB	S0909220061		0	0	Antimony	LIQUID	5	5.0255E+00			0.05	ug/mL	100.51	% Recovery	
40	ICSAB	S0909220061		0	0	Selenium	LIQUID	5	5.0118E+00			0.1	ug/mL	100.24	% Recovery	
40	ICSAB	S0909220061		0	0	Silicon	LIQUID		<3.0000E-01			0.3	ug/mL	N/A		
40	ICSAB	S0909220061		0	0	Samarium	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
40	ICSAB	S0909220061		0	0	Tin	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
40	ICSAB	S0909220061		0	0	Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
40	ICSAB	S0909220061		0	0	Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
40	ICSAB	S0909220061		0	0	Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
40	ICSAB	S0909220061		0	0	Thorium	LIQUID		<2.0000E-01			0.2	ug/mL	N/A		
40	ICSAB	S0909220061		0	0	Titanium	LIQUID	50	4.8068E+01			5.00E-03	ug/mL	96.137	% Recovery	
40	ICSAB	S0909220061		0	0	Thallium	LIQUID		<7.0000E-01			0.7	ug/mL	N/A		
40	ICSAB	S0909220061		0	0	Uranium	LIQUID	5	4.6317E+00			0.1	ug/mL	92.634	% Recovery	
40	ICSAB	S0909220061		0	0	Vanadium	LIQUID	1	9.8785E-01			5.00E-03	ug/mL	98.785	% Recovery	
40	ICSAB	S0909220061		0	0	Tungsten	LIQUID		<2.0000E-01			0.2	ug/mL	N/A		
40	ICSAB	S0909220061		0	0	Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL	N/A		
40	ICSAB	S0909220061		0	0	Zinc	LIQUID	5	5.0377E+00			5.00E-03	ug/mL	100.75	% Recovery	
40	ICSAB	S0909220061		0	0	Zirconium	LIQUID	5	4.1453E+00			5.00E-03	ug/mL	82.906	% Recovery	
Sample Sequence 41																
44	CCV	S0909220070		0	3	Silver	LIQUID	5	4.7884E+00			5.00E-03	ug/mL	95.768	% Recovery	
41	CCV	S0909220070		0	0	Aluminum	LIQUID	5	4.9998E+00			0.03	ug/mL	99.997	% Recovery	
41	CCV	S0909220070		0	0	Arsenic	LIQUID	5	5.1802E+00			0.05	ug/mL	103.6	% Recovery	
41	CCV	S0909220070		0	0	Boron	LIQUID	5	5.0011E+00			0.03	ug/mL	100.02	% Recovery	
41	CCV	S0909220070		0	0	Barium	LIQUID	5	5.1146E+00			3.00E-03	ug/mL	102.29	% Recovery	
41	CCV	S0909220070		0	0	Beryllium	LIQUID	5	5.1036E+00			1.00E-03	ug/mL	102.07	% Recovery	
41	CCV	S0909220070		0	0	Bismuth	LIQUID	5	5.1684E+00			0.1	ug/mL	103.37	% Recovery	
41	CCV	S0909220070		0	0	Calcium	LIQUID	5	5.1966E+00			0.05	ug/mL	103.93	% Recovery	
41	CCV	S0909220070		0	0	Cadmium	LIQUID	5	5.2416E+00			5.00E-03	ug/mL	104.83	% Recovery	
42	CCV	S0909220070		0	1	Cerium	LIQUID	5	5.2510E+00			0.03	ug/mL	105.02	% Recovery	

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LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
41	CCV	S0909220070		0	0	Cobalt	LIQUID	5	5.2858E+00			0.01	ug/mL	105.72	% Recovery	
41	CCV	S0909220070		0	0	Chromium	LIQUID	5	5.3318E+00			5.00E-03	ug/mL	106.64	% Recovery	
41	CCV	S0909220070		0	0	Copper	LIQUID	5	4.9918E+00			5.00E-03	ug/mL	99.835	% Recovery	
42	CCV	S0909220070		0	1	Europium	LIQUID	5	4.9285E+00			5.00E-03	ug/mL	98.57	% Recovery	
41	CCV	S0909220070		0	0	Iron	LIQUID	5	5.0987E+00			5.00E-03	ug/mL	101.97	% Recovery	
41	CCV	S0909220070		0	0	Potassium	LIQUID	5	5.3991E+00			0.5	ug/mL	107.98	% Recovery	
41	CCV	S0909220070		0	0	Lanthanum	LIQUID	5	4.9928E+00			3.00E-03	ug/mL	99.856	% Recovery	
41	CCV	S0909220070		0	0	Lithium	LIQUID	5	5.3273E+00			3.00E-03	ug/mL	106.55	% Recovery	
41	CCV	S0909220070		0	0	Magnesium	LIQUID	5	5.0433E+00			0.05	ug/mL	100.87	% Recovery	
41	CCV	S0909220070		0	0	Manganese	LIQUID	5	5.2185E+00			3.00E-03	ug/mL	104.37	% Recovery	
41	CCV	S0909220070		0	0	Molybdenum	LIQUID	5	5.1593E+00			0.02	ug/mL	103.19	% Recovery	
41	CCV	S0909220070		0	0	Sodium	LIQUID	5	5.3993E+00			0.1	ug/mL	107.99	% Recovery	
42	CCV	S0909220070		0	1	Neodymium	LIQUID	5	4.9440E+00			0.01	ug/mL	98.881	% Recovery	
41	CCV	S0909220070		0	0	Nickel	LIQUID	5	5.2261E+00			0.02	ug/mL	104.52	% Recovery	
43	CCV	S0909220070		0	2	Niobium	LIQUID	5	5.1092E+00			0.03	ug/mL	102.18	% Recovery	
41	CCV	S0909220070		0	0	Phosphorus	LIQUID	5	5.1137E+00			0.05	ug/mL	102.27	% Recovery	
41	CCV	S0909220070		0	0	Lead	LIQUID	5	5.4080E+00			0.05	ug/mL	108.16	% Recovery	
42	CCV	S0909220070		0	1	Palladium	LIQUID	5	4.9758E+00			0.1	ug/mL	99.517	% Recovery	
42	CCV	S0909220070		0	1	Praseodymium	LIQUID	5	4.9436E+00			0.01	ug/mL	98.871	% Recovery	
42	CCV	S0909220070		0	1	Rubidium	LIQUID	5	5.0975E+00			1	ug/mL	101.95	% Recovery	
42	CCV	S0909220070		0	1	Rhodium	LIQUID	5	5.0744E+00			0.05	ug/mL	101.49	% Recovery	
42	CCV	S0909220070		0	1	Ruthenium	LIQUID	5	4.9779E+00			0.03	ug/mL	99.558	% Recovery	
41	CCV	S0909220070		0	0	Sulfur	LIQUID	5	5.2051E+00			0.1	ug/mL	104.1	% Recovery	
41	CCV	S0909220070		0	0	Antimony	LIQUID	5	5.0275E+00			0.05	ug/mL	100.55	% Recovery	
41	CCV	S0909220070		0	0	Selenium	LIQUID	5	5.2629E+00			0.1	ug/mL	105.26	% Recovery	
41	CCV	S0909220070		0	0	Silicon	LIQUID	5	4.8224E+00			0.03	ug/mL	96.449	% Recovery	
42	CCV	S0909220070		0	1	Samarium	LIQUID	5	5.0179E+00			0.02	ug/mL	100.36	% Recovery	
43	CCV	S0909220070		0	2	Tin	LIQUID	5	5.1975E+00			0.03	ug/mL	103.95	% Recovery	
41	CCV	S0909220070		0	0	Strontium	LIQUID	5	5.0121E+00			3.00E-03	ug/mL	100.24	% Recovery	
43	CCV	S0909220070		0	2	Tantalum	LIQUID	5	5.2771E+00			0.05	ug/mL	105.54	% Recovery	
43	CCV	S0909220070		0	2	Tellurium	LIQUID	5	5.0532E+00			0.1	ug/mL	101.06	% Recovery	
42	CCV	S0909220070		0	1	Thorium	LIQUID	5	5.1534E+00			0.05	ug/mL	103.07	% Recovery	
41	CCV	S0909220070		0	0	Titanium	LIQUID	5	4.9924E+00			5.00E-03	ug/mL	99.847	% Recovery	
42	CCV	S0909220070		0	1	Thallium	LIQUID	5	5.4141E+00			0.1	ug/mL	108.28	% Recovery	
42	CCV	S0909220070		0	1	Uranium	LIQUID	5	4.9715E+00			0.1	ug/mL	99.429	% Recovery	
41	CCV	S0909220070		0	0	Vanadium	LIQUID	5	5.2909E+00			5.00E-03	ug/mL	105.82	% Recovery	
43	CCV	S0909220070		0	2	Tungsten	LIQUID	5	5.0154E+00			0.2	ug/mL	100.31	% Recovery	
42	CCV	S0909220070		0	1	Yttrium	LIQUID	5	5.0265E+00			2.00E-03	ug/mL	100.53	% Recovery	
44	CCV	S0909220070		0	3	Zinc	LIQUID	5	4.9744E+00			5.00E-03	ug/mL	99.487	% Recovery	
41	CCV	S0909220070		0	0	Zirconium	LIQUID	5	4.6328E+00			5.00E-03	ug/mL	92.656	% Recovery	
Sample Sequence 45																
45	LLS	S0909220071		0	0	Silver	LIQUID	.02	1.8250E-02			5.00E-03	ug/mL	91.25	% Recovery	

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LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
45	LLS	S0909220071		0	0	Aluminum	LIQUID	.1	8.1580E-02			0.03	ug/mL	81.58	% Recovery	
45	LLS	S0909220071		0	0	Arsenic	LIQUID	.2	2.0815E-01			0.05	ug/mL	104.08	% Recovery	
46	LLS	S0909220071		0	1	Boron	LIQUID	.1	1.0295E-01			0.03	ug/mL	102.95	% Recovery	
45	LLS	S0909220071		0	0	Barium	LIQUID	.01	8.8100E-03			3.00E-03	ug/mL	88.1	% Recovery	
45	LLS	S0909220071		0	0	Beryllium	LIQUID	.001	1.2400E-03			1.00E-03	ug/mL	124	% Recovery	
45	LLS	S0909220071		0	0	Bismuth	LIQUID	.2	2.0147E-01			0.1	ug/mL	100.74	% Recovery	
45	LLS	S0909220071		0	0	Calcium	LIQUID	.2	1.9283E-01			0.05	ug/mL	96.415	% Recovery	
45	LLS	S0909220071		0	0	Cadmium	LIQUID	.01	8.0300E-03			5.00E-03	ug/mL	80.3	% Recovery	
45	LLS	S0909220071		0	0	Cerium	LIQUID	.2	2.0601E-01			0.03	ug/mL	103	% Recovery	
46	LLS	S0909220071		0	1	Cobalt	LIQUID	.04	3.3110E-02			0.01	ug/mL	82.775	% Recovery	
45	LLS	S0909220071		0	0	Chromium	LIQUID	.02	2.0610E-02			5.00E-03	ug/mL	103.05	% Recovery	
46	LLS	S0909220071		0	1	Copper	LIQUID	.02	1.9120E-02			5.00E-03	ug/mL	95.6	% Recovery	
47	LLS	S0909220071		0	2	Europium	LIQUID	.1	1.0050E-01			5.00E-03	ug/mL	100.5	% Recovery	
45	LLS	S0909220071		0	0	Iron	LIQUID	.04	3.6250E-02			5.00E-03	ug/mL	90.625	% Recovery	
45	LLS	S0909220071		0	0	Potassium	LIQUID	.5	6.0542E-01			0.5	ug/mL	121.08	% Recovery	
45	LLS	S0909220071		0	0	Lanthanum	LIQUID	.01	8.2500E-03			3.00E-03	ug/mL	82.5	% Recovery	
45	LLS	S0909220071		0	0	Lithium	LIQUID	.02	2.2430E-02			3.00E-03	ug/mL	112.15	% Recovery	
45	LLS	S0909220071		0	0	Magnesium	LIQUID	.2	1.7655E-01			0.05	ug/mL	88.275	% Recovery	
45	LLS	S0909220071		0	0	Manganese	LIQUID	.02	2.0080E-02			3.00E-03	ug/mL	100.4	% Recovery	
46	LLS	S0909220071		0	1	Molybdenum	LIQUID	.1	1.0450E-01			0.02	ug/mL	104.5	% Recovery	
45	LLS	S0909220071		0	0	Sodium	LIQUID	.2	2.1154E-01			0.1	ug/mL	105.77	% Recovery	
45	LLS	S0909220071		0	0	Neodymium	LIQUID	.1	9.7130E-02			0.01	ug/mL	97.13	% Recovery	
45	LLS	S0909220071		0	0	Nickel	LIQUID	.03	2.9560E-02			0.02	ug/mL	98.533	% Recovery	
49	LLS	S0909220071		0	4	Niobium	LIQUID	.1	9.5640E-02			0.03	ug/mL	95.64	% Recovery	
46	LLS	S0909220071		0	1	Phosphorus	LIQUID	.4	4.2385E-01			0.05	ug/mL	105.96	% Recovery	
45	LLS	S0909220071		0	0	Lead	LIQUID	.2	2.1505E-01			0.05	ug/mL	107.52	% Recovery	
48	LLS	S0909220071		0	3	Palladium	LIQUID	1	1.0735E+00			0.1	ug/mL	107.35	% Recovery	
47	LLS	S0909220071		0	2	Praseodymium	LIQUID	.1	9.3640E-02			0.01	ug/mL	93.64	% Recovery	
47	LLS	S0909220071		0	2	Rubidium	LIQUID	1	1.0497E+00			1	ug/mL	104.97	% Recovery	
48	LLS	S0909220071		0	3	Rhodium	LIQUID	.1	9.7970E-02			0.05	ug/mL	97.97	% Recovery	
48	LLS	S0909220071		0	3	Ruthenium	LIQUID	.1	1.0136E-01			0.03	ug/mL	101.36	% Recovery	
46	LLS	S0909220071		0	1	Sulfur	LIQUID	.2	2.0606E-01			0.1	ug/mL	103.03	% Recovery	
46	LLS	S0909220071		0	1	Antimony	LIQUID	.1	1.1398E-01			0.05	ug/mL	113.98	% Recovery	
45	LLS	S0909220071		0	0	Selenium	LIQUID	.2	2.5820E-01			0.1	ug/mL	129.1	% Recovery	
46	LLS	S0909220071		0	1	Silicon	LIQUID	.1	9.9060E-02			0.03	ug/mL	99.06	% Recovery	
45	LLS	S0909220071		0	0	Samarium	LIQUID	.1	1.0189E-01			0.02	ug/mL	101.89	% Recovery	
49	LLS	S0909220071		0	4	Tin	LIQUID	.1	8.4700E-02			0.03	ug/mL	84.7	% Recovery	
45	LLS	S0909220071		0	0	Strontium	LIQUID	.02	1.8960E-02			3.00E-03	ug/mL	94.8	% Recovery	
49	LLS	S0909220071		0	4	Tantalum	LIQUID	1	1.0325E+00			0.05	ug/mL	103.25	% Recovery	
49	LLS	S0909220071		0	4	Tellurium	LIQUID	1	1.0239E+00			0.1	ug/mL	102.39	% Recovery	
47	LLS	S0909220071		0	2	Thorium	LIQUID	.1	9.2360E-02			0.05	ug/mL	92.36	% Recovery	
46	LLS	S0909220071		0	1	Titanium	LIQUID	.02	1.6610E-02			5.00E-03	ug/mL	83.05	% Recovery	

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
45	LLS	S0909220071		0	0	Thallium	LIQUID	.4	4.1091E-01			0.1	ug/mL	102.73	% Recovery	
46	LLS	S0909220071		0	1	Uranium	LIQUID	.5	5.1083E-01			0.1	ug/mL	102.17	% Recovery	
46	LLS	S0909220071		0	1	Vanadium	LIQUID	.05	4.8980E-02			5.00E-03	ug/mL	97.96	% Recovery	
49	LLS	S0909220071		0	4	Tungsten	LIQUID	1	1.1370E+00			0.2	ug/mL	113.7	% Recovery	
47	LLS	S0909220071		0	2	Yttrium	LIQUID	.1	9.8920E-02			2.00E-03	ug/mL	98.92	% Recovery	
46	LLS	S0909220071		0	1	Zinc	LIQUID	.02	1.8450E-02			5.00E-03	ug/mL	92.25	% Recovery	
46	LLS	S0909220071		0	1	Zirconium	LIQUID	.02	1.8220E-02			5.00E-03	ug/mL	91.1	% Recovery	
Sample Sequence 50																
50	CCB	S0909220069		0	0	Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
50	CCB	S0909220069		0	0	Aluminum	LIQUID		<3.0000E-02			0.03	ug/mL			
50	CCB	S0909220069		0	0	Arsenic	LIQUID		<5.0000E-02			0.05	ug/mL			
50	CCB	S0909220069		0	0	Boron	LIQUID		<3.0000E-02			0.03	ug/mL			
50	CCB	S0909220069		0	0	Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
50	CCB	S0909220069		0	0	Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL			
50	CCB	S0909220069		0	0	Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL			
50	CCB	S0909220069		0	0	Calcium	LIQUID		<5.0000E-02			0.05	ug/mL			
50	CCB	S0909220069		0	0	Cadmium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
50	CCB	S0909220069		0	0	Cerium	LIQUID		<3.0000E-02			0.03	ug/mL			
50	CCB	S0909220069		0	0	Cobalt	LIQUID		<1.0000E-02			0.01	ug/mL			
50	CCB	S0909220069		0	0	Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
50	CCB	S0909220069		0	0	Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
50	CCB	S0909220069		0	0	Europium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
50	CCB	S0909220069		0	0	Iron	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
50	CCB	S0909220069		0	0	Potassium	LIQUID		<5.0000E-01			0.5	ug/mL			
50	CCB	S0909220069		0	0	Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
50	CCB	S0909220069		0	0	Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
50	CCB	S0909220069		0	0	Magnesium	LIQUID		<5.0000E-02			0.05	ug/mL			
50	CCB	S0909220069		0	0	Manganese	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
50	CCB	S0909220069		0	0	Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL			
50	CCB	S0909220069		0	0	Sodium	LIQUID		<1.0000E-01			0.1	ug/mL			
50	CCB	S0909220069		0	0	Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
50	CCB	S0909220069		0	0	Nickel	LIQUID		<2.0000E-02			0.02	ug/mL			
50	CCB	S0909220069		0	0	Niobium	LIQUID		<3.0000E-02			0.03	ug/mL			
50	CCB	S0909220069		0	0	Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL			
50	CCB	S0909220069		0	0	Lead	LIQUID		<5.0000E-02			0.05	ug/mL			
50	CCB	S0909220069		0	0	Palladium	LIQUID		<1.0000E-01			0.1	ug/mL			
50	CCB	S0909220069		0	0	Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
50	CCB	S0909220069		0	0	Rubidium	LIQUID		<1.0000E+00			1	ug/mL			
50	CCB	S0909220069		0	0	Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL			
50	CCB	S0909220069		0	0	Ruthenium	LIQUID		<3.0000E-02			0.03	ug/mL			
50	CCB	S0909220069		0	0	Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL			
50	CCB	S0909220069		0	0	Antimony	LIQUID		<5.0000E-02			0.05	ug/mL			

Units shown for QC (BLK/BKG) may not reflect the actual units.

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LABCORE Completed Batch Report for Batch# 00016229

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
50	CCB	S0909220069		0	0	Antimony	LIQUID		<5.0000E-02			0.05	ug/mL			
50	CCB	S0909220069		0	0	Selenium	LIQUID		<1.0000E-01			0.1	ug/mL			
50	CCB	S0909220069		0	0	Silicon	LIQUID		<3.0000E-02			0.03	ug/mL			
50	CCB	S0909220069		0	0	Samarium	LIQUID		<2.0000E-02			0.02	ug/mL			
50	CCB	S0909220069		0	0	Tin	LIQUID		<3.0000E-02			0.03	ug/mL			
50	CCB	S0909220069		0	0	Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
50	CCB	S0909220069		0	0	Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL			
50	CCB	S0909220069		0	0	Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL			
50	CCB	S0909220069		0	0	Thorium	LIQUID		<5.0000E-02			0.05	ug/mL			
50	CCB	S0909220069		0	0	Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
50	CCB	S0909220069		0	0	Thallium	LIQUID		<1.0000E-01			0.1	ug/mL			
50	CCB	S0909220069		0	0	Uranium	LIQUID		<1.0000E-01			0.1	ug/mL			
50	CCB	S0909220069		0	0	Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
50	CCB	S0909220069		0	0	Tungsten	LIQUID		<2.0000E-01			0.2	ug/mL			
50	CCB	S0909220069		0	0	Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL			
50	CCB	S0909220069		0	0	Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
50	CCB	S0909220069		0	0	Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00016229

Reviewer Signature — Date: 1/5/2010

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LABCORE Completed Batch Report for Batch# 00016229

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0909220051	ICV				
2	S0909220051	ICV				
3	S0909220051	ICV				
4	S0909220051	ICV				
5	S0909220053	LLS				
6	S0909220053	LLS				
7	S0909220053	LLS				
8	S0909220053	LLS				
9	S0909220053	LLS				
10	S0909220052	ICB				
11	S0909220054	ICSA				
12	S0909220055	ICSAB				
13	S09V000464	SAMPLE		20090325	B1YT92	C Farm WMA C
14	S0907160098	BLNK-PREP				
15	S0907160099	STD-PREP				
16	S0907160099	STD-PREP				
17	S0909220056	SERDIL	S09V000464			
18	S0907160100	DUP	S09V000464			
19	S0909220058	CCV				
20	S0909220058	CCV				
21	S0909220058	CCV				
22	S0909220058	CCV				
23	S0909220059	CCB				
24	S0907160101	SPK-PREDIG	S09V000464			
25	S0907160102	SPK-PREDIG	S09V000464			
26	S0909220057	SPK-POST	S09V000464			
27	S0909220057	SPK-POST	S09V000464			
28	S09V000471	SAMPLE		20090325	B1YT98	C Farm WMA C
29	S09V000406	SAMPLE		20090325	B1YTB1	C Farm WMA C
30	S09V000421	SAMPLE		20090325	B1YTB4	C Farm WMA C
31	S0909220062	CCV				
32	S0909220062	CCV				
33	S0909220062	CCV				
34	S0909220062	CCV				
35	S0909220063	CCB				

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LABCORE Completed Batch Report for Batch# 00016229

36	S09V000438	SAMPLE	20090325	B1YTB7	C Farm WMA C
37	S09V000453	SAMPLE	20090325	B1YTC0	C Farm WMA C
38	S09V000199	SAMPLE	20090160	B1YT83	C Farm WMA C
39	S0909220060	ICSA			
40	S0909220061	ICSAB			
41	S0909220070	CCV			
42	S0909220070	CCV			
43	S0909220070	CCV			
44	S0909220070	CCV			
45	S0909220071	LLS			
46	S0909220071	LLS			
47	S0909220071	LLS			
48	S0909220071	LLS			
49	S0909220071	LLS			
50	S0909220069	CCB			

222-S Advanced Technologies and Laboratories Batch # 16229

ICP-AES DATA REVIEW CHECKLIST

Worklist/Project Information: C-Farm WMAC Check Procedure Used: ☒ LA-505-161 (TJA) ☐ LA-505-170 (JY) ☐ LA-505-171 (TJA-IH)

Run Date: 8/26/09 Instrument ID: ICAP61E Prep Batches Analyzed (Worklist #): 15032 Prep Method: LA-505-163

Review Items	Yes	No	N/A	Comments/Samples Affected
A. Calibration/Instrument Run QC				
1. Instrument calibrated per procedure and at specified levels?	X			LLS: Al = 72.8%, Cd = 71.9% Al and Cd are within 100 ± 30% as required by LA-505-161 but QAPP has 100 ± 25% required limits.
2. ICV/CCV analyzed at appropriate frequency and within control limits (Recovery: 90-110%)?	X			
3. ICB/CCB analyzed at required frequency and < EQL (or RL) or <5% of the lowest sample result with client consent. N/A if all samples are ND.	X			
4. LLS run and within control limits (Recovery: 70-130%)? For IH, recovery is mandatory to verify RL.	X			
5. ICSA or ICSA/ICSAB run at required frequency and within control limits (Recovery: 80-120%)?	X			Ending LLS: Se = 129%
B. Sample Results				
1. Were samples with concentrations > linear range for any analyte diluted and reanalyzed?			X	LCS: Rb = 73.9%
2. Are all reported results bracketed by in-control QC?	X			
3. Are there 10 or fewer samples run between bracketed, in-control QC?	X			
C. Preparation/Matrix QC				
1. LCS/Prep Std prepared per prep batch and within control limits? Recovery: ☒ 80-120% or ☐ Statistical	X			Prep Blk: Ca was detected but < 5% of the sample result.
2. LCS Dup (Prep Std Dup) prepared per prep batch, if required, and within control limits? Recovery: ☐ 80-120% or ☐ Statistical; RPD: ☐ ≤20% or ☐ Statistical			X	Sample Dup: % RPD of Ni and Tl are ~~>130%~~ 30%, ~~but < 135%~~ KP 9/28/09 (R3 10/19/09) but sample results are J flagged.
3. IH RLS run (when required) and within mandatory control limits (Recovery: 75-125%)?			X	
4. Method/Media Blank prepared per prep batch and < EQL (or RL) or <5% of the lowest sample result?	X			
5. Duplicate or MS Duplicate run at required frequency and within control limits? %RPD: ☒ ≤20% or ☐ Client-specified	X		~~X~~ KP 9/28/09	Predig Spk: Ti and Ta % Rec. are out of control limits. Si, Al, Ca, Fe and Mg % Rec. are >125% but sample results are 4 X > ~~MDL~~ spiking amount.
6. MS run at required frequency and within control limit? Recovery: ☒ 75-125% or ☐ Client-specified	X			
7. PDS analyzed if required and within control limit (Recovery: 75-125%)?	X			
8. 5x serial dilution analyzed per prep batch and within control limit (% Diff <10%) and the sample result is 50x MDL?	X			
D. Other				
1. Are all problems and nonconformance issues documented appropriately?			X	Serdil: % Dif. of Mn is >10%. Ce, Cr, Eu, Mn and Nd % Dif are >10% but sample results are < 50 X MDL.
2. Are current IDL / MDL / EQL / RL / IEC data on file?	X			
3. Calculations/transcriptions checked for errors?	X			
4. Are all raw data complete and verified in OmniLIMS?	X			
5. Is calibration data included?	X			
6. All client/project specific requirements met (e.g., MDL, holding times, etc.)?	X			
7. Date/time of analysis verified as correct?	X			
8. Prep/Breakdown Batch Benchsheet/Worklist properly completed and included, as required?			X	Reviewed: [signature] 11/20/2009
9. IH Only: Media Blank subtracted from Sample results?			X	

1st Data Reviewer: [signature] Date: 9/28/09 2nd Data Reviewer: Roxie Ross Date: 10/20/09

A-6004-348 (REV

LABCORE Completed Batch Report for Batch# 00016341

Analyst: Mull, Bryanna

Book#: see bench sheet

Instrument: ICP/MS PQ-EXCELL

Method: MS FISSION PRODUCTS, LA-506-102 Rev/Mod E-0

Specification: C Farm WMA C

Prep Batch: 00014928

Batch Comment: Tc99 and Sn117 ICP-MS analysis for C Farm. bsm

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 ICV	S0910010034		0 0		Technetium-99	LIQUID	.0014955	1.4920E-03			3.00E-07	ug/mL	99.766	% Recovery	
2 ICV	S0910010034		0 1		Tin-117	LIQUID	.001	1.0610E-03			1.10E-05	ug/mL	106.1	% Recovery	
Sample Sequence 3															
3 LLS	S0910010036		0 0		Technetium-99	LIQUID	.000001994	2.1370E-06			3.00E-07	ug/mL	107.17	% Recovery	
4 LLS	S0910010036		0 1		Tin-117	LIQUID	.000016	1.7390E-05			1.10E-05	ug/mL	108.69	% Recovery	
Sample Sequence 5															
5 ICB	S0910010035		0 0		Technetium-99	LIQUID		<3.0000E-07			3.00E-07	ug/mL			
5 ICB	S0910010035		0 0		Tin-117	LIQUID		<1.1000E-05			1.10E-05	ug/mL			
5 ICB	S0910010035		0 0		Tin-126	LIQUID		<2.0000E-07			2.00E-07	ug/mL			
Sample Sequence 6															
6 BLNK-PREP	S0907130010		0 0	A	Technetium-99	LIQUID		<6.0000E-06			6.00E-06	ug/mL			
6 BLNK-PREP	S0907130010		0 0	A	Tin-117	LIQUID		9.0690E-04			2.20E-04	ug/mL			
6 BLNK-PREP	S0907130010		0 0	A	Tin-126	LIQUID		<4.0000E-06			4.00E-06	ug/mL			
Sample Sequence 7															
7 SERDIL	S0910010037	S09V000211	0 0		Technetium-99	SOLID		<6.0704E-03			6.07E-03	ug/g	N/A		
7 SERDIL	S0910010037	S09V000211	0 0		Tin-117	SOLID		<2.2258E-01			0.22258	ug/g	N/A		
7 SERDIL	S0910010037	S09V000211	0 0		Tin-126	SOLID		<4.0469E-03			4.05E-03	ug/g	N/A		
Sample Sequence 8															
8 SAMPLE	S09V000211		0 0	A	Technetium-99	SOLID	N/A	1.4008E-03			1.21E-03	ug/g			J
8 SAMPLE	S09V000211		0 0	A	Tin-117	SOLID	N/A	<4.4516E-02			0.044516	ug/g			Ua
8 SAMPLE	S09V000211		0 0	A	Tin-126	SOLID	N/A	<8.0939E-04			8.09E-04	ug/g			U
Sample Sequence 9															
9 DUP	S0907130012	S09V000211	0 0	A	Technetium-99	SOLID	1.4008E-03	<1.2190E-03			1.22E-03	ug/g			
9 DUP	S0907130012	S09V000211	0 0	A	Tin-117	SOLID	<4.4516E-02	<4.4697E-02			0.044697	ug/g			
9 DUP	S0907130012	S09V000211	0 0	A	Tin-126	SOLID	<8.0939E-04	<8.1268E-04			8.13E-04	ug/g			
Sample Sequence 10															
10 SAMPLE	S09V000212		0 0	A	Technetium-99	SOLID	N/A	2.6575E-03			1.20E-03	ug/g			J
10 SAMPLE	S09V000212		0 0	A	Tin-117	SOLID	N/A	<4.3860E-02			0.04386	ug/g			Ua
10 SAMPLE	S09V000212		0 0	A	Tin-126	SOLID	N/A	<7.9745E-04			7.97E-04	ug/g			U

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LABCORE Completed Batch Report for Batch# 00016341

Seq	Type	Sample#	Assoc. Sample	Rep	R	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 11																	
11	SAMPLE	S09V000213		0	0	A	Technetium-99	SOLID	N/A	<1.2141E-03			1.21E-03	ug/g			U
11	SAMPLE	S09V000213		0	0	A	Tin-117	SOLID	N/A	<4.4516E-02			0.044516	ug/g			Ua
11	SAMPLE	S09V000213		0	0	A	Tin-126	SOLID	N/A	<8.0939E-04			8.09E-04	ug/g			U
Sample Sequence 12																	
12	SAMPLE	S09V000214		0	0	A	Technetium-99	SOLID	N/A	<1.1862E-03			1.19E-03	ug/g			U
12	SAMPLE	S09V000214		0	0	A	Tin-117	SOLID	N/A	<4.3495E-02			0.043495	ug/g			Ua
12	SAMPLE	S09V000214		0	0	A	Tin-126	SOLID	N/A	<7.9083E-04			7.91E-04	ug/g			U
Sample Sequence 13																	
13	STD-PREP	S0907130011		0	0	A	Technetium-99	LIQUID	.021	2.1860E-02			3.00E-06	ug/mL	104.1	% Recovery	
14	STD-PREP	S0907130011		0	2	A	Tin-117	LIQUID	.000308	4.3590E-04			1.10E-05	ug/mL	141.53	% Recovery	
Sample Sequence 15																	
15	CCV	S0910010039		0	0		Technetium-99	LIQUID	.0014955	1.5050E-03			3.00E-07	ug/mL	100.64	% Recovery	
16	CCV	S0910010039		0	1		Tin-117	LIQUID	.001	1.0580E-03			1.10E-05	ug/mL	105.8	% Recovery	
Sample Sequence 17																	
17	CCB	S0910010040		0	0		Technetium-99	LIQUID		<3.0000E-07			3.00E-07	ug/mL			
17	CCB	S0910010040		0	0		Tin-117	LIQUID		<1.1000E-05			1.10E-05	ug/mL			
17	CCB	S0910010040		0	0		Tin-126	LIQUID		<2.0000E-07			2.00E-07	ug/mL			
Sample Sequence 18																	
18	SPK-PREDIG	S0907130013	S09V000211	0	0	A	Technetium-99	SOLID	10.75127	1.0752E+01			3.01E-03	ug/g	99.992	% Recovery	
19	SPK-PREDIG	S0907130013	S09V000211	0	1	A	Tin-117	SOLID	.617482	5.3549E-01			0.022053	ug/g	86.721	% Recovery	
Sample Sequence 20																	
20	SPK-POST	S0910010038	S09V000211	0	0		Technetium-99	SOLID	.003988	4.0790E-03			3.00E-07	ug/mL	102.11	% Recovery	
21	SPK-POST	S0910010038	S09V000211	0	1		Tin-117	SOLID	.006	6.7760E-03			1.10E-05	ug/mL	112.93	% Recovery	
Sample Sequence 22																	
22	CCV	S0910010041		0	0		Technetium-99	LIQUID	.0014955	1.4910E-03			3.00E-07	ug/mL	99.699	% Recovery	
23	CCV	S0910010041		0	1		Tin-117	LIQUID	.001	1.0620E-03			1.10E-05	ug/mL	106.2	% Recovery	
Sample Sequence 24																	
24	LLS	S0910010043		0	0		Technetium-99	LIQUID	.000001994	2.4650E-06			3.00E-07	ug/mL	123.62	% Recovery	
25	LLS	S0910010043		0	1		Tin-117	LIQUID	.000016	1.5960E-05			1.10E-05	ug/mL	99.75	% Recovery	
Sample Sequence 26																	
26	CCB	S0910010042		0	0		Technetium-99	LIQUID		<3.0000E-07			3.00E-07	ug/mL			
26	CCB	S0910010042		0	0		Tin-117	LIQUID		<1.1000E-05			1.10E-05	ug/mL			
26	CCB	S0910010042		0	0		Tin-126	LIQUID		<2.0000E-07			2.00E-07	ug/mL			

Comments Section:

LABCORE Completed Batch Report for Batch# 00016341

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00016341

Roxie Ross 11/03/09
Reviewer Signature Date

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016341

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0910010034	ICV				
2	S0910010034	ICV				
3	S0910010036	LLS				
4	S0910010036	LLS				
5	S0910010035	ICB				
6	S0907130010	BLNK-PREP				
7	S0910010037	SERDIL	S09V000211			
8	S09V000211	SAMPLE		20090160	B1YT71	C Farm WMA C
9	S0907130012	DUP	S09V000211			
10	S09V000212	SAMPLE		20090160	B1YT74	C Farm WMA C
11	S09V000213	SAMPLE		20090160	B1YT77	C Farm WMA C
12	S09V000214	SAMPLE		20090160	B1YT80	C Farm WMA C
13	S0907130011	STD-PREP				
14	S0907130011	STD-PREP				
15	S0910010039	CCV				
16	S0910010039	CCV				
17	S0910010040	CCB				
18	S0907130013	SPK-PREDIG	S09V000211			
19	S0907130013	SPK-PREDIG	S09V000211			
20	S0910010038	SPK-POST	S09V000211			
21	S0910010038	SPK-POST	S09V000211			
22	S0910010041	CCV				
23	S0910010041	CCV				
24	S0910010043	LLS				
25	S0910010043	LLS				
26	S0910010042	CCB				

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

222-S Advanced Technologies and Laboratories ICP-MS Data Review Checklist

Worklist/Project Information: 00016341 / Fission Products on C Farm Solids

Run Date: 9/28/09 Instrument ID: PQ ExCell Procedure: LA-506-102

Prep Batches run: 00014928

Review Items	Yes	No	N/A
A. Calibration			
1. Was the instrument tuned according to the SOP?	X		
2. Are the mass calibration and resolution within required limits?	X		
3 Was the stability %RSD documented as <5%.	X		
4. Was the instrument calibrated per SOP and at specified levels?	X		
5. Were ICV/CCV analyzed at appropriate frequency and were recoveries within control limits? (90 -110%; If not in control, was the CCV reanalyzed to show return to control?	X		
6. Were ICB/CCB analyzed at appropriate frequency and were results < EQL (or, with client consent, <5% of lowest sample result)? N/A if all samples are ND.	X		
7. Was LLS run and was recovery 100±25% for IH or 100±30% for non-IH work?	X		
B. Sample Results			
1. Were samples with concentrations above the linear range for any analyte diluted and reanalyzed?			X
2. Are all reported results bracketed by in control QC?	X		
3. Were sample analyses done within holding time?			X
C. Preparation/Matrix QC			
1. Was a method blank done per prep batch and were results < EQL or less than 5% of lowest sample result?	X		
2. Was an LCS (and LCS dup, if required) done per prep batch and were recoveries within 80-120%, and % RPD 20% ?	X		
3. Was an MS run as required and were recoveries within 75-125% for all analytes for which the spike level is at least 25% of the sample result?	X		
4. Was an MSD or DUP run at required frequency and was the % RPD within limits for all analytes > EQL?	X		
5. Was a serial dilution done per prep batch, if required, and was the % difference within limits for all analytes > 100 times the DL?			X
6. Was a post digest spike analyzed if required :were the recoveries within 75-125% ?	X		
D. Other			
1. Are all nonconformances documented appropriately?	X		
2. Is current IDL/MDL/EQL data on file?	X		
3. Were calculations checked for errors?	X		
4. Were transcriptions and data upload checked for errors? (Example: Are dilution factors that are entered into the sequence log correct?)	X		
5. Were all client/project specific requirements met?	X		
6. Was the date/time of analysis verified as correct?	X		

Comments/Samples Affected (indicate review item letter and number)

C1. The prep. blank result for Sn-117 was >DL, <EQL and all sample results for this analyte were <DL, so no flags were needed.

C2. The LCS recovery for Sn-117 was >120%, however because the samples results for all samples are <DL for this analyte, and because Sn-117 was a non-requested analyte, the data was accepted.

C5. A serdil was run, but because all of the sample results for all analytes were <EQL, no % differences were calculated and the acceptance limits would not apply.

1st Level Data Reviewer Roxie Ross Date: 11/03/09

2nd Level Data Reviewer [illegible] Date: 10/3/09

PM Reviewer: [illegible] 11/25/09

LABCORE Completed Batch Report for Batch# 00016982

Analyst: Thorndike, Kathy **Book#:** see bench sheet

Instrument: ICP/MS PQ-EXCELL

Method: MS FISSION PRODUCTS, LA-506-102 Rev/Mod E-0

Specification: C Farm WMA C

Prep Batch: 00016963

Batch Comment: ICP-MS fission products determination of C Farm soil digestates. bsm

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 ICV	S0912040021		0 0		Technetium-99	LIQUID	.000997	1.0090E-03			3.00E-07	ug/mL	101.2	% Recovery	
2 ICV	S0912040021		0 1		Tin-117	LIQUID	.001	1.0660E-03			1.10E-05	ug/mL	106.6	% Recovery	
Sample Sequence 3															
4 LLS	S0912040023		0 1		Technetium-99	LIQUID	.000002	2.0310E-06			3.00E-07	ug/mL	101.55	% Recovery	
3 LLS	S0912040023		0 0		Tin-117	LIQUID	.000016	1.4340E-05			1.10E-05	ug/mL	89.625	% Recovery	
Sample Sequence 5															
5 ICB	S0912040022		0 0		Technetium-99	LIQUID		<3.0000E-07			3.00E-07	ug/mL			
5 ICB	S0912040022		0 0		Tin-117	LIQUID		<1.1000E-05			1.10E-05	ug/mL			
5 ICB	S0912040022		0 0		Tin-126	LIQUID		<2.0000E-07			2.00E-07	ug/mL			
Sample Sequence 6															
6 BLNK-PREP	S0912020068		0 0	A	Technetium-99	LIQUID		<6.0000E-06			6.00E-06	ug/mL			
6 BLNK-PREP	S0912020068		0 0	A	Tin-117	LIQUID		<2.2000E-04			2.20E-04	ug/mL			
6 BLNK-PREP	S0912020068		0 0	A	Tin-126	LIQUID		<4.0000E-06			4.00E-06	ug/mL			
Sample Sequence 7															
7 SERDIL	S0912040024	S09V001554	0 0		Technetium-99	SOLID		<5.3154E-03			5.32E-03	ug/g	N/A		
7 SERDIL	S0912040024	S09V001554	0 0		Tin-117	SOLID		<1.9490E-01			0.1949	ug/g	N/A		
7 SERDIL	S0912040024	S09V001554	0 0		Tin-126	SOLID		<3.5436E-03			3.54E-03	ug/g	N/A		
Sample Sequence 8															
8 SAMPLE	S09V001554		0 0	A	Technetium-99	SOLID	N/A	<1.0631E-03			1.06E-03	ug/g			U
8 SAMPLE	S09V001554		0 0	A	Tin-117	SOLID	N/A	<3.8979E-02			0.038979	ug/g			U
8 SAMPLE	S09V001554		0 0	A	Tin-126	SOLID	N/A	<7.0872E-04			7.09E-04	ug/g			U
Sample Sequence 9															
9 DUP	S0912020070	S09V001554	0 0	A	Technetium-99	SOLID	<1.0631E-03	<1.0807E-03			1.08E-03	ug/g			
9 DUP	S0912020070	S09V001554	0 0	A	Tin-117	SOLID	<3.8979E-02	<3.9625E-02			0.039625	ug/g			
9 DUP	S0912020070	S09V001554	0 0	A	Tin-126	SOLID	<7.0872E-04	<7.2046E-04			7.20E-04	ug/g			
Sample Sequence 10															
10 STD-PREP	S0912020069		0 0	A	Technetium-99	LIQUID	.020996	2.0240E-02			6.00E-06	ug/mL	96.399	% Recovery	
11 STD-PREP	S0912020069		0 1	A	Tin-117	LIQUID	.00308	2.7330E-03			2.20E-05	ug/mL	88.734	% Recovery	
Sample Sequence 12															

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016982

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
12	SPK-PREDIG	S0912020071	S09V001554	0 0	A	Technetium-99	SOLID	9.400145	9.4001E+00			2.72E-03	ug/g	99.999	% Recovery	
Sample Sequence 13																
13	SPK-PREDIG	S0912040006	S09V001554	0 0	A	Tin-117	SOLID	5.480427	5.5712E+00			0.039146	ug/g	101.66	% Recovery	
Sample Sequence 14																
14	SPK-POST	S0912040025	S09V001554	0 0		Technetium-99	SOLID	.0042	4.2510E-03			3.00E-07	ug/g	101.21	% Recovery	
15	SPK-POST	S0912040025	S09V001554	0 1		Tin-117	SOLID	.006	6.3210E-03			1.10E-05	ug/g	105.35	% Recovery	
Sample Sequence 16																
16	CCV	S0912040026		0 0		Technetium-99	LIQUID	.000997	1.0100E-03			3.00E-07	ug/mL	101.3	% Recovery	
17	CCV	S0912040026		0 1		Tin-117	LIQUID	.001	1.0680E-03			1.10E-05	ug/mL	106.8	% Recovery	
Sample Sequence 18																
18	LLS	S0912040030		0 0		Technetium-99	LIQUID	.000002	2.0760E-06			3.00E-07	ug/mL	103.8	% Recovery	
19	LLS	S0912040030		0 1		Tin-117	LIQUID	.000016	1.5290E-05			1.10E-05	ug/mL	95.562	% Recovery	
Sample Sequence 20																
20	CCB	S0912040027		0 0		Technetium-99	LIQUID		<3.0000E-07			3.00E-07	ug/mL			
20	CCB	S0912040027		0 0		Tin-117	LIQUID		<1.1000E-05			1.10E-05	ug/mL			
20	CCB	S0912040027		0 0		Tin-126	LIQUID		<2.0000E-07			2.00E-07	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00016982

Roxie Ross 12/7/09
Reviewer Signature Date

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016982

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0912040021	ICV				
2	S0912040021	ICV				
3	S0912040023	LLS				
4	S0912040023	LLS				
5	S0912040022	ICB				
6	S0912020068	BLNK-PREP				
7	S0912040024	SERDIL	S09V001554			
8	S09V001554	SAMPLE		20090160	B1YT83	C Farm WMA C
9	S0912020070	DUP	S09V001554			
10	S0912020069	STD-PREP				
11	S0912020069	STD-PREP				
12	S0912020071	SPK-PREDIG	S09V001554			
13	S0912040006	SPK-PREDIG	S09V001554			
14	S0912040025	SPK-POST	S09V001554			
15	S0912040025	SPK-POST	S09V001554			
16	S0912040026	CCV				
17	S0912040026	CCV				
18	S0912040030	LLS				
19	S0912040030	LLS				
20	S0912040027	CCB				

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

12/4/2009 10:41:46AM
IncompleteBatchShort Version 2.7.26
batchreports 2.7.26

LABCORE Data Entry Template for Batch# 00016982

Analyst: Thorndike, Kathy **Standard ID / Book#:** See Bench Sheet
Instrument: ICP/MS PQ-EXCELL
Method: MS FISSION PRODUCTS, LA-506-102 Rev/Mod A-0
Prep Batch: 00016963
Batch Comment: ICP-MS fission products determination of C Farm soil digestates. bsm
CACN:26B

S	Type	Sample	R	A	Matrix	Group#	Project
1	ICV		0		LIQUID		
	Analytes Requested:	Technetium-99, Tin-117					
2	LLS		0		LIQUID		
	Analytes Requested:	Technetium-99, Tin-117					
3	ICB		0		LIQUID		
	Analytes Requested:	Technetium-99, Tin-117, Tin-126					
4	BLNK-PREP		0	A	LIQUID		
	Analytes Requested:	Technetium-99, Tin-117, Tin-126					
5	SERDIL	S09V001554	0		SOLID		
	Analytes Requested:	Technetium-99, Tin-117, Tin-126					
6	SAMPLE	S09V001554	0	A	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Technetium-99, Tin-117, Tin-126					
7	DUP	S09V001554	0	A	SOLID		
	Analytes Requested:	Technetium-99, Tin-117, Tin-126					
8	STD-PREP		0	A	LIQUID		
	Analytes Requested:	Technetium-99, Tin-117					
9	SPK-PREDIG	S09V001554	0	A	SOLID		
	Analytes Requested:	Technetium-99, Tin-117					
10	SPK-PREDIG	S09V001554	0	A	SOLID		
	Analytes Requested:	Technetium-99, Tin-117					
11	SPK-POST	S09V001554	0		SOLID		
	Analytes Requested:	Technetium-99, Tin-117					
12	CCV		0		LIQUID		
	Analytes Requested:	Technetium-99, Tin-117					
13	LLS		0		LIQUID		
	Analytes Requested:	Technetium-99, Tin-117					
14	CCB		0		LIQUID		
	Analytes Requested:	Technetium-99, Tin-117, Tin-126					

Final Page for Batch# 00016982

K Thorndike 12-4-09
Analyst Signature **Date**

Myanne Cell 12/04/09
Data Entry Signature **Date**

Data Entry Comments:

S = Batch Slot Number, R = Retest Number, A = Aliquot Code.

ATL	ICP-MS DATA REVIEW CHECKLIST	○ IH ○ NON IH

◉ LA-506-102 Rev E-0 (*) ○ LA-506-103 Rev _____ (*) ○ _____ Rev _____ (*)

Worklist/Project Information: 00016982 / Fission Products on C Farm solids

Analysis Date: 12/3/2009 Instrument Id: PQ ExCell Prep Batches Run: 00016963

Review Items	Yes	No	N/A
A. Calibration			
1. Was the instrument tuned according to the SOP?	◉	○	○
2. Are the mass calibration and resolution within required limits?	◉	○	○
3. Was the stability %RSD documented as <5%?	◉	○	○
4. Was the instrument calibrated per SOP and at specified levels?	◉	○	○
5. Were ICV/CCV analyzed at appropriate frequency and were recoveries within control limits of 90 - 110%? If not in control, was the CCV reanalyzed to show return to control?	◉	○	○
6. Were ICB/CCB analyzed at appropriate frequency and were results < EQL (or, with client consent, <5% of lowest sample result)? N/A if all samples are ND.	◉	○	○
7. Was an LLS run at required frequency and were recoveries within control limits of 75 - 125% for IH or 70 - 130% for non-IH work?	◉	○	○
B. Sample Results			
1. Were samples with concentrations above the linear range for any analyte diluted and reanalyzed?	○	○	◉
2. Are all reported results bracketed by in control QC?	◉	○	○
3. Were sample analyses done within holding time?	○	○	◉
C. Preparation/Matrix QC			
1. Was a method blank done per prep batch and were results < EQL or less than 5% of lowest sample result?	◉	○	○
2. Was an LCS (and LCS dup, if required) done per prep batch and were recoveries within control limits of 80 - 120%, and % RPD <20%?	◉	○	○
3. Was an MS run as required and was recovery within control limits of 75 - 125% for all analytes for which the spike level was at least 25% of the sample result?	◉	○	○
4. Was an MSD or DUP run at required frequency and was the % RPD within control limits of <20% (or, with client consent, <30%) for all analytes > EQL?	◉	○	○
5. Was a serial dilution done per analytical batch, if required, and was the % difference within control limits of <10% for all analytes > 100 times the DL?	◉	○	○
6. Was a post digest spike analyzed if required and was the recovery within control limits of 75 - 125%?	◉	○	○
D. Other			
1. Are all nonconformances documented appropriately?	○	○	◉
2. Is current IDL/MDL/EQL data on file?	◉	○	○
3. Were calculations checked for errors?	◉	○	○
4. Were transcriptions and data upload checked for errors? (Example: Are dilution factors that are entered into the sequence log correct?)	◉	○	○
5. Were all client/project specific requirements met?	◉	○	○
6. Was the date/time of analysis verified as correct?	◉	○	○

Comments/Samples Affected (indicate review item letter and number):

NOTE: These samples were first digested and analyzed under different numbers and reported in batch 00016740.

PM Reviewer: Gerald Ritenour 12-08-09

1st Level Data Reviewer: Rorie Ross (Signature) Date: 12/7/2009 2nd Level Data Reviewer: Saul A Pang (Signature) Date: 12/7/09

(*) This form is not used by the subject procedure; rather, it is used to assist in verifying the data produced during the performance of the procedure.

A-6005-346 (REV 0)

LABCORE Completed Batch Report for Batch# 00015762

Analyst: Mull, Bryanna **Book#:** see bench sheet

Instrument: ICP/MS PQ-EXCELL

Method: MS ACTINIDES, LA-506-102 Rev/Mod E-0

Specification: C Farm WMA C

Prep Batch: 00014929

Batch Comment: ICP-MS Actinides analysis for C Farm soils, sample group 20090160.bsm

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 ICV	S0908200170		0 0		Thorium-232	LIQUID	.001	9.8210E-04			1.70E-07	ug/mL	98.21	% Recovery	
1 ICV	S0908200170		0 0		Uranium-235	LIQUID	.0000072	6.9440E-06			1.10E-08	ug/mL	96.444	% Recovery	
2 ICV	S0908200170		0 1		Neptunium-237	LIQUID	.00115	1.1500E-03			5.30E-08	ug/mL	100	% Recovery	
1 ICV	S0908200170		0 0		Uranium-238	LIQUID	.0009928	9.7950E-04			5.50E-07	ug/mL	98.66	% Recovery	
Sample Sequence 3															
3 LLS	S0908200172		0 0		Thorium-232	LIQUID	.00001	9.7330E-06			1.70E-07	ug/mL	97.33	% Recovery	
4 LLS	S0908200172		0 1		Uranium-235	LIQUID	.000000036	3.2000E-08			1.10E-08	ug/mL	88.889	% Recovery	
5 LLS	S0908200172		0 2		Neptunium-237	LIQUID	.000005	4.5680E-06			5.30E-08	ug/mL	91.36	% Recovery	
4 LLS	S0908200172		0 1		Uranium-238	LIQUID	.000004964	6.2940E-06			5.50E-07	ug/mL	126.79	% Recovery	
Sample Sequence 6															
6 ICB	S0908200171		0 0		Thorium-230	LIQUID		<7.0000E-09			7.00E-09	ug/mL			
6 ICB	S0908200171		0 0		Thorium-232	LIQUID		<1.7000E-07			1.70E-07	ug/mL			
6 ICB	S0908200171		0 0		Uranium-233	LIQUID		<1.0000E-08			1.00E-08	ug/mL			
6 ICB	S0908200171		0 0		Uranium-234	LIQUID		<5.0000E-09			5.00E-09	ug/mL			
6 ICB	S0908200171		0 0		Uranium-235	LIQUID		<1.1000E-08			1.10E-08	ug/mL			
6 ICB	S0908200171		0 0		Uranium-236	LIQUID		<4.0000E-09			4.00E-09	ug/mL			
6 ICB	S0908200171		0 0		Neptunium-237	LIQUID		<5.3000E-08			5.30E-08	ug/mL			
6 ICB	S0908200171		0 0		Uranium-238	LIQUID		<5.5000E-07			5.50E-07	ug/mL			
Sample Sequence 7															
7 BLNK-PREP	S0907130014		0 0	A	Thorium-230	LIQUID		<3.5000E-07			3.50E-07	ug/mL			
7 BLNK-PREP	S0907130014		0 0	A	Thorium-232	LIQUID		3.1370E-05			8.50E-06	ug/mL			
7 BLNK-PREP	S0907130014		0 0	A	Uranium-233	LIQUID		<5.0000E-07			5.00E-07	ug/mL			
7 BLNK-PREP	S0907130014		0 0	A	Uranium-234	LIQUID		<2.5000E-07			2.50E-07	ug/mL			
7 BLNK-PREP	S0907130014		0 0	A	Uranium-235	LIQUID		<5.5000E-07			5.50E-07	ug/mL			
7 BLNK-PREP	S0907130014		0 0	A	Uranium-236	LIQUID		<2.0000E-07			2.00E-07	ug/mL			
7 BLNK-PREP	S0907130014		0 0	A	Neptunium-237	LIQUID		<2.6500E-06			2.65E-06	ug/mL			
7 BLNK-PREP	S0907130014		0 0	A	Uranium-238	LIQUID		<2.7500E-05			2.75E-05	ug/mL			
Sample Sequence 8															
9 STD-PREP	S0907130015		0 1	A	Thorium-232	LIQUID	.02	2.0310E-02			3.40E-06	ug/mL	101.55	% Recovery	
9 STD-PREP	S0907130015		0 1	A	Uranium-235	LIQUID	.000144	1.4540E-04			2.20E-07	ug/mL	100.97	% Recovery	

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00015762

Seq	Type	Sample#	Assoc. Sample	Rep	R	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
8	STD-PREP	S0907130015		0	0	A	Neptunium-237	LIQUID	.0175	1.9530E-02			1.06E-06	ug/mL	111.6	% Recovery	
9	STD-PREP	S0907130015		0	1	A	Uranium-238	LIQUID	.019856	2.0310E-02			1.10E-05	ug/mL	102.29	% Recovery	
Sample Sequence 10																	
10	SERDIL	S0908200173	S09V000195	0	0		Thorium-230	SOLID		<3.5354E-04			3.54E-04	ug/g	N/A		
10	SERDIL	S0908200173	S09V000195	0	0		Thorium-232	SOLID		3.8808E+00			8.59E-03	ug/g	7.1395	% Diff	
10	SERDIL	S0908200173	S09V000195	0	0		Uranium-233	SOLID		<5.0505E-04			5.05E-04	ug/g	N/A		
10	SERDIL	S0908200173	S09V000195	0	0		Uranium-234	SOLID		<2.5253E-04			2.53E-04	ug/g	N/A		
10	SERDIL	S0908200173	S09V000195	0	0		Uranium-235	SOLID		1.1762E-02			5.56E-04	ug/g	.29518	% Diff	
10	SERDIL	S0908200173	S09V000195	0	0		Uranium-236	SOLID		5.6323E-04			2.02E-04	ug/g	7.0052	% Diff	
10	SERDIL	S0908200173	S09V000195	0	0		Neptunium-237	SOLID		2.0707E-02			2.68E-03	ug/g	899.04	% Diff	
10	SERDIL	S0908200173	S09V000195	0	0		Uranium-238	SOLID		1.4766E+00			0.027778	ug/g	1.3846	% Diff	
Sample Sequence 11																	
11	SAMPLE	S09V000195		0	0	A	Thorium-230	SOLID	N/A	<7.0707E-05			7.07E-05	ug/g			U
11	SAMPLE	S09V000195		0	0	A	Thorium-232	SOLID	N/A	3.6222E+00			1.72E-03	ug/g			
11	SAMPLE	S09V000195		0	0	A	Uranium-233	SOLID	N/A	1.3495E-04			1.01E-04	ug/g			J
11	SAMPLE	S09V000195		0	0	A	Uranium-234	SOLID	N/A	9.9798E-05			5.05E-05	ug/g			J
11	SAMPLE	S09V000195		0	0	A	Uranium-235	SOLID	N/A	1.1727E-02			1.11E-04	ug/g			
11	SAMPLE	S09V000195		0	0	A	Uranium-236	SOLID	N/A	6.0566E-04			4.04E-05	ug/g			
11	SAMPLE	S09V000195		0	0	A	Neptunium-237	SOLID	N/A	2.0727E-03			5.35E-04	ug/g			J B
11	SAMPLE	S09V000195		0	0	A	Uranium-238	SOLID	N/A	1.4564E+00			5.56E-03	ug/g			
Sample Sequence 12																	
12	DUP	S0907130016	S09V000195	0	0	A	Thorium-230	SOLID	<7.0707E-05	<7.0565E-05			7.06E-05	ug/g			
12	DUP	S0907130016	S09V000195	0	0	A	Thorium-232	SOLID	3.6222E+00	3.2198E+00			1.71E-03	ug/g	11.763	% RPD	
12	DUP	S0907130016	S09V000195	0	0	A	Uranium-233	SOLID	1.3495E-04	1.3528E-04			1.01E-04	ug/g	0.24461	% RPD	
12	DUP	S0907130016	S09V000195	0	0	A	Uranium-234	SOLID	9.9798E-05	1.1573E-04			5.04E-05	ug/g	14.784	% RPD	
12	DUP	S0907130016	S09V000195	0	0	A	Uranium-235	SOLID	1.1727E-02	1.5103E-02			1.11E-04	ug/g	25.164	% RPD	
12	DUP	S0907130016	S09V000195	0	0	A	Uranium-236	SOLID	6.0566E-04	7.0323E-04			4.03E-05	ug/g	14.909	% RPD	
12	DUP	S0907130016	S09V000195	0	0	A	Neptunium-237	SOLID	2.0727E-03	1.2772E-03			5.34E-04	ug/g	47.495	% RPD	
12	DUP	S0907130016	S09V000195	0	0	A	Uranium-238	SOLID	1.4564E+00	1.8397E+00			5.54E-03	ug/g	23.260	% RPD	
Sample Sequence 13																	
13	SPK-PREDIG	S0907130019	S09V000195	0	0	A	Neptunium-237	SOLID	9.924573	1.0848E+01			5.26E-04	ug/g	109.28	% Recovery	
Sample Sequence 14																	
14	SPK-PREDIG	S0907130020	S09V000195	0	0	A	Thorium-232	SOLID	20.30045	2.3853E+01			3.45E-03	ug/g	99.657	% Recovery	
14	SPK-PREDIG	S0907130020	S09V000195	0	0	A	Uranium-235	SOLID	.146163	1.6391E-01			2.23E-04	ug/g	104.12	% Recovery	
14	SPK-PREDIG	S0907130020	S09V000195	0	0	A	Uranium-238	SOLID	20.15428	2.2473E+01			0.011165	ug/g	104.28	% Recovery	
Sample Sequence 15																	
15	CCV	S0908200175		0	0		Thorium-232	LIQUID	.001	9.8230E-04			1.70E-07	ug/mL	98.23	% Recovery	
15	CCV	S0908200175		0	0		Uranium-235	LIQUID	.0000072	7.0190E-06			1.10E-08	ug/mL	97.486	% Recovery	
16	CCV	S0908200175		0	1		Neptunium-237	LIQUID	.00115	1.1480E-03			5.30E-08	ug/mL	99.826	% Recovery	
15	CCV	S0908200175		0	0		Uranium-238	LIQUID	.0009928	9.7380E-04			5.50E-07	ug/mL	98.086	% Recovery	
Sample Sequence 17																	

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LABCORE Completed Batch Report for Batch# 00015762

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
17 CCB	S0908200176		0 0		Thorium-230	LIQUID		<7.0000E-09			7.00E-09	ug/mL			
17 CCB	S0908200176		0 0		Thorium-232	LIQUID		4.1000E-07			1.70E-07	ug/mL			
17 CCB	S0908200176		0 0		Uranium-233	LIQUID		<1.0000E-08			1.00E-08	ug/mL			
17 CCB	S0908200176		0 0		Uranium-234	LIQUID		<5.0000E-09			5.00E-09	ug/mL			
17 CCB	S0908200176		0 0		Uranium-235	LIQUID		<1.1000E-08			1.10E-08	ug/mL			
17 CCB	S0908200176		0 0		Uranium-236	LIQUID		<4.0000E-09			4.00E-09	ug/mL			
17 CCB	S0908200176		0 0		Neptunium-237	LIQUID		9.1000E-08			5.30E-08	ug/mL			
17 CCB	S0908200176		0 0		Uranium-238	LIQUID		<5.5000E-07			5.50E-07	ug/mL			
Sample Sequence 18															
18 SAMPLE	S09V000196		0 0	A	Thorium-230	SOLID	N/A	<7.0451E-05			7.05E-05	ug/g			U
18 SAMPLE	S09V000196		0 0	A	Thorium-232	SOLID	N/A	2.3671E+00			1.71E-03	ug/g			
18 SAMPLE	S09V000196		0 0	A	Uranium-233	SOLID	N/A	1.0527E-04			1.01E-04	ug/g			J
18 SAMPLE	S09V000196		0 0	A	Uranium-234	SOLID	N/A	6.8035E-05			5.03E-05	ug/g			J
18 SAMPLE	S09V000196		0 0	A	Uranium-235	SOLID	N/A	1.0666E-02			1.11E-04	ug/g			
18 SAMPLE	S09V000196		0 0	A	Uranium-236	SOLID	N/A	3.8366E-04			4.03E-05	ug/g			J
18 SAMPLE	S09V000196		0 0	A	Neptunium-237	SOLID	N/A	5.5918E-04			5.33E-04	ug/g			J/B
18 SAMPLE	S09V000196		0 0	A	Uranium-238	SOLID	N/A	1.3778E+00			5.54E-03	ug/g			
Sample Sequence 19															
19 SAMPLE	S09V000197		0 0	A	Thorium-230	SOLID	N/A	<7.0225E-05			7.02E-05	ug/g			U
19 SAMPLE	S09V000197		0 0	A	Thorium-232	SOLID	N/A	1.9203E+00			1.71E-03	ug/g			
19 SAMPLE	S09V000197		0 0	A	Uranium-233	SOLID	N/A	<1.0032E-04			1.00E-04	ug/g			U
19 SAMPLE	S09V000197		0 0	A	Uranium-234	SOLID	N/A	<5.0161E-05			5.02E-05	ug/g			U
19 SAMPLE	S09V000197		0 0	A	Uranium-235	SOLID	N/A	3.5614E-03			1.10E-04	ug/g			
19 SAMPLE	S09V000197		0 0	A	Uranium-236	SOLID	N/A	5.4976E-05			4.01E-05	ug/g			J
19 SAMPLE	S09V000197		0 0	A	Neptunium-237	SOLID	N/A	<5.3170E-04			5.32E-04	ug/g			U
19 SAMPLE	S09V000197		0 0	A	Uranium-238	SOLID	N/A	4.9458E-01			5.52E-03	ug/g			
Sample Sequence 20															
20 SAMPLE	S09V000198		0 0	A	Thorium-230	SOLID	N/A	<7.0479E-05			7.05E-05	ug/g			U
20 SAMPLE	S09V000198		0 0	A	Thorium-232	SOLID	N/A	1.8822E+00			1.71E-03	ug/g			
20 SAMPLE	S09V000198		0 0	A	Uranium-233	SOLID	N/A	<1.0068E-04			1.01E-04	ug/g			U
20 SAMPLE	S09V000198		0 0	A	Uranium-234	SOLID	N/A	<5.0342E-05			5.03E-05	ug/g			U
20 SAMPLE	S09V000198		0 0	A	Uranium-235	SOLID	N/A	2.9964E-03			1.11E-04	ug/g			
20 SAMPLE	S09V000198		0 0	A	Uranium-236	SOLID	N/A	<4.0274E-05			4.03E-05	ug/g			U
20 SAMPLE	S09V000198		0 0	A	Neptunium-237	SOLID	N/A	<5.3363E-04			5.34E-04	ug/g			U
20 SAMPLE	S09V000198		0 0	A	Uranium-238	SOLID	N/A	4.4583E-01			5.54E-03	ug/g			
Sample Sequence 21															
21 SPK-POST	S0908200181	S09V000195	0 0		Thorium-232	SOLID	.025	4.3490E-02			1.70E-07	ug/mL	102.24	% Recovery	
21 SPK-POST	S0908200181	S09V000195	0 0		Uranium-235	SOLID	.00018	2.3450E-04			1.10E-08	ug/mL	98.028	% Recovery	
22 SPK-POST	S0908200181	S09V000195	0 1		Neptunium-237	SOLID	.025	2.2950E-02			5.30E-08	ug/mL	91.759	% Recovery	
21 SPK-POST	S0908200181	S09V000195	0 0		Uranium-238	SOLID	.02482	3.2040E-02			5.50E-07	ug/mL	100.04	% Recovery	
Sample Sequence 23															

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LABCORE Completed Batch Report for Batch# 00015762

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
23 CCV	S0908200177		0	0	Thorium-232	LIQUID	.001	9.8220E-04			1.70E-07	ug/mL	98.22	% Recovery	
23 CCV	S0908200177		0	0	Uranium-235	LIQUID	.0000072	6.9760E-06			1.10E-08	ug/mL	96.889	% Recovery	
24 CCV	S0908200177		0	1	Neptunium-237	LIQUID	.00115	1.1440E-03			5.30E-08	ug/mL	99.478	% Recovery	
23 CCV	S0908200177		0	0	Uranium-238	LIQUID	.0009928	9.8080E-04			5.50E-07	ug/mL	98.791	% Recovery	
Sample Sequence 25															
25 LLS	S0908200182		0	0	Thorium-232	LIQUID	.00001	8.3030E-06			1.70E-07	ug/mL	83.03	% Recovery	
25 LLS	S0908200182		0	0	Uranium-235	LIQUID	.000000036	4.7000E-08			1.10E-08	ug/mL	130.56	% Recovery	
26 LLS	S0908200182		0	1	Neptunium-237	LIQUID	.000005	4.5120E-06			5.30E-08	ug/mL	90.24	% Recovery	
25 LLS	S0908200182		0	0	Uranium-238	LIQUID	.000004964	6.0140E-06			5.50E-07	ug/mL	121.15	% Recovery	
Sample Sequence 27															
27 CCB	S0908200178		0	0	Thorium-230	LIQUID		<7.0000E-09			7.00E-09	ug/mL			
27 CCB	S0908200178		0	0	Thorium-232	LIQUID		2.4100E-07			1.70E-07	ug/mL			
27 CCB	S0908200178		0	0	Uranium-233	LIQUID		<1.0000E-08			1.00E-08	ug/mL			
27 CCB	S0908200178		0	0	Uranium-234	LIQUID		<5.0000E-09			5.00E-09	ug/mL			
27 CCB	S0908200178		0	0	Uranium-235	LIQUID		<1.1000E-08			1.10E-08	ug/mL			
27 CCB	S0908200178		0	0	Uranium-236	LIQUID		<4.0000E-09			4.00E-09	ug/mL			
27 CCB	S0908200178		0	0	Neptunium-237	LIQUID		<5.3000E-08			5.30E-08	ug/mL			
27 CCB	S0908200178		0	0	Uranium-238	LIQUID		8.6600E-07			5.50E-07	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00015762

Roxie Ross 10/20/09
Reviewer Signature Date

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LABCORE Completed Batch Report for Batch# 00015762

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0908200170	ICV				
2	S0908200170	ICV				
3	S0908200172	LLS				
4	S0908200172	LLS				
5	S0908200172	LLS				
6	S0908200171	ICB				
7	S0907130014	BLNK-PREP				
8	S0907130015	STD-PREP				
9	S0907130015	STD-PREP				
10	S0908200173	SERDIL	S09V000195			
11	S09V000195	SAMPLE		20090160	B1YT71	C Farm WMA C
12	S0907130016	DUP	S09V000195			
13	S0907130019	SPK-PREDIG	S09V000195			
14	S0907130020	SPK-PREDIG	S09V000195			
15	S0908200175	CCV				
16	S0908200175	CCV				
17	S0908200176	CCB				
18	S09V000196	SAMPLE		20090160	B1YT74	C Farm WMA C
19	S09V000197	SAMPLE		20090160	B1YT77	C Farm WMA C
20	S09V000198	SAMPLE		20090160	B1YT80	C Farm WMA C
21	S0908200181	SPK-POST	S09V000195			
22	S0908200181	SPK-POST	S09V000195			
23	S0908200177	CCV				
24	S0908200177	CCV				
25	S0908200182	LLS				
26	S0908200182	LLS				
27	S0908200178	CCB				

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

222-S Advanced Technologies and Laboratories Checklist — ICP-MS Data Review

Worklist/Project Information: 00015762 / Actinide on C Farm Solids

Run Date: 7/14/09 Instrument ID: PQ ExCell Procedure: LA-506-102

Prep Batches run: 00014929

Review Items	Yes	No	N/A
A. Calibration			
1. Was the instrument tuned according to the SOP?	X		
2. Are the mass calibration and resolution within required limits?	X		
3 Was the stability %RSD documented as <5%.	X		
4. Was the instrument calibrated per SOP and at specified levels?	X		
5. Were ICV/CCV analyzed at appropriate frequency and were recoveries within control limits? (90 -110%; If not in control, was the CCV reanalyzed to show return to control?	X		
6. Were ICB/CCB analyzed at appropriate frequency and were results < EQL (or, with client consent, <5% of lowest sample result)? N/A if all samples are ND.		X	
7. Was LLS run and was recovery 100±25% for IH or 100±30% for non-IH work?	X		
B. Sample Results			
1. Were samples with concentrations above the linear range for any analyte diluted and reanalyzed?			X
2. Are all reported results bracketed by in control QC?		X	
3. Were sample analyses done within holding time?			X
C. Preparation/Matrix QC			
1. Was a method blank done per prep batch and were results < EQL or less than 5% of lowest sample result?	X		
2. Was an LCS (and LCS dup, if required) done per prep batch and were recoveries within 80-120%, and % RPD 20% ?	X		
3. Was an MS run as required and were recoveries within 75-125% for all analytes for which the spike level is at least 25% of the sample result?	X		
4. Was an MSD or DUP run at required frequency and was the % RPD within limits for all analytes > EQL?	X		
5. Was a serial dilution done per prep batch, if required, and was the % difference within limits for all analytes > 100 times the DL?	X		
6. Was a post digest spike analyzed if required :were the recoveries within 75-125% ?	X		
D. Other			
1. Are all nonconformances documented appropriately?	X		
2. Is current IDL/MDL/EQL data on file?	X		
3. Were calculations checked for errors?	X		
4. Were transcriptions and data upload checked for errors? (Example: Are dilution factors that are entered into the sequence log correct?)	X		
5. Were all client/project specific requirements met?	X		
6. Was the date/time of analysis verified as correct?	X		

Comments/Samples Affected (indicate review item letter and number)

A6. The Np-237 result for the first CCB was >DL, <EQL but >5% of the sample result for sample S09V000196, so a B ~~Y~~-flag was added to this analyte on this sample. ~~(See the batch note for the definition of the Y-flag)~~ The first CCB was run after sample S09V000195, and the ICB result for Np-237 was <DL, so no flag was put on the Np-237 for this sample. The Np-237 results for the other two samples were <DL, so no flag was needed. The two CCB results for Th-232 were >DL, <EQL and <5% of the sample results for Th-232, so no flags were needed. The final CCB result for U-238 was >DL, <EQL and <5% of the sample results for U-238 so no flag was needed.

DPR 10/27/09

C1. The method blank result for Th-232 was >DL, <EQL and <5% of the sample results, so no flag was needed.

222-S Advanced Technologies and Laboratories **ICP-MS Data Review Checklist**

C4. The &RPD for Np-237 was >10%, but the sample result for Np-237 was <EQL, so the acceptance limits do not apply for this analyte. 30 DPK 10/28/09

C5. The% difference for Np-237 was >10%, but the sample result for Np-237 was <EQL, so the acceptance limits do not Apply for this analyte.

A.7. The final LLS for U-235 was >130%, no impact on data. RR 10/28/09

1st Level Data Reviewer Roxie Ross Date: 10/20/09

2nd Level Data Reviewer Sal N. Pang Date: 10/20/09

PM Review: Jerald P Peterson 12/2/09

LABCORE Completed Batch Report for Batch# 00016171

Analyst: Mull, Bryanna

Book#: See bench sheet

Instrument: ICP/MS PQ-EXCELL

Method: MS ACTINIDES, LA-506-102 Rev/Mod E-0

Specification: C Farm WMA C

Prep Batch: 00015032

Batch Comment: ICP-MS Actinides determination for C Farm soils. bsm

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 ICV	S0909170032		0 0		Thorium-232	LIQUID	.001	9.9220E-04			1.70E-07	ug/mL	99.22	% Recovery	
1 ICV	S0909170032		0 0		Uranium-235	LIQUID	.0000072	7.2860E-06			1.10E-08	ug/mL	101.19	% Recovery	
1 ICV	S0909170032		0 0		Neptunium-237	LIQUID	.0011	1.1190E-03			5.30E-08	ug/mL	101.73	% Recovery	
1 ICV	S0909170032		0 0		Uranium-238	LIQUID	.0009928	9.7890E-04			5.50E-07	ug/mL	98.6	% Recovery	
Sample Sequence 2															
2 LLS	S0909170034		0 0		Thorium-232	LIQUID	.000005	4.6330E-06			1.70E-07	ug/mL	92.66	% Recovery	
2 LLS	S0909170034		0 0		Uranium-235	LIQUID	.000000036	3.6000E-08			1.10E-08	ug/mL	100	% Recovery	
2 LLS	S0909170034		0 0		Neptunium-237	LIQUID	.0000049175	5.0520E-06			5.30E-08	ug/mL	102.74	% Recovery	
2 LLS	S0909170034		0 0		Uranium-238	LIQUID	.000004964	4.9960E-06			5.50E-07	ug/mL	100.64	% Recovery	
Sample Sequence 3															
3 ICB	S0909170033		0 0		Thorium-230	LIQUID		<7.0000E-09			7.00E-09	ug/mL			
3 ICB	S0909170033		0 0		Thorium-232	LIQUID		<1.7000E-07			1.70E-07	ug/mL			
3 ICB	S0909170033		0 0		Uranium-233	LIQUID		<1.0000E-08			1.00E-08	ug/mL			
3 ICB	S0909170033		0 0		Uranium-234	LIQUID		<5.0000E-09			5.00E-09	ug/mL			
3 ICB	S0909170033		0 0		Uranium-235	LIQUID		<1.1000E-08			1.10E-08	ug/mL			
3 ICB	S0909170033		0 0		Uranium-236	LIQUID		<4.0000E-09			4.00E-09	ug/mL			
3 ICB	S0909170033		0 0		Neptunium-237	LIQUID		<5.3000E-08			5.30E-08	ug/mL			
3 ICB	S0909170033		0 0		Uranium-238	LIQUID		<5.5000E-07			5.50E-07	ug/mL			
Sample Sequence 4															
4 BLNK-PREP	S0907160098		0 0	A	Thorium-230	LIQUID		<1.4000E-07			1.40E-07	ug/mL			
4 BLNK-PREP	S0907160098		0 0	A	Thorium-232	LIQUID		1.2900E-04			3.40E-06	ug/mL			
4 BLNK-PREP	S0907160098		0 0	A	Uranium-233	LIQUID		<2.0000E-07			2.00E-07	ug/mL			
4 BLNK-PREP	S0907160098		0 0	A	Uranium-234	LIQUID		<1.0000E-07			1.00E-07	ug/mL			
4 BLNK-PREP	S0907160098		0 0	A	Uranium-235	LIQUID		5.3500E-07			2.20E-07	ug/mL			
4 BLNK-PREP	S0907160098		0 0	A	Uranium-236	LIQUID		<8.0000E-08			8.00E-08	ug/mL			
4 BLNK-PREP	S0907160098		0 0	A	Neptunium-237	LIQUID		<1.0600E-06			1.06E-06	ug/mL			
4 BLNK-PREP	S0907160098		0 0	A	Uranium-238	LIQUID		1.3400E-04			1.10E-05	ug/mL			
Sample Sequence 5															
5 SERDIL	S0909170035	S09V000464	0 0		Thorium-230	SOLID		<1.3587E-04			1.36E-04	ug/g	N/A		
5 SERDIL	S0909170035	S09V000464	0 0		Thorium-232	SOLID		2.9328E+00			3.30E-03	ug/g	.46387	% Diff	

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LABCORE Completed Batch Report for Batch# 00016171

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
5	SERDIL	S0909170035	S09V000464	0	0		Uranium-233	SOLID		<1.9410E-04			1.94E-04	ug/g	N/A		
5	SERDIL	S0909170035	S09V000464	0	0		Uranium-234	SOLID		<9.7050E-05			9.71E-05	ug/g	N/A		
5	SERDIL	S0909170035	S09V000464	0	0		Uranium-235	SOLID		3.5792E-03			2.14E-04	ug/g	6.0135	% Diff	
5	SERDIL	S0909170035	S09V000464	0	0		Uranium-236	SOLID		<7.7640E-05			7.76E-05	ug/g	N/A		
5	SERDIL	S0909170035	S09V000464	0	0		Neptunium-237	SOLID		<1.0287E-03			1.03E-03	ug/g	N/A		
5	SERDIL	S0909170035	S09V000464	0	0		Uranium-238	SOLID		5.7900E-01			0.010675	ug/g	.13463	% Diff	
Sample Sequence 6																	
6	SAMPLE	S09V000464		0	0	A	Thorium-230	SOLID	N/A	<2.7174E-05			2.72E-05	ug/g			U
6	SAMPLE	S09V000464		0	0	A	Thorium-232	SOLID	N/A	2.9193E+00			6.60E-04	ug/g			
6	SAMPLE	S09V000464		0	0	A	Uranium-233	SOLID	N/A	1.0190E-04			3.88E-05	ug/g			J
6	SAMPLE	S09V000464		0	0	A	Uranium-234	SOLID	N/A	<1.9410E-05			1.94E-05	ug/g			U
6	SAMPLE	S09V000464		0	0	A	Uranium-235	SOLID	N/A	3.8082E-03			4.27E-05	ug/g			
6	SAMPLE	S09V000464		0	0	A	Uranium-236	SOLID	N/A	<1.5528E-05			1.55E-05	ug/g			U
6	SAMPLE	S09V000464		0	0	A	Neptunium-237	SOLID	N/A	<2.0575E-04			2.06E-04	ug/g			U
6	SAMPLE	S09V000464		0	0	A	Uranium-238	SOLID	N/A	5.7822E-01			2.14E-03	ug/g			
Sample Sequence 7																	
7	DUP	S0907160100	S09V000464	0	0	A	Thorium-230	SOLID	<2.7174E-05	<2.7248E-05			2.72E-05	ug/g			
7	DUP	S0907160100	S09V000464	0	0	A	Thorium-232	SOLID	2.9193E+00	3.0946E+00			6.62E-04	ug/g	5.8295	% RPD	
7	DUP	S0907160100	S09V000464	0	0	A	Uranium-233	SOLID	1.0190E-04	9.4784E-05			3.89E-05	ug/g	7.2360	% RPD	
7	DUP	S0907160100	S09V000464	0	0	A	Uranium-234	SOLID	<1.9410E-05	2.6469E-05			1.95E-05	ug/g			
7	DUP	S0907160100	S09V000464	0	0	A	Uranium-235	SOLID	3.8082E-03	4.0599E-03			4.28E-05	ug/g	6.3991	% RPD	
7	DUP	S0907160100	S09V000464	0	0	A	Uranium-236	SOLID	<1.5528E-05	2.1798E-05			1.56E-05	ug/g			
7	DUP	S0907160100	S09V000464	0	0	A	Neptunium-237	SOLID	<2.0575E-04	<2.0631E-04			2.06E-04	ug/g			
7	DUP	S0907160100	S09V000464	0	0	A	Uranium-238	SOLID	5.7822E-01	5.7260E-01			2.14E-03	ug/g	0.97733	% RPD	
Sample Sequence 8																	
8	SAMPLE	S09V000199		0	0	A	Thorium-230	SOLID	N/A	<2.6247E-05			2.62E-05	ug/g			U
8	SAMPLE	S09V000199		0	0	A	Thorium-232	SOLID	N/A	2.9940E+00			6.37E-04	ug/g			
8	SAMPLE	S09V000199		0	0	A	Uranium-233	SOLID	N/A	1.2373E-04			3.75E-05	ug/g			J
8	SAMPLE	S09V000199		0	0	A	Uranium-234	SOLID	N/A	<1.8748E-05			1.87E-05	ug/g			U
8	SAMPLE	S09V000199		0	0	A	Uranium-235	SOLID	N/A	3.0296E-03			4.12E-05	ug/g			
8	SAMPLE	S09V000199		0	0	A	Uranium-236	SOLID	N/A	<1.4998E-05			1.50E-05	ug/g			U
8	SAMPLE	S09V000199		0	0	A	Neptunium-237	SOLID	N/A	7.1879E-04			1.99E-04	ug/g			J
8	SAMPLE	S09V000199		0	0	A	Uranium-238	SOLID	N/A	4.3270E-01			2.06E-03	ug/g			B
Sample Sequence 9																	
9	SAMPLE	S09V000406		0	0	A	Thorium-230	SOLID	N/A	5.7064E-05			2.75E-05	ug/g			J
9	SAMPLE	S09V000406		0	0	A	Thorium-232	SOLID	N/A	2.6131E+00			6.69E-04	ug/g			
9	SAMPLE	S09V000406		0	0	A	Uranium-233	SOLID	N/A	1.1236E-04			3.94E-05	ug/g			J
9	SAMPLE	S09V000406		0	0	A	Uranium-234	SOLID	N/A	3.0893E-05			1.97E-05	ug/g			J
9	SAMPLE	S09V000406		0	0	A	Uranium-235	SOLID	N/A	3.7643E-03			4.33E-05	ug/g			
9	SAMPLE	S09V000406		0	0	A	Uranium-236	SOLID	N/A	<1.5742E-05			1.57E-05	ug/g			U
9	SAMPLE	S09V000406		0	0	A	Neptunium-237	SOLID	N/A	<2.0858E-04			2.09E-04	ug/g			U

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LABCORE Completed Batch Report for Batch# 00016171

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
9	SAMPLE	S09V000406		0	0	A	Uranium-238	SOLID	N/A	5.1122E-01			2.16E-03	ug/g			B
Sample Sequence 10																	
10	SAMPLE	S09V000421		0	0	A	Thorium-230	SOLID	N/A	<2.6485E-05			2.65E-05	ug/g			U
10	SAMPLE	S09V000421		0	0	A	Thorium-232	SOLID	N/A	2.7488E+00			6.43E-04	ug/g			
10	SAMPLE	S09V000421		0	0	A	Uranium-233	SOLID	N/A	1.2845E-04			3.78E-05	ug/g			J
10	SAMPLE	S09V000421		0	0	A	Uranium-234	SOLID	N/A	4.6727E-05			1.89E-05	ug/g			J
10	SAMPLE	S09V000421		0	0	A	Uranium-235	SOLID	N/A	1.0409E-02			4.16E-05	ug/g			
10	SAMPLE	S09V000421		0	0	A	Uranium-236	SOLID	N/A	4.9243E-04			1.51E-05	ug/g			
10	SAMPLE	S09V000421		0	0	A	Neptunium-237	SOLID	N/A	<2.0053E-04			2.01E-04	ug/g			U
10	SAMPLE	S09V000421		0	0	A	Uranium-238	SOLID	N/A	1.2840E+00			2.08E-03	ug/g			
Sample Sequence 11																	
11	SAMPLE	S09V000438		0	0	A	Thorium-230	SOLID	N/A	<2.6965E-05			2.70E-05	ug/g			U
11	SAMPLE	S09V000438		0	0	A	Thorium-232	SOLID	N/A	3.4688E+00			6.55E-04	ug/g			
11	SAMPLE	S09V000438		0	0	A	Uranium-233	SOLID	N/A	3.0489E-04			3.85E-05	ug/g			J
11	SAMPLE	S09V000438		0	0	A	Uranium-234	SOLID	N/A	4.4299E-04			1.93E-05	ug/g			
11	SAMPLE	S09V000438		0	0	A	Uranium-235	SOLID	N/A	5.0674E-02			4.24E-05	ug/g			
11	SAMPLE	S09V000438		0	0	A	Uranium-236	SOLID	N/A	2.3440E-03			1.54E-05	ug/g			
11	SAMPLE	S09V000438		0	0	A	Neptunium-237	SOLID	N/A	<2.0416E-04			2.04E-04	ug/g			U
11	SAMPLE	S09V000438		0	0	A	Uranium-238	SOLID	N/A	6.3867E+00			2.12E-03	ug/g			
Sample Sequence 12																	
12	SAMPLE	S09V000453		0	0	A	Thorium-230	SOLID	N/A	<2.6257E-05			2.63E-05	ug/g			U
12	SAMPLE	S09V000453		0	0	A	Thorium-232	SOLID	N/A	3.0664E+00			6.38E-04	ug/g			
12	SAMPLE	S09V000453		0	0	A	Uranium-233	SOLID	N/A	1.3935E-04			3.75E-05	ug/g			J
12	SAMPLE	S09V000453		0	0	A	Uranium-234	SOLID	N/A	<1.8755E-05			1.88E-05	ug/g			U
12	SAMPLE	S09V000453		0	0	A	Uranium-235	SOLID	N/A	2.9407E-03			4.13E-05	ug/g			
12	SAMPLE	S09V000453		0	0	A	Uranium-236	SOLID	N/A	<1.5004E-05			1.50E-05	ug/g			U
12	SAMPLE	S09V000453		0	0	A	Neptunium-237	SOLID	N/A	<1.9880E-04			1.99E-04	ug/g			U
12	SAMPLE	S09V000453		0	0	A	Uranium-238	SOLID	N/A	3.9779E-01			2.06E-03	ug/g			B
Sample Sequence 13																	
13	SAMPLE	S09V000471		0	0	A	Thorium-230	SOLID	N/A	<2.7121E-05			2.71E-05	ug/g			U
13	SAMPLE	S09V000471		0	0	A	Thorium-232	SOLID	N/A	3.4192E+00			6.59E-04	ug/g			
13	SAMPLE	S09V000471		0	0	A	Uranium-233	SOLID	N/A	8.0783E-05			3.87E-05	ug/g			J
13	SAMPLE	S09V000471		0	0	A	Uranium-234	SOLID	N/A	4.5525E-05			1.94E-05	ug/g			J
13	SAMPLE	S09V000471		0	0	A	Uranium-235	SOLID	N/A	3.3243E-03			4.26E-05	ug/g			
13	SAMPLE	S09V000471		0	0	A	Uranium-236	SOLID	N/A	<1.5498E-05			1.55E-05	ug/g			U
13	SAMPLE	S09V000471		0	0	A	Neptunium-237	SOLID	N/A	<2.0535E-04			2.05E-04	ug/g			U
13	SAMPLE	S09V000471		0	0	A	Uranium-238	SOLID	N/A	4.9709E-01			2.13E-03	ug/g			B
Sample Sequence 14																	
14	CCV	S0909170037		0	0		Thorium-232	LIQUID	.001	9.9710E-04			1.70E-07	ug/mL	99.71	% Recovery	
14	CCV	S0909170037		0	0		Uranium-235	LIQUID	.0000072	7.4150E-06			1.10E-08	ug/mL	102.99	% Recovery	
14	CCV	S0909170037		0	0		Neptunium-237	LIQUID	.0011	1.1260E-03			5.30E-08	ug/mL	102.36	% Recovery	

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LABCORE Completed Batch Report for Batch# 00016171

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
14 CCV	S0909170037		0 0		Uranium-238	LIQUID	.0009928	9.8540E-04			5.50E-07	ug/mL	99.255	% Recovery	
Sample Sequence 15															
15 CCB	S0909170038		0 0		Thorium-230	LIQUID		<7.0000E-09			7.00E-09	ug/mL			
15 CCB	S0909170038		0 0		Thorium-232	LIQUID		<1.7000E-07			1.70E-07	ug/mL			
15 CCB	S0909170038		0 0		Uranium-233	LIQUID		<1.0000E-08			1.00E-08	ug/mL			
15 CCB	S0909170038		0 0		Uranium-234	LIQUID		<5.0000E-09			5.00E-09	ug/mL			
15 CCB	S0909170038		0 0		Uranium-235	LIQUID		<1.1000E-08			1.10E-08	ug/mL			
15 CCB	S0909170038		0 0		Uranium-236	LIQUID		<4.0000E-09			4.00E-09	ug/mL			
15 CCB	S0909170038		0 0		Neptunium-237	LIQUID		<5.3000E-08			5.30E-08	ug/mL			
15 CCB	S0909170038		0 0		Uranium-238	LIQUID		<5.5000E-07			5.50E-07	ug/mL			
Sample Sequence 16															
17 STD-PREP	S0907160099		0 1	A	Thorium-232	LIQUID	.02	2.0470E-02			3.40E-06	ug/mL	102.35	% Recovery	
17 STD-PREP	S0907160099		0 1	A	Uranium-235	LIQUID	.000144	1.3890E-04			2.20E-07	ug/mL	96.458	% Recovery	
16 STD-PREP	S0907160099		0 0	A	Neptunium-237	LIQUID	.0175	1.8650E-02			1.06E-06	ug/mL	106.57	% Recovery	
17 STD-PREP	S0907160099		0 1	A	Uranium-238	LIQUID	.019856	2.0280E-02			1.10E-05	ug/mL	102.14	% Recovery	
Sample Sequence 18															
18 SPK-PREDIG	S0907160103	S09V000464	0 0	A	Thorium-232	SOLID	990.8839	1.0309E+03			0.16959	ug/g	103.75	% Recovery	
18 SPK-PREDIG	S0907160103	S09V000464	0 0	A	Uranium-235	SOLID	3.86444709	4.0782E+00			0.010974	ug/g	105.43	% Recovery	
18 SPK-PREDIG	S0907160103	S09V000464	0 0	A	Uranium-238	SOLID	987.0194	1.0361E+03			0.54868	ug/g	104.92	% Recovery	
Sample Sequence 19															
19 SPK-PREDIG	S0907160104	S09V000464	0 0	A	Neptunium-237	SOLID	9.97606	1.0827E+01			5.22E-04	ug/g	108.53	% Recovery	
Sample Sequence 20															
20 SPK-POST	S0909170036	S09V000464	0 0		Thorium-232	SOLID	.02	3.4630E-02			1.70E-07	ug/g	97.95	% Recovery	
20 SPK-POST	S0909170036	S09V000464	0 0		Uranium-235	SOLID	.000144	1.6390E-04			1.10E-08	ug/g	100.19	% Recovery	
20 SPK-POST	S0909170036	S09V000464	0 0		Neptunium-237	SOLID	.01967	1.9750E-02			5.30E-08	ug/g	100.41	% Recovery	
20 SPK-POST	S0909170036	S09V000464	0 0		Uranium-238	SOLID	.019856	2.2570E-02			5.50E-07	ug/g	98.665	% Recovery	
Sample Sequence 21															
21 CCV	S0909170039		0 0		Thorium-232	LIQUID	.001	9.9610E-04			1.70E-07	ug/mL	99.61	% Recovery	
21 CCV	S0909170039		0 0		Uranium-235	LIQUID	.0000072	7.5480E-06			1.10E-08	ug/mL	104.83	% Recovery	
21 CCV	S0909170039		0 0		Neptunium-237	LIQUID	.0011	1.1230E-03			5.30E-08	ug/mL	102.09	% Recovery	
21 CCV	S0909170039		0 0		Uranium-238	LIQUID	.0009928	9.8160E-04			5.50E-07	ug/mL	98.872	% Recovery	
Sample Sequence 22															
22 LLS	S0909170042		0 0		Thorium-232	LIQUID	.000005	5.4610E-06			1.70E-07	ug/mL	109.22	% Recovery	
22 LLS	S0909170042		0 0		Uranium-235	LIQUID	.000000036	4.8000E-08			1.10E-08	ug/mL	133.33	% Recovery	
22 LLS	S0909170042		0 0		Neptunium-237	LIQUID	.0000049175	5.1240E-06			5.30E-08	ug/mL	104.2	% Recovery	
22 LLS	S0909170042		0 0		Uranium-238	LIQUID	.000004964	5.1090E-06			5.50E-07	ug/mL	102.92	% Recovery	
Sample Sequence 23															
23 CCB	S0909170040		0 0		Thorium-230	LIQUID		<7.0000E-09			7.00E-09	ug/mL			
23 CCB	S0909170040		0 0		Thorium-232	LIQUID		<1.7000E-07			1.70E-07	ug/mL			
23 CCB	S0909170040		0 0		Uranium-233	LIQUID		<1.0000E-08			1.00E-08	ug/mL			
23 CCB	S0909170040		0 0		Uranium-234	LIQUID		<5.0000E-09			5.00E-09	ug/mL			

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LABCORE Completed Batch Report for Batch# 00016171

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
23 CCB	S0909170040		0 0		Uranium-235	LIQUID		<1.1000E-08			1.10E-08	ug/mL			
23 CCB	S0909170040		0 0		Uranium-236	LIQUID		<4.0000E-09			4.00E-09	ug/mL			
23 CCB	S0909170040		0 0		Neptunium-237	LIQUID		<5.3000E-08			5.30E-08	ug/mL			
23 CCB	S0909170040		0 0		Uranium-238	LIQUID		<5.5000E-07			5.50E-07	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00016171

Roxie Ross 11-16-09
Reviewer Signature Date

PM Reviewer: David Peterson 12/01/09

LABCORE Completed Batch Report for Batch# 00016171

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0909170032	ICV				
2	S0909170034	LLS				
3	S0909170033	ICB				
4	S0907160098	BLNK-PREP				
5	S0909170035	SERDIL	S09V000464			
6	S09V000464	SAMPLE		20090325	B1YT92	C Farm WMA C
7	S0907160100	DUP	S09V000464			
8	S09V000199	SAMPLE		20090160	B1YT81	C Farm WMA C
9	S09V000406	SAMPLE		20090325	B1YTB1	C Farm WMA C
10	S09V000421	SAMPLE		20090325	B1YTB4	C Farm WMA C
11	S09V000438	SAMPLE		20090325	B1YTB7	C Farm WMA C
12	S09V000453	SAMPLE		20090325	B1YTC0	C Farm WMA C
13	S09V000471	SAMPLE		20090325	BY1T98	C Farm WMA C
14	S0909170037	CCV				
15	S0909170038	CCB				
16	S0907160099	STD-PREP				
17	S0907160099	STD-PREP				
18	S0907160103	SPK-PREDIG	S09V000464			
19	S0907160104	SPK-PREDIG	S09V000464			
20	S0909170036	SPK-POST	S09V000464			
21	S0909170039	CCV				
22	S0909170042	LLS				
23	S0909170040	CCB				

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

ATL	ICP-MS DATA REVIEW CHECKLIST	○ IH ◉ NON IH

◉ LA-506-102 Rev E-0 (*) ○ LA-506-103 Rev _____ (*) ○ _____ Rev _____ (*)

Worklist/Project Information: 00016171 / MS Actinides on C Farm Solids

Analysis Date: 10-29-09 Instrument Id: PQ ExCell Prep Batches Run: 00015032

Review Items	Yes	No	N/A
A. Calibration			
1. Was the instrument tuned according to the SOP?	◉	○	○
2. Are the mass calibration and resolution within required limits?	◉	○	○
3. Was the stability %RSD documented as <5%?	◉	○	○
4. Was the instrument calibrated per SOP and at specified levels?	◉	○	○
5. Were ICV/CCV analyzed at appropriate frequency and were recoveries within control limits of 90 - 110%? If not in control, was the CCV reanalyzed to show return to control?	◉	○	○
6. Were ICB/CCB analyzed at appropriate frequency and were results < EQL (or, with client consent, <5% of lowest sample result)? N/A if all samples are ND.	○	◉	○
7. Was an LLS run at required frequency and were recoveries within control limits of 75 - 125% for IH or 70 - 130% for non-IH work?	◉	○	○
B. Sample Results			
1. Were samples with concentrations above the linear range for any analyte diluted and reanalyzed?	○	○	◉
2. Are all reported results bracketed by in control QC?	◉	○	○
3. Were sample analyses done within holding time?	○	○	◉
C. Preparation/Matrix QC			
1. Was a method blank done per prep batch and were results < EQL or less than 5% of lowest sample result?	○	◉	○
2. Was an LCS (and LCS dup, if required) done per prep batch and were recoveries within control limits of 80 - 120%, and % RPD <20%?	◉	○	○
3. Was an MS run as required and was recovery within control limits of 75 - 125% for all analytes for which the spike level was at least 25% of the sample result?	◉	○	○
4. Was an MSD or DUP run at required frequency and was the % RPD within control limits of <20% (or, with client consent, <30%) for all analytes > EQL?	◉	○	○
5. Was a serial dilution done per analytical batch, if required, and was the % difference within control limits of <10% for all analytes > 100 times the DL?	◉	○	○
6. Was a post digest spike analyzed if required and was the recovery within control limits of 75 - 125%?	◉	○	○
D. Other			
1. Are all nonconformances documented appropriately?	◉	○	○
2. Is current IDL/MDL/EQL data on file?	◉	○	○
3. Were calculations checked for errors?	◉	○	○
4. Were transcriptions and data upload checked for errors? (Example: Are dilution factors that are entered into the sequence log correct?)	◉	○	○
5. Were all client/project specific requirements met?	◉	○	○
6. Was the date/time of analysis verified as correct?	◉	○	○

Comments/Samples Affected (indicate review item letter and number):

C1. The method blank results for Th-232 and U-235 were >DL, <EQL and <5% of the sample results so no B-flags were applied for these analytes. The U-238 blank result was >DL, just >EQL and >5% of the sample results for S09V000199, S09V000453, S09V000406, and S09V000471, so B-flags were applied for U-238 for these four samples.

1st Level Data Reviewer: Roxie Ross (Signature) Date: 11-16-09 2nd Level Data Reviewer: Sal M Pang (Signature) Date: 11/17/09

(*) This form is not used by the subject procedure; rather, it is used to assist in verifying the data produced during the performance of the procedure.

A-6005-346 (REV 0)

LABCORE Completed Batch Report for Batch# 00016927

Analyst: Mull, Bryanna **Book#:** see bench sheet

Instrument: ICP/MS AGILENT

Method: MS PERIODIC TABLE, LA-506-103 Rev/Mod A-0

Specification: C Farm WMA C

Prep Batch: 00014929

Batch Comment: ICP-MS analysis of C Farm soil digestates for MS Periodic Table. bsm

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 ICV	S0912010001		0	0	Silver	LIQUID	.0004	4.1990E-04			8.00E-06	ug/mL	104.98	% Recovery	
1 ICV	S0912010001		0	0	Arsenic	LIQUID	.002	2.1220E-03			4.20E-05	ug/mL	106.1	% Recovery	
1 ICV	S0912010001		0	0	Cadmium	LIQUID	.002	2.0930E-03			3.00E-06	ug/mL	104.65	% Recovery	
1 ICV	S0912010001		0	0	Lead	LIQUID	.002	2.1160E-03			3.10E-05	ug/mL	105.8	% Recovery	
2 ICV	S0912010001		0	1	Antimony	LIQUID	.002	2.0830E-03			4.40E-05	ug/mL	104.15	% Recovery	
1 ICV	S0912010001		0	0	Selenium	LIQUID	.002	2.1240E-03			6.10E-05	ug/mL	106.2	% Recovery	
2 ICV	S0912010001		0	1	Thallium	LIQUID	.002	2.0720E-03			3.00E-06	ug/mL	103.6	% Recovery	
1 ICV	S0912010001		0	0	Vanadium	LIQUID	.002	2.1540E-03			2.40E-05	ug/mL	107.7	% Recovery	
1 ICV	S0912010001		0	0	Nickel	LIQUID	.002	2.0450E-03			1.20E-05	ug/mL	102.25	% Recovery	
1 ICV	S0912010001		0	0	Chromium	LIQUID	.002	2.1630E-03			1.40E-04	ug/mL	108.15	% Recovery	
1 ICV	S0912010001		0	0	Cobalt	LIQUID	.002	2.0680E-03			2.00E-05	ug/mL	103.4	% Recovery	
Sample Sequence 3															
5 LLS	S0912010003		0	2	Silver	LIQUID	.00001	1.0110E-05			8.00E-06	ug/mL	101.1	% Recovery	
5 LLS	S0912010003		0	2	Arsenic	LIQUID	.00005	5.8870E-05			4.20E-05	ug/mL	117.74	% Recovery	
5 LLS	S0912010003		0	2	Cadmium	LIQUID	.00005	5.1130E-05			3.00E-06	ug/mL	102.26	% Recovery	
5 LLS	S0912010003		0	2	Lead	LIQUID	.00005	5.3610E-05			3.10E-05	ug/mL	107.22	% Recovery	
6 LLS	S0912010003		0	3	Antimony	LIQUID	.00005	5.0070E-05			4.40E-05	ug/mL	100.14	% Recovery	
5 LLS	S0912010003		0	2	Selenium	LIQUID	.00005	8.3960E-05			6.10E-05	ug/mL	167.92	% Recovery	
3 LLS	S0912010003		0	0	Thallium	LIQUID	.000005	4.6750E-06			3.00E-06	ug/mL	93.5	% Recovery	
5 LLS	S0912010003		0	2	Vanadium	LIQUID	.00005	5.2790E-05			2.40E-05	ug/mL	105.58	% Recovery	
5 LLS	S0912010003		0	2	Nickel	LIQUID	.00005	5.2450E-05			1.20E-05	ug/mL	104.9	% Recovery	
5 LLS	S0912010003		0	2	Chromium	LIQUID	.00005	7.6080E-05			1.40E-05	ug/mL	152.16	% Recovery	
5 LLS	S0912010003		0	2	Cobalt	LIQUID	.00005	5.3250E-05			2.00E-05	ug/mL	106.5	% Recovery	
Sample Sequence 7															
7 ICB	S0912010002		0	0	Silver	LIQUID		<8.0000E-06			8.00E-06	ug/mL			
7 ICB	S0912010002		0	0	Arsenic	LIQUID		<4.2000E-05			4.20E-05	ug/mL			
7 ICB	S0912010002		0	0	Cadmium	LIQUID		<3.0000E-06			3.00E-06	ug/mL			
7 ICB	S0912010002		0	0	Lead	LIQUID		<3.1000E-05			3.10E-05	ug/mL			
7 ICB	S0912010002		0	0	Antimony	LIQUID		<4.4000E-05			4.40E-05	ug/mL			
7 ICB	S0912010002		0	0	Selenium	LIQUID		<6.1000E-05			6.10E-05	ug/mL			

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* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016927

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
7	ICB	S0912010002		0	0		Thallium	LIQUID		<3.0000E-06			3.00E-06	ug/mL			
7	ICB	S0912010002		0	0		Vanadium	LIQUID		<2.4000E-05			2.40E-05	ug/mL			
7	ICB	S0912010002		0	0		Nickel	LIQUID		<1.2000E-05			1.20E-05	ug/mL			
7	ICB	S0912010002		0	0		Chromium	LIQUID		<1.4000E-04			1.40E-04	ug/mL			
7	ICB	S0912010002		0	0		Cobalt	LIQUID		<2.0000E-05			2.00E-05	ug/mL			
Sample Sequence 8																	
9	BLNK-PREP	S0907130014		0	1	A	Silver	LIQUID		2.0660E-04			1.60E-04	ug/mL			
9	BLNK-PREP	S0907130014		0	1	A	Arsenic	LIQUID		<8.4000E-04			8.40E-04	ug/mL			
9	BLNK-PREP	S0907130014		0	1	A	Cadmium	LIQUID		7.0100E-05			6.00E-05	ug/mL			
9	BLNK-PREP	S0907130014		0	1	A	Lead	LIQUID		<6.2000E-04			6.20E-04	ug/mL			
9	BLNK-PREP	S0907130014		0	1	A	Antimony	LIQUID		<8.8000E-04			8.80E-04	ug/mL			
9	BLNK-PREP	S0907130014		0	1	A	Selenium	LIQUID		<1.2200E-03			1.22E-03	ug/mL			
9	BLNK-PREP	S0907130014		0	1	A	Thallium	LIQUID		6.9180E-05			6.00E-05	ug/mL			
9	BLNK-PREP	S0907130014		0	1	A	Vanadium	LIQUID		<4.8000E-04			4.80E-04	ug/mL			
9	BLNK-PREP	S0907130014		0	1	A	Nickel	LIQUID		3.1980E-04			2.40E-04	ug/mL			
9	BLNK-PREP	S0907130014		0	1	A	Chromium	LIQUID		<2.8000E-03			2.80E-03	ug/mL			
9	BLNK-PREP	S0907130014		0	1	A	Cobalt	LIQUID		<4.0000E-04			4.00E-04	ug/mL			
Sample Sequence 10																	
11	SERDIL	S0912010004	S09V000195	0	1		Silver	SOLID		<1.6162E-01			0.16162	ug/g	N/A		
11	SERDIL	S0912010004	S09V000195	0	1		Arsenic	SOLID		6.8586E+00			0.84848	ug/g	22.035	% Diff	
11	SERDIL	S0912010004	S09V000195	0	1		Cadmium	SOLID		1.2224E-01			0.060606	ug/g	1.9629	% Diff	
11	SERDIL	S0912010004	S09V000195	0	1		Lead	SOLID		7.5616E+00			0.62626	ug/g	2.3224	% Diff	
11	SERDIL	S0912010004	S09V000195	0	1		Antimony	SOLID		<8.8889E-01			0.88889	ug/g	N/A		
11	SERDIL	S0912010004	S09V000195	0	1		Selenium	SOLID		<1.2323E+00			1.2323	ug/g	N/A		
11	SERDIL	S0912010004	S09V000195	0	1		Thallium	SOLID		9.4949E-02			0.060606	ug/g	.90169	% Diff	
10	SERDIL	S0912010004	S09V000195	0	0		Vanadium	SOLID		6.3758E+01			4.8485	ug/g	5.8358	% Diff	
10	SERDIL	S0912010004	S09V000195	0	0		Nickel	SOLID		1.2562E+01			2.4242	ug/g	2.0357	% Diff	
11	SERDIL	S0912010004	S09V000195	0	1		Chromium	SOLID		1.0137E+01			2.8283	ug/g	23.2312672	% Diff	
10	SERDIL	S0912010004	S09V000195	0	0		Cobalt	SOLID		9.2000E+00			4.0404	ug/g	2.6602	% Diff	
Sample Sequence 12																	
13	SAMPLE	S09V000195		0	1	A	Silver	SOLID	N/A	1.3661E-01			0.032323	ug/g			BJ
13	SAMPLE	S09V000195		0	1	A	Arsenic	SOLID	N/A	5.6202E+00			0.1697	ug/g			
13	SAMPLE	S09V000195		0	1	A	Cadmium	SOLID	N/A	1.2469E-01			0.012121	ug/g			B
13	SAMPLE	S09V000195		0	1	A	Lead	SOLID	N/A	7.7414E+00			0.12525	ug/g			
13	SAMPLE	S09V000195		0	1	A	Antimony	SOLID	N/A	1.8428E-01			0.17778	ug/g			J
13	SAMPLE	S09V000195		0	1	A	Selenium	SOLID	N/A	<2.4646E-01			0.24646	ug/g			U
13	SAMPLE	S09V000195		0	1	A	Thallium	SOLID	N/A	9.4101E-02			0.012121	ug/g			BJ
12	SAMPLE	S09V000195		0	0	A	Vanadium	SOLID	N/A	6.0242E+01			0.9697	ug/g			
12	SAMPLE	S09V000195		0	0	A	Nickel	SOLID	N/A	1.2311E+01			0.48485	ug/g			
13	SAMPLE	S09V000195		0	1	A	Chromium	SOLID	N/A	8.2263E+00			0.56566	ug/g			
12	SAMPLE	S09V000195		0	0	A	Cobalt	SOLID	N/A	8.9616E+00			0.80808	ug/g			

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016927

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 14															
15 DUP	S0907130016	S09V000195	0 1	A	Silver	SOLID	1.3661E-01	1.3367E-01			0.032258	ug/g	2.1726	% RPD	
15 DUP	S0907130016	S09V000195	0 1	A	Arsenic	SOLID	5.6202E+00	5.7016E+00			0.16935	ug/g	1.4379	% RPD	
15 DUP	S0907130016	S09V000195	0 1	A	Cadmium	SOLID	1.2469E-01	1.2036E-01			0.012097	ug/g	3.5315	% RPD	
15 DUP	S0907130016	S09V000195	0 1	A	Lead	SOLID	7.7414E+00	7.7540E+00			0.125	ug/g	0.16245	% RPD	
15 DUP	S0907130016	S09V000195	0 1	A	Antimony	SOLID	1.8428E-01	1.8685E-01			0.17742	ug/g	1.3834	% RPD	
15 DUP	S0907130016	S09V000195	0 1	A	Selenium	SOLID	<2.4646E-01	<2.4597E-01			0.24597	ug/g			
15 DUP	S0907130016	S09V000195	0 1	A	Thallium	SOLID	9.4101E-02	1.0032E-01			0.012097	ug/g	6.3974	% RPD	
14 DUP	S0907130016	S09V000195	0 0	A	Vanadium	SOLID	6.0242E+01	6.1129E+01			0.96774	ug/g	1.4609	% RPD	
14 DUP	S0907130016	S09V000195	0 0	A	Nickel	SOLID	1.2311E+01	1.0206E+01			0.48387	ug/g	18.698	% RPD	
15 DUP	S0907130016	S09V000195	0 1	A	Chromium	SOLID	8.2263E+00	8.1210E+00			0.56452	ug/g	1.2878	% RPD	
14 DUP	S0907130016	S09V000195	0 0	A	Cobalt	SOLID	8.9616E+00	9.6573E+00			0.80645	ug/g	7.4729	% RPD	
Sample Sequence 16															
17 SAMPLE	S09V000196		0 1	A	Silver	SOLID	N/A	1.1812E-01			0.032206	ug/g			BJ
17 SAMPLE	S09V000196		0 1	A	Arsenic	SOLID	N/A	3.0564E+00			0.16908	ug/g			
17 SAMPLE	S09V000196		0 1	A	Cadmium	SOLID	N/A	6.7110E-02			0.012077	ug/g			BJ
17 SAMPLE	S09V000196		0 1	A	Lead	SOLID	N/A	4.2633E+00			0.1248	ug/g			
17 SAMPLE	S09V000196		0 1	A	Antimony	SOLID	N/A	<1.7713E-01			0.17713	ug/g			U
17 SAMPLE	S09V000196		0 1	A	Selenium	SOLID	N/A	<2.4557E-01			0.24557	ug/g			U
17 SAMPLE	S09V000196		0 1	A	Thallium	SOLID	N/A	7.2746E-02			0.012077	ug/g			BJ
16 SAMPLE	S09V000196		0 0	A	Vanadium	SOLID	N/A	5.5797E+01			0.96618	ug/g			
16 SAMPLE	S09V000196		0 0	A	Nickel	SOLID	N/A	9.5773E+00			0.48309	ug/g			
17 SAMPLE	S09V000196		0 1	A	Chromium	SOLID	N/A	9.3438E+00			0.56361	ug/g			
16 SAMPLE	S09V000196		0 0	A	Cobalt	SOLID	N/A	7.1457E+00			0.80515	ug/g			J
Sample Sequence 18															
19 SAMPLE	S09V000197		0 1	A	Silver	SOLID	N/A	9.0329E-02			0.032103	ug/g			BJ
19 SAMPLE	S09V000197		0 1	A	Arsenic	SOLID	N/A	2.2231E+00			0.16854	ug/g			
19 SAMPLE	S09V000197		0 1	A	Cadmium	SOLID	N/A	6.1758E-02			0.012039	ug/g			BJ
19 SAMPLE	S09V000197		0 1	A	Lead	SOLID	N/A	3.6224E+00			0.1244	ug/g			
19 SAMPLE	S09V000197		0 1	A	Antimony	SOLID	N/A	<1.7657E-01			0.17657	ug/g			U
19 SAMPLE	S09V000197		0 1	A	Selenium	SOLID	N/A	<2.4478E-01			0.24478	ug/g			U
19 SAMPLE	S09V000197		0 1	A	Thallium	SOLID	N/A	7.9695E-02			0.012039	ug/g			BJ
18 SAMPLE	S09V000197		0 0	A	Vanadium	SOLID	N/A	3.7709E+01			0.96308	ug/g			
18 SAMPLE	S09V000197		0 0	A	Nickel	SOLID	N/A	3.0594E+01			0.48154	ug/g			
19 SAMPLE	S09V000197		0 1	A	Chromium	SOLID	N/A	1.5144E+01			0.5618	ug/g			
18 SAMPLE	S09V000197		0 0	A	Cobalt	SOLID	N/A	6.3483E+00			0.80257	ug/g			J
Sample Sequence 20															
21 SAMPLE	S09V000198		0 1	A	Silver	SOLID	N/A	8.1232E-02			0.032219	ug/g			BJ
21 SAMPLE	S09V000198		0 1	A	Arsenic	SOLID	N/A	2.7286E+00			0.16915	ug/g			
21 SAMPLE	S09V000198		0 1	A	Cadmium	SOLID	N/A	4.0177E-02			0.012082	ug/g			BJ
21 SAMPLE	S09V000198		0 1	A	Lead	SOLID	N/A	2.7169E+00			0.12485	ug/g			

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LABCORE Completed Batch Report for Batch# 00016927

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
21	SAMPLE	S09V000198		0 1	A	Antimony	SOLID	N/A	<1.7720E-01			0.1772	ug/g			U
21	SAMPLE	S09V000198		0 1	A	Selenium	SOLID	N/A	<2.4567E-01			0.24567	ug/g			U
21	SAMPLE	S09V000198		0 1	A	Thallium	SOLID	N/A	5.3202E-02			0.012082	ug/g			BJ
20	SAMPLE	S09V000198		0 0	A	Vanadium	SOLID	N/A	3.3907E+01			0.96657	ug/g			
20	SAMPLE	S09V000198		0 0	A	Nickel	SOLID	N/A	9.3516E+00			0.48329	ug/g			
21	SAMPLE	S09V000198		0 1	A	Chromium	SOLID	N/A	1.2634E+01			0.56383	ug/g			
20	SAMPLE	S09V000198		0 0	A	Cobalt	SOLID	N/A	4.6234E+00			0.80548	ug/g			J
Sample Sequence 22																
23	SPK-POST	S0912010005	S09V000195	0 1		Silver	SOLID	.004	4.6340E-03			8.00E-06	ug/mL	98.945	% Recovery	
23	SPK-POST	S0912010005	S09V000195	0 1		Arsenic	SOLID	.02	4.5960E-02			4.20E-05	ug/mL	90.7	% Recovery	
23	SPK-POST	S0912010005	S09V000195	0 1		Cadmium	SOLID	.02	2.0440E-02			3.00E-06	ug/mL	99.114	% Recovery	
23	SPK-POST	S0912010005	S09V000195	0 1		Lead	SOLID	.02	6.2780E-02			3.10E-05	ug/mL	122.3	% Recovery	
23	SPK-POST	S0912010005	S09V000195	0 1		Antimony	SOLID	.02	2.2080E-02			4.40E-05	ug/mL	105.84	% Recovery	
23	SPK-POST	S0912010005	S09V000195	0 1		Selenium	SOLID	.02	1.6594E-02			6.10E-05	ug/mL	82.97	% Recovery	
23	SPK-POST	S0912010005	S09V000195	0 1		Thallium	SOLID	.02	2.0880E-02			3.00E-06	ug/mL	102.07	% Recovery	
22	SPK-POST	S0912010005	S09V000195	0 0		Vanadium	SOLID	.2	5.0920E-01			2.40E-05	ug/mL	105.5	% Recovery	
22	SPK-POST	S0912010005	S09V000195	0 0		Nickel	SOLID	.2	2.7460E-01			1.20E-05	ug/mL	106.83	% Recovery	
23	SPK-POST	S0912010005	S09V000195	0 1		Chromium	SOLID	.02	5.5900E-02			1.40E-04	ug/mL	75.9	% Recovery	
22	SPK-POST	S0912010005	S09V000195	0 0		Cobalt	SOLID	.2	2.6080E-01			2.00E-05	ug/mL	108.22	% Recovery	
Sample Sequence 24																
24	CCV	S0912010006		0 0		Silver	LIQUID	.0004	4.1760E-04			8.00E-06	ug/mL	104.4	% Recovery	
24	CCV	S0912010006		0 0		Arsenic	LIQUID	.002	2.0640E-03			4.20E-05	ug/mL	103.2	% Recovery	
24	CCV	S0912010006		0 0		Cadmium	LIQUID	.002	2.0580E-03			3.00E-06	ug/mL	102.9	% Recovery	
24	CCV	S0912010006		0 0		Lead	LIQUID	.002	2.1150E-03			3.10E-05	ug/mL	105.75	% Recovery	
25	CCV	S0912010006		0 1		Antimony	LIQUID	.002	2.0700E-03			4.40E-05	ug/mL	103.5	% Recovery	
24	CCV	S0912010006		0 0		Selenium	LIQUID	.002	2.0610E-03			6.10E-05	ug/mL	103.05	% Recovery	
25	CCV	S0912010006		0 1		Thallium	LIQUID	.002	2.0870E-03			3.00E-06	ug/mL	104.35	% Recovery	
24	CCV	S0912010006		0 0		Vanadium	LIQUID	.002	2.1030E-03			2.40E-05	ug/mL	105.15	% Recovery	
24	CCV	S0912010006		0 0		Nickel	LIQUID	.002	2.0260E-03			1.20E-05	ug/mL	101.3	% Recovery	
24	CCV	S0912010006		0 0		Chromium	LIQUID	.002	2.0280E-03			1.40E-04	ug/mL	101.4	% Recovery	
24	CCV	S0912010006		0 0		Cobalt	LIQUID	.002	2.0620E-03			2.00E-05	ug/mL	103.1	% Recovery	
Sample Sequence 26																
26	CCB	S0912010007		0 0		Silver	LIQUID		<8.0000E-06			8.00E-06	ug/mL			
26	CCB	S0912010007		0 0		Arsenic	LIQUID		<4.2000E-05			4.20E-05	ug/mL			
26	CCB	S0912010007		0 0		Cadmium	LIQUID		<3.0000E-06			3.00E-06	ug/mL			
26	CCB	S0912010007		0 0		Lead	LIQUID		<3.1000E-05			3.10E-05	ug/mL			
26	CCB	S0912010007		0 0		Antimony	LIQUID		<4.4000E-05			4.40E-05	ug/mL			
26	CCB	S0912010007		0 0		Selenium	LIQUID		<6.1000E-05			6.10E-05	ug/mL			
26	CCB	S0912010007		0 0		Thallium	LIQUID		<3.0000E-06			3.00E-06	ug/mL			
26	CCB	S0912010007		0 0		Vanadium	LIQUID		<2.4000E-05			2.40E-05	ug/mL			
26	CCB	S0912010007		0 0		Nickel	LIQUID		<1.2000E-05			1.20E-05	ug/mL			

Units shown for OC (BLK/BKG) may not reflect the actual units.

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N. A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016927

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
26	CCB	S0912010007		0	0		Chromium	LIQUID		<1.4000E-04			1.40E-04	ug/mL			
26	CCB	S0912010007		0	0		Cobalt	LIQUID		<2.0000E-05			2.00E-05	ug/mL			
Sample Sequence 27																	
27	STD-PREP	S0907130015		0	0	A	Silver	LIQUID	1	1.0700E+00			0.04	ug/mL	107	% Recovery	
27	STD-PREP	S0907130015		0	0	A	Arsenic	LIQUID	5	5.6750E+00			0.21	ug/mL	113.5	% Recovery	
27	STD-PREP	S0907130015		0	0	A	Cadmium	LIQUID	5	5.3100E+00			0.015	ug/mL	106.2	% Recovery	
27	STD-PREP	S0907130015		0	0	A	Lead	LIQUID	5	5.7900E+00			0.155	ug/mL	115.8	% Recovery	
27	STD-PREP	S0907130015		0	0	A	Antimony	LIQUID	5	5.5250E+00			0.22	ug/mL	110.5	% Recovery	
27	STD-PREP	S0907130015		0	0	A	Selenium	LIQUID	5	5.6100E+00			0.305	ug/mL	112.2	% Recovery	
28	STD-PREP	S0907130015		0	1	A	Thallium	LIQUID	5	5.5350E+00			0.015	ug/mL	110.7	% Recovery	
27	STD-PREP	S0907130015		0	0	A	Vanadium	LIQUID	5	5.6300E+00			0.12	ug/mL	112.6	% Recovery	
27	STD-PREP	S0907130015		0	0	A	Nickel	LIQUID	5	5.4450E+00			0.06	ug/mL	108.9	% Recovery	
27	STD-PREP	S0907130015		0	0	A	Chromium	LIQUID	5	5.4750E+00			0.7	ug/mL	109.5	% Recovery	
27	STD-PREP	S0907130015		0	0	A	Cobalt	LIQUID	5	5.5250E+00			0.1	ug/mL	110.5	% Recovery	
Sample Sequence 29																	
29	SPK-PREDIG	S0907130017	S09V000195	0	0	A	Silver	SOLID	199.2032	2.1285E+02			7.9681	ug/g	106.78	% Recovery	
29	SPK-PREDIG	S0907130017	S09V000195	0	0	A	Arsenic	SOLID	996.016	1.1345E+03			41.833	ug/g	113.34	% Recovery	
29	SPK-PREDIG	S0907130017	S09V000195	0	0	A	Cadmium	SOLID	996.016	1.0538E+03			2.988	ug/g	105.79	% Recovery	
29	SPK-PREDIG	S0907130017	S09V000195	0	0	A	Lead	SOLID	996.016	1.0986E+03			30.876	ug/g	109.52	% Recovery	
29	SPK-PREDIG	S0907130017	S09V000195	0	0	A	Antimony	SOLID	996.016	1.0259E+03			43.825	ug/g	102.98	% Recovery	
29	SPK-PREDIG	S0907130017	S09V000195	0	0	A	Selenium	SOLID	996.016	1.0976E+03			60.757	ug/g	110.2	% Recovery	
29	SPK-PREDIG	S0907130017	S09V000195	0	0	A	Vanadium	SOLID	996.016	1.1444E+03			23.904	ug/g	108.85	% Recovery	
29	SPK-PREDIG	S0907130017	S09V000195	0	0	A	Nickel	SOLID	996.016	1.0697E+03			11.952	ug/g	106.16	% Recovery	
29	SPK-PREDIG	S0907130017	S09V000195	0	0	A	Chromium	SOLID	996.016	1.0936E+03			139.44	ug/g	108.974072	% Recovery	
29	SPK-PREDIG	S0907130017	S09V000195	0	0	A	Cobalt	SOLID	996.016	1.0976E+03			19.92	ug/g	109.3	% Recovery	
Sample Sequence 30																	
30	CCV	S0912010008		0	0		Silver	LIQUID	.0004	4.1590E-04			8.00E-06	ug/mL	103.98	% Recovery	
30	CCV	S0912010008		0	0		Arsenic	LIQUID	.002	2.0840E-03			4.20E-05	ug/mL	104.2	% Recovery	
30	CCV	S0912010008		0	0		Cadmium	LIQUID	.002	2.0940E-03			3.00E-06	ug/mL	104.7	% Recovery	
30	CCV	S0912010008		0	0		Lead	LIQUID	.002	2.1620E-03			3.10E-05	ug/mL	108.1	% Recovery	
31	CCV	S0912010008		0	1		Antimony	LIQUID	.002	2.0520E-03			4.40E-05	ug/mL	102.6	% Recovery	
30	CCV	S0912010008		0	0		Selenium	LIQUID	.002	2.1590E-03			6.10E-05	ug/mL	107.95	% Recovery	
31	CCV	S0912010008		0	1		Thallium	LIQUID	.002	2.0390E-03			3.00E-06	ug/mL	101.95	% Recovery	
30	CCV	S0912010008		0	0		Vanadium	LIQUID	.002	2.0630E-03			2.40E-05	ug/mL	103.15	% Recovery	
30	CCV	S0912010008		0	0		Nickel	LIQUID	.002	2.0630E-03			1.20E-05	ug/mL	103.15	% Recovery	
30	CCV	S0912010008		0	0		Chromium	LIQUID	.002	2.0900E-03			1.40E-04	ug/mL	104.5	% Recovery	
30	CCV	S0912010008		0	0		Cobalt	LIQUID	.002	2.0720E-03			2.00E-05	ug/mL	103.6	% Recovery	
Sample Sequence 32																	
32	CCB	S0912010009		0	0		Silver	LIQUID		<8.0000E-06			8.00E-06	ug/mL			
32	CCB	S0912010009		0	0		Arsenic	LIQUID		<4.2000E-05			4.20E-05	ug/mL			
32	CCB	S0912010009		0	0		Cadmium	LIQUID		<3.0000E-06			3.00E-06	ug/mL			

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016927

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
32	CCB	S0912010009		0 0		Lead	LIQUID		<3.1000E-05			3.10E-05	ug/mL			
32	CCB	S0912010009		0 0		Antimony	LIQUID		<4.4000E-05			4.40E-05	ug/mL			
32	CCB	S0912010009		0 0		Selenium	LIQUID		<6.1000E-05			6.10E-05	ug/mL			
32	CCB	S0912010009		0 0		Thallium	LIQUID		<3.0000E-06			3.00E-06	ug/mL			
32	CCB	S0912010009		0 0		Vanadium	LIQUID		<2.4000E-05			2.40E-05	ug/mL			
32	CCB	S0912010009		0 0		Nickel	LIQUID		<1.2000E-05			1.20E-05	ug/mL			
32	CCB	S0912010009		0 0		Chromium	LIQUID		<1.4000E-04			1.40E-04	ug/mL			
32	CCB	S0912010009		0 0		Cobalt	LIQUID		<2.0000E-05			2.00E-05	ug/mL			
Sample Sequence 33																
33	SPK-PREDIG	S0907130018	S09V000195	0 0	A	Thallium	SOLID	1009.2855	1.0971E+03			3.0279	ug/g	108.69	% Recovery	
Sample Sequence 34																
34	CCV	S0912010011		0 0		Silver	LIQUID	.0004	4.0230E-04			8.00E-06	ug/mL	100.58	% Recovery	
34	CCV	S0912010011		0 0		Arsenic	LIQUID	.002	2.0250E-03			4.20E-05	ug/mL	101.25	% Recovery	
34	CCV	S0912010011		0 0		Cadmium	LIQUID	.002	2.0300E-03			3.00E-06	ug/mL	101.5	% Recovery	
34	CCV	S0912010011		0 0		Lead	LIQUID	.002	2.1490E-03			3.10E-05	ug/mL	107.45	% Recovery	
35	CCV	S0912010011		0 1		Antimony	LIQUID	.002	2.0220E-03			4.40E-05	ug/mL	101.1	% Recovery	
34	CCV	S0912010011		0 0		Selenium	LIQUID	.002	1.9980E-03			6.10E-05	ug/mL	99.9	% Recovery	
35	CCV	S0912010011		0 1		Thallium	LIQUID	.002	2.0620E-03			3.00E-06	ug/mL	103.1	% Recovery	
34	CCV	S0912010011		0 0		Vanadium	LIQUID	.002	2.0820E-03			2.40E-05	ug/mL	104.1	% Recovery	
34	CCV	S0912010011		0 0		Nickel	LIQUID	.002	2.0430E-03			1.20E-05	ug/mL	102.15	% Recovery	
34	CCV	S0912010011		0 0		Chromium	LIQUID	.002	2.0020E-03			1.40E-04	ug/mL	100.1	% Recovery	
34	CCV	S0912010011		0 0		Cobalt	LIQUID	.002	2.0270E-03			2.00E-05	ug/mL	101.35	% Recovery	
Sample Sequence 36																
38	LLS	S0912010012		0 2		Silver	LIQUID	.00001	9.0560E-06			8.00E-06	ug/mL	90.56	% Recovery	
38	LLS	S0912010012		0 2		Arsenic	LIQUID	.00005	5.0640E-05			4.20E-05	ug/mL	101.28	% Recovery	
37	LLS	S0912010012		0 1		Cadmium	LIQUID	.00001	9.6460E-06			3.00E-06	ug/mL	96.46	% Recovery	
38	LLS	S0912010012		0 2		Lead	LIQUID	.00005	4.6510E-05			3.10E-05	ug/mL	93.02	% Recovery	
39	LLS	S0912010012		0 3		Antimony	LIQUID	.00005	5.0830E-05			4.40E-05	ug/mL	101.66	% Recovery	
38	LLS	S0912010012		0 2		Selenium	LIQUID	.00005	1.8130E-05			6.10E-06	ug/mL	36.26	% Recovery	
36	LLS	S0912010012		0 0		Thallium	LIQUID	.000005	5.9470E-06			3.00E-06	ug/mL	118.94	% Recovery	
38	LLS	S0912010012		0 2		Vanadium	LIQUID	.00005	5.2280E-05			2.40E-05	ug/mL	104.56	% Recovery	
38	LLS	S0912010012		0 2		Nickel	LIQUID	.00005	4.8160E-05			1.20E-05	ug/mL	96.32	% Recovery	
38	LLS	S0912010012		0 2		Chromium	LIQUID	.00005	5.8790E-05			1.40E-05	ug/mL	117.58	% Recovery	
38	LLS	S0912010012		0 2		Cobalt	LIQUID	.00005	4.9790E-05			2.00E-05	ug/mL	99.58	% Recovery	
Sample Sequence 40																
40	CCB	S0912010010		0 0		Silver	LIQUID		<8.0000E-06			8.00E-06	ug/mL			
40	CCB	S0912010010		0 0		Arsenic	LIQUID		<4.2000E-05			4.20E-05	ug/mL			
40	CCB	S0912010010		0 0		Cadmium	LIQUID		<3.0000E-06			3.00E-06	ug/mL			
40	CCB	S0912010010		0 0		Lead	LIQUID		<3.1000E-05			3.10E-05	ug/mL			
40	CCB	S0912010010		0 0		Antimony	LIQUID		<4.4000E-05			4.40E-05	ug/mL			
40	CCB	S0912010010		0 0		Selenium	LIQUID		<6.1000E-05			6.10E-05	ug/mL			

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LABCORE Completed Batch Report for Batch# 00016927

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
40	CCB	S0912010010		0	0	Thallium	LIQUID		<3.0000E-06			3.00E-06	ug/mL			
40	CCB	S0912010010		0	0	Vanadium	LIQUID		<2.4000E-05			2.40E-05	ug/mL			
40	CCB	S0912010010		0	0	Nickel	LIQUID		<1.2000E-05			1.20E-05	ug/mL			
40	CCB	S0912010010		0	0	Chromium	LIQUID		<1.4000E-04			1.40E-04	ug/mL			
40	CCB	S0912010010		0	0	Cobalt	LIQUID		<2.0000E-05			2.00E-05	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00016927

Rosie Ross 12/15/09
Reviewer Signature Date

PM Reviewer: [illegible] 12/18/09

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LABCORE Completed Batch Report for Batch# 00016927

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0912010001	ICV				
2	S0912010001	ICV				
3	S0912010003	LLS				
4	S0912010003	LLS				
5	S0912010003	LLS				
6	S0912010003	LLS				
7	S0912010002	ICB				
8	S0907130014	BLNK-PREP				
9	S0907130014	BLNK-PREP				
10	S0912010004	SERDIL	S09V000195			
11	S0912010004	SERDIL	S09V000195			
12	S09V000195	SAMPLE		20090160	B1YT71	C Farm WMA C
13	S09V000195	SAMPLE		20090160	B1YT71	C Farm WMA C
14	S0907130016	DUP	S09V000195			
15	S0907130016	DUP	S09V000195			
16	S09V000196	SAMPLE		20090160	B1YT74	C Farm WMA C
17	S09V000196	SAMPLE		20090160	B1YT74	C Farm WMA C
18	S09V000197	SAMPLE		20090160	B1YT77	C Farm WMA C
19	S09V000197	SAMPLE		20090160	B1YT77	C Farm WMA C
20	S09V000198	SAMPLE		20090160	B1YT80	C Farm WMA C
21	S09V000198	SAMPLE		20090160	B1YT80	C Farm WMA C
22	S0912010005	SPK-POST	S09V000195			
23	S0912010005	SPK-POST	S09V000195			
24	S0912010006	CCV				
25	S0912010006	CCV				
26	S0912010007	CCB				
27	S0907130015	STD-PREP				
28	S0907130015	STD-PREP				
29	S0907130017	SPK-PREDIG	S09V000195			
30	S0912010008	CCV				
31	S0912010008	CCV				
32	S0912010009	CCB				
33	S0907130018	SPK-PREDIG	S09V000195			
34	S0912010011	CCV				
35	S0912010011	CCV				

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LABCORE Completed Batch Report for Batch# 00016927

36	S0912010012	LLS
37	S0912010012	LLS
38	S0912010012	LLS
39	S0912010012	LLS
40	S0912010010	CCB

ATL	ICP-MS DATA REVIEW CHECKLIST	○ IH ◉ NON IH

○ LA-506-102 Rev _____ (*) ◉ LA-506-103 Rev A-0 (*) ○ _____ Rev _____ (*)

Worklist/Project Information: 00016927 / Periodic Table on C Farm solids

Analysis Date: 11/13/09 Instrument Id: Agilent Prep Batches Run: 00014929

Review Items	Yes	No	N/A
A. Calibration			
1. Was the instrument tuned according to the SOP?	◉	○	○
2. Are the mass calibration and resolution within required limits?	◉	○	○
3. Was the stability %RSD documented as <5%?	◉	○	○
4. Was the instrument calibrated per SOP and at specified levels?	◉	○	○
5. Were ICV/CCV analyzed at appropriate frequency and were recoveries within control limits of 90 - 110%? If not in control, was the CCV reanalyzed to show return to control?	◉	○	○
6. Were ICB/CCB analyzed at appropriate frequency and were results < EQL (or, with client consent, <5% of lowest sample result)? N/A if all samples are ND.	◉	○	○
7. Was an LLS run at required frequency and were recoveries within control limits of 75 - 125% for IH or 70 - 130% for non-IH work?	○	◉	○
B. Sample Results			
1. Were samples with concentrations above the linear range for any analyte diluted and reanalyzed?	○	○	◉
2. Are all reported results bracketed by in control QC?	◉	○	○
3. Were sample analyses done within holding time?	○	○	◉
C. Preparation/Matrix QC			
1. Was a method blank done per prep batch and were results < EQL or less than 5% of lowest sample result?	○	◉	○
2. Was an LCS (and LCS dup, if required) done per prep batch and were recoveries within control limits of 80 - 120%, and % RPD <20%?	◉	○	○
3. Was an MS run as required and was recovery within control limits of 75 - 125% for all analytes for which the spike level was at least 25% of the sample result?	◉	○	○
4. Was an MSD or DUP run at required frequency and was the % RPD within control limits of <20% (or, with client consent, <30%) for all analytes > EQL?	◉	○	○
5. Was a serial dilution done per analytical batch, if required, and was the % difference within control limits of <10% for all analytes > 100 times the DL?	◉	○	○
6. Was a post digest spike analyzed if required and was the recovery within control limits of 75 - 125%?	◉	○	○
D. Other			
1. Are all nonconformances documented appropriately?	◉	○	○
2. Is current IDL/MDL/EQL data on file?	◉	○	○
3. Were calculations checked for errors?	◉	○	○
4. Were transcriptions and data upload checked for errors? (Example: Are dilution factors that are entered into the sequence log correct?)	◉	○	○
5. Were all client/project specific requirements met?	◉	○	○
6. Was the date/time of analysis verified as correct?	◉	○	○

Comments/Samples Affected (indicate review item letter and number):

Note: The samples were run at both a 200-fold and 20-fold dilution. The 20-fold dilution was used for most analytes and is the lowest dilution used to avoid matrix effects on the internal standard recoveries. Only those analytes with high results (like vanadium, nickel and cobalt) were reported from the 200-fold dilution.

A-7. The recovery for the initial Cr LLS was >130%. The initial LLS recovery for Se was

(*) This form is not used by the subject procedure; rather, it is used to assist in verifying the data produced during the performance of the procedure.

ATL	ICP-MS DATA REVIEW CHECKLIST (continued)	○ IH ◉ NON IH

○ LA-506-102 Rev _____ (*) ◉ LA-506-103 Rev A-0 (*) ○ _____ Rev _____ (*)

Worklist/Project Information: 00016927 / Periodic Table on C Farm solids

Run Date: 11/13/09 Instrument Id: Agilent Prep Batches Run: 00014929

>130% and the final LLS recovery for Se was <70% Note that the LLS levels run were lower than they should have been for these two analytes which is probably why they fluctuated so much.

C1. The prep blank results for Ag, Cd, and Tl were >DL, <EQL but > 5% of the sample results which were all J-flagged. A B-flag was applied for these analytes. The prep blank result for Ni was >DL, <EQL and <5% of the sample results so no B-flag was applied.

C5. The % differences for the serdil for As and Co were >10%, but both analytes were <100xDL, so the serdil acceptance limits do not apply for these analytes.

1st Level Data Reviewer: Rorie Ross (Signature) Date: 12/15/09 2nd Level Data Reviewer: [signature] (Signature) Date: 12/17/09

PM Reviewer: [signature] 12/18/09

(*) This form is not used by the subject procedure; rather, it is used to assist in verifying the data produced during the performance of the procedure.

LABCORE Completed Batch Report for Batch# 00017063

Analyst: Mull, Bryanna **Book#:**

Instrument: ICP/MS AGILENT

Method: MS PERIODIC TABLE, LA-506-103 Rev/Mod A-0

Specification: C Farm WMA C

Prep Batch: 00015032

Batch Comment: ICP-MS analysis of periodic table analytes for c farm soil digestates. bsm

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 ICV	S0912180053		0	0	Silver	LIQUID	.0004	3.6470E-04			8.00E-06	ug/mL	91.175	% Recovery	
1 ICV	S0912180053		0	0	Arsenic	LIQUID	.002	1.9500E-03			4.20E-05	ug/mL	97.5	% Recovery	
1 ICV	S0912180053		0	0	Cobalt	LIQUID	.002	1.8940E-03			2.00E-05	ug/mL	94.7	% Recovery	
1 ICV	S0912180053		0	0	Cadmium	LIQUID	.002	1.8730E-03			3.00E-06	ug/mL	93.65	% Recovery	
1 ICV	S0912180053		0	0	Chromium	LIQUID	.002	1.9880E-03			1.40E-04	ug/mL	99.4	% Recovery	
1 ICV	S0912180053		0	0	Lead	LIQUID	.002	1.9940E-03			3.10E-05	ug/mL	99.7	% Recovery	
2 ICV	S0912180053		0	1	Antimony	LIQUID	.002	2.1660E-03			4.40E-05	ug/mL	108.3	% Recovery	
1 ICV	S0912180053		0	0	Selenium	LIQUID	.002	1.8780E-03			6.10E-05	ug/mL	93.9	% Recovery	
2 ICV	S0912180053		0	1	Thallium	LIQUID	.002	2.1810E-03			3.00E-06	ug/mL	109.05	% Recovery	
1 ICV	S0912180053		0	0	Vanadium	LIQUID	.002	1.9070E-03			2.40E-05	ug/mL	95.35	% Recovery	
1 ICV	S0912180053		0	0	Nickel	LIQUID	.002	1.9080E-03			1.20E-05	ug/mL	95.4	% Recovery	
Sample Sequence 3															
5 LLS	S0912180055		0	2	Silver	LIQUID	.00002	2.3970E-05			8.00E-06	ug/mL	119.85	% Recovery	
5 LLS	S0912180055		0	2	Arsenic	LIQUID	.0001	9.4560E-05			4.20E-05	ug/mL	94.56	% Recovery	
5 LLS	S0912180055		0	2	Cobalt	LIQUID	.0001	9.5870E-05			2.00E-05	ug/mL	95.87	% Recovery	
3 LLS	S0912180055		0	0	Cadmium	LIQUID	.000005	7.2150E-06			3.00E-06	ug/mL	144.3	% Recovery	
5 LLS	S0912180055		0	2	Chromium	LIQUID	.0001	9.4690E-05			9.00E-05	ug/mL	94.69	% Recovery	
5 LLS	S0912180055		0	2	Lead	LIQUID	.0001	9.8860E-05			3.10E-05	ug/mL	98.86	% Recovery	
6 LLS	S0912180055		0	3	Antimony	LIQUID	.00025	2.9040E-04			4.40E-05	ug/mL	116.16	% Recovery	
5 LLS	S0912180055		0	2	Selenium	LIQUID	.0001	1.5930E-04			6.10E-05	ug/mL	159.3	% Recovery	
4 LLS	S0912180055		0	1	Thallium	LIQUID	.00002	2.2740E-05			3.00E-06	ug/mL	113.7	% Recovery	
5 LLS	S0912180055		0	2	Vanadium	LIQUID	.0001	1.0100E-04			2.40E-05	ug/mL	101	% Recovery	
5 LLS	S0912180055		0	2	Nickel	LIQUID	.0001	9.7260E-05			1.20E-05	ug/mL	97.26	% Recovery	
Sample Sequence 7															
7 ICB	S0912180054		0	0	Silver	LIQUID		<8.0000E-06			8.00E-06	ug/mL			
7 ICB	S0912180054		0	0	Arsenic	LIQUID		<4.2000E-05			4.20E-05	ug/mL			
7 ICB	S0912180054		0	0	Cobalt	LIQUID		<2.0000E-05			2.00E-05	ug/mL			
7 ICB	S0912180054		0	0	Cadmium	LIQUID		<3.0000E-06			3.00E-06	ug/mL			
7 ICB	S0912180054		0	0	Chromium	LIQUID		<1.4000E-04			1.40E-04	ug/mL			
7 ICB	S0912180054		0	0	Lead	LIQUID		<3.1000E-05			3.10E-05	ug/mL			

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00017063

Seq	Type	Sample#	Assoc. Sample	RepR		A		Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
7	ICB	S0912180054		0	0			Antimony	LIQUID		<4.4000E-05			4.40E-05	ug/mL			
7	ICB	S0912180054		0	0			Selenium	LIQUID		<6.1000E-05			6.10E-05	ug/mL			
7	ICB	S0912180054		0	0			Thallium	LIQUID		<3.0000E-06			3.00E-06	ug/mL			
7	ICB	S0912180054		0	0			Vanadium	LIQUID		<2.4000E-05			2.40E-05	ug/mL			
7	ICB	S0912180054		0	0			Nickel	LIQUID		<1.2000E-05			1.20E-05	ug/mL			
Sample Sequence 8																		
8	BLNK-PREP	S0907160098		0	0	A	*	Silver	LIQUID		4.5700E-04			1.60E-04	ug/mL			
8	BLNK-PREP	S0907160098		0	0	A		Arsenic	LIQUID		<8.4000E-04			8.40E-04	ug/mL			
8	BLNK-PREP	S0907160098		0	0	A	*	Cobalt	LIQUID		<4.0000E-04			4.00E-04	ug/mL			
8	BLNK-PREP	S0907160098		0	0	A	*	Cadmium	LIQUID		<6.0000E-05			6.00E-05	ug/mL			
8	BLNK-PREP	S0907160098		0	0	A		Lead	LIQUID		<6.2000E-04			6.20E-04	ug/mL			
8	BLNK-PREP	S0907160098		0	0	A		Antimony	LIQUID		<8.8000E-04			8.80E-04	ug/mL			
8	BLNK-PREP	S0907160098		0	0	A	*	Selenium	LIQUID		2.1820E-03			1.22E-03	ug/mL			
8	BLNK-PREP	S0907160098		0	0	A		Thallium	LIQUID		5.1160E-04			6.00E-05	ug/mL			
8	BLNK-PREP	S0907160098		0	0	A		Vanadium	LIQUID		<4.8000E-04			4.80E-04	ug/mL			
8	BLNK-PREP	S0907160098		0	0	A	*	Nickel	LIQUID		<2.4000E-04			2.40E-04	ug/mL			
Sample Sequence 9																		
10	SERDIL	S0912180056	S09V000464	0	1		*	Silver	SOLID		9.9720E-04			8.00E-04	ug/g	N/A		
10	SERDIL	S0912180056	S09V000464	0	1			Arsenic	SOLID		5.2019E+00			0.81522	ug/g	20.83	% Diff	
10	SERDIL	S0912180056	S09V000464	0	1		*	Cobalt	SOLID		4.0750E-02			2.00E-03	ug/g	N/A		
10	SERDIL	S0912180056	S09V000464	0	1		*	Cadmium	SOLID		5.3190E-04			3.00E-04	ug/g	N/A		
10	SERDIL	S0912180056	S09V000464	0	1			Lead	SOLID		6.7702E+00			0.60171	ug/g	10.17	% Diff	
10	SERDIL	S0912180056	S09V000464	0	1			Antimony	SOLID		<8.5404E-01			0.85404	ug/g	N/A		
10	SERDIL	S0912180056	S09V000464	0	1		*	Selenium	SOLID		<6.1000E-03			6.10E-03	ug/g	N/A		
10	SERDIL	S0912180056	S09V000464	0	1			Thallium	SOLID		9.5594E-02			0.05823	ug/g	3.5104	% Diff	
9	SERDIL	S0912180056	S09V000464	0	0			Vanadium	SOLID		5.8948E+01			4.6584	ug/g	4.0069	% Diff	
10	SERDIL	S0912180056	S09V000464	0	1		*	Nickel	SOLID		4.6320E-02			1.20E-03	ug/g	N/A		
Sample Sequence 11																		
12	SAMPLE	S09V000464		0	1	A	*	Silver	SOLID	N/A	1.8405E-01			0.031056	ug/g			Jb
12	SAMPLE	S09V000464		0	1	A		Arsenic	SOLID	N/A	4.3051E+00			0.16304	ug/g			
12	SAMPLE	S09V000464		0	1	A	*	Cobalt	SOLID	N/A	5.6444E+00			0.07764	ug/g			
12	SAMPLE	S09V000464		0	1	A	*	Cadmium	SOLID	N/A	9.2314E-02			0.011646	ug/g			J
12	SAMPLE	S09V000464		0	1	A		Lead	SOLID	N/A	6.1452E+00			0.12034	ug/g			
12	SAMPLE	S09V000464		0	1	A		Antimony	SOLID	N/A	<1.7081E-01			0.17081	ug/g			U
12	SAMPLE	S09V000464		0	1	A	*	Selenium	SOLID	N/A	<2.3680E-01			0.2368	ug/g			U
12	SAMPLE	S09V000464		0	1	A		Thallium	SOLID	N/A	9.2352E-02			0.011646	ug/g			BJ
11	SAMPLE	S09V000464		0	0	A		Vanadium	SOLID	N/A	5.6677E+01			0.93168	ug/g			
12	SAMPLE	S09V000464		0	1	A	*	Nickel	SOLID	N/A	6.3587E+00			0.046584	ug/g			U
Sample Sequence 13																		
14	DUP	S0907160100	S09V000464	0	1	A	*	Silver	SOLID	1.8405E-01	1.9463E-01			0.031141	ug/g			
14	DUP	S0907160100	S09V000464	0	1	A		Arsenic	SOLID	4.3051E+00	4.1845E+00			0.16349	ug/g	2.8417	% RPD	

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LABCORE Completed Batch Report for Batch# 00017063

Seq	Type	Sample#	Assoc. Sample	RepR		A		Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
14	DUP	S0907160100	S09V000464	0	1	A	*	Cadmium	SOLID	9.2314E-02	8.6493E-02			0.011678	ug/g			
14	DUP	S0907160100	S09V000464	0	1	A		Lead	SOLID	6.1452E+00	6.7536E+00			0.12067	ug/g	9.4337	% RPD	
14	DUP	S0907160100	S09V000464	0	1	A		Antimony	SOLID	<1.7081E-01	<1.7127E-01			0.17127	ug/g			
14	DUP	S0907160100	S09V000464	0	1	A	*	Selenium	SOLID	<2.3680E-01	<2.3745E-01			0.23745	ug/g			
14	DUP	S0907160100	S09V000464	0	1	A		Thallium	SOLID	9.2352E-02	1.2791E-01			0.011678	ug/g	32.286	% RPD	
13	DUP	S0907160100	S09V000464	0	0	A		Vanadium	SOLID	5.6677E+01	5.7960E+01			0.93422	ug/g	2.2383	% RPD	
14	DUP	S0907160100	S09V000464	0	1	A	*	Nickel	SOLID	6.3587E+00	6.7964E+00			0.046711	ug/g			
14	DUP	S0907160100	S09V000464	0	1	A	*	Cobalt	SOLID	5.6444E+00	5.8661E+00			0.077851	ug/g			
Sample Sequence 15																		
16	SAMPLE	S09V000471		0	1	A	*	Silver	SOLID	N/A	2.0240E-01			0.030996	ug/g			J
16	SAMPLE	S09V000471		0	1	A		Arsenic	SOLID	N/A	4.3820E+00			0.16273	ug/g			
16	SAMPLE	S09V000471		0	1	A	*	Cadmium	SOLID	N/A	9.3297E-02			0.011623	ug/g			J
16	SAMPLE	S09V000471		0	1	A		Lead	SOLID	N/A	8.5238E+00			0.12011	ug/g			
16	SAMPLE	S09V000471		0	1	A		Antimony	SOLID	N/A	<1.7048E-01			0.17048	ug/g			U
16	SAMPLE	S09V000471		0	1	A	*	Selenium	SOLID	N/A	<2.3634E-01			0.23634	ug/g			U
16	SAMPLE	S09V000471		0	1	A		Thallium	SOLID	N/A	9.4305E-02			0.011623	ug/g			BJ
15	SAMPLE	S09V000471		0	0	A		Vanadium	SOLID	N/A	5.7923E+01			0.92987	ug/g			
16	SAMPLE	S09V000471		0	1	A	*	Nickel	SOLID	N/A	6.6021E+00			0.046494	ug/g			
16	SAMPLE	S09V000471		0	1	A	*	Cobalt	SOLID	N/A	6.2030E+00			0.077489	ug/g			
Sample Sequence 17																		
18	SAMPLE	S09V000406		0	1	A	*	Silver	SOLID	N/A	1.8808E-01			0.031484	ug/g			J
18	SAMPLE	S09V000406		0	1	A		Arsenic	SOLID	N/A	3.3810E+00			0.16529	ug/g			
18	SAMPLE	S09V000406		0	1	A	*	Cadmium	SOLID	N/A	9.3979E-02			0.011806	ug/g			J
18	SAMPLE	S09V000406		0	1	A		Lead	SOLID	N/A	4.3841E+00			0.122	ug/g			
18	SAMPLE	S09V000406		0	1	A		Antimony	SOLID	N/A	<1.7316E-01			0.17316	ug/g			U
18	SAMPLE	S09V000406		0	1	A	*	Selenium	SOLID	N/A	<2.4006E-01			0.24006	ug/g			U
18	SAMPLE	S09V000406		0	1	A		Thallium	SOLID	N/A	7.4498E-02			0.011806	ug/g			BJ
17	SAMPLE	S09V000406		0	0	A		Vanadium	SOLID	N/A	5.0925E+01			0.94451	ug/g			
18	SAMPLE	S09V000406		0	1	A	*	Nickel	SOLID	N/A	5.4978E+00			0.047226	ug/g			
18	SAMPLE	S09V000406		0	1	A	*	Cobalt	SOLID	N/A	4.8249E+00			0.078709	ug/g			
Sample Sequence 19																		
20	SAMPLE	S09V000421		0	1	A	*	Silver	SOLID	N/A	1.8804E-01			0.030269	ug/g			J
20	SAMPLE	S09V000421		0	1	A		Arsenic	SOLID	N/A	2.7775E+00			0.15891	ug/g			
20	SAMPLE	S09V000421		0	1	A	*	Cadmium	SOLID	N/A	5.7964E-02			0.011351	ug/g			J
20	SAMPLE	S09V000421		0	1	A		Lead	SOLID	N/A	4.7673E+00			0.11729	ug/g			
20	SAMPLE	S09V000421		0	1	A		Antimony	SOLID	N/A	<1.6648E-01			0.16648	ug/g			U
20	SAMPLE	S09V000421		0	1	A	*	Selenium	SOLID	N/A	<2.3080E-01			0.2308	ug/g			U
20	SAMPLE	S09V000421		0	1	A		Thallium	SOLID	N/A	9.4325E-02			0.011351	ug/g			BJ
19	SAMPLE	S09V000421		0	0	A		Vanadium	SOLID	N/A	5.7964E+01			0.90806	ug/g			
20	SAMPLE	S09V000421		0	1	A	*	Nickel	SOLID	N/A	7.9115E+00			0.045403	ug/g			
20	SAMPLE	S09V000421		0	1	A	*	Cobalt	SOLID	N/A	6.7310E+00			0.075672	ug/g			

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00017063

Seq	Type	Sample#	Assoc. Sample	RepR		A		Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 21																		
22	SAMPLE	S09V000438		0	1	A	*	Silver	SOLID	N/A	2.1202E-01			0.030817	ug/g			J
22	SAMPLE	S09V000438		0	1	A		Arsenic	SOLID	N/A	3.9407E+00			0.16179	ug/g			
22	SAMPLE	S09V000438		0	1	A	*	Cadmium	SOLID	N/A	7.4191E-02			0.011556	ug/g			J
22	SAMPLE	S09V000438		0	1	A		Lead	SOLID	N/A	5.3852E+00			0.11941	ug/g			
22	SAMPLE	S09V000438		0	1	A		Antimony	SOLID	N/A	<1.6949E-01			0.16949	ug/g			U
22	SAMPLE	S09V000438		0	1	A	*	Selenium	SOLID	N/A	<2.3498E-01			0.23498	ug/g			U
22	SAMPLE	S09V000438		0	1	A		Thallium	SOLID	N/A	8.5169E-02			0.011556	ug/g			BJ
21	SAMPLE	S09V000438		0	0	A		Vanadium	SOLID	N/A	5.1425E+01			0.9245	ug/g			
22	SAMPLE	S09V000438		0	1	A	*	Nickel	SOLID	N/A	7.5154E+00			0.046225	ug/g			
22	SAMPLE	S09V000438		0	1	A	*	Cobalt	SOLID	N/A	4.9538E+00			0.077042	ug/g			
Sample Sequence 23																		
24	SAMPLE	S09V000453		0	1	A	*	Silver	SOLID	N/A	1.3567E-01			0.030008	ug/g			J
24	SAMPLE	S09V000453		0	1	A		Arsenic	SOLID	N/A	2.8245E+00			0.15754	ug/g			
24	SAMPLE	S09V000453		0	1	A	*	Cadmium	SOLID	N/A	4.2086E-02			0.011253	ug/g			J
24	SAMPLE	S09V000453		0	1	A		Lead	SOLID	N/A	3.9160E+00			0.11628	ug/g			
24	SAMPLE	S09V000453		0	1	A		Antimony	SOLID	N/A	<1.6504E-01			0.16504	ug/g			U
24	SAMPLE	S09V000453		0	1	A	*	Selenium	SOLID	N/A	<2.2881E-01			0.22881	ug/g			U
24	SAMPLE	S09V000453		0	1	A		Thallium	SOLID	N/A	7.6932E-02			0.011253	ug/g			BJ
23	SAMPLE	S09V000453		0	0	A		Vanadium	SOLID	N/A	2.9569E+01			0.90023	ug/g			
24	SAMPLE	S09V000453		0	1	A	*	Nickel	SOLID	N/A	1.6358E+01			0.045011	ug/g			
24	SAMPLE	S09V000453		0	1	A	*	Cobalt	SOLID	N/A	3.9460E+00			0.075019	ug/g			
Sample Sequence 25																		
26	SAMPLE	S09V000199		0	1	A	*	Silver	SOLID	N/A	1.4852E-01			0.029996	ug/g			J
26	SAMPLE	S09V000199		0	1	A		Arsenic	SOLID	N/A	2.6483E+00			0.15748	ug/g			
26	SAMPLE	S09V000199		0	1	A	*	Cadmium	SOLID	N/A	5.1856E-02			0.011249	ug/g			J
26	SAMPLE	S09V000199		0	1	A		Lead	SOLID	N/A	4.0307E+00			0.11624	ug/g			
26	SAMPLE	S09V000199		0	1	A		Antimony	SOLID	N/A	<1.6498E-01			0.16498	ug/g			U
26	SAMPLE	S09V000199		0	1	A	*	Selenium	SOLID	N/A	<2.2872E-01			0.22872	ug/g			U
26	SAMPLE	S09V000199		0	1	A		Thallium	SOLID	N/A	8.9876E-02			0.011249	ug/g			BJ
25	SAMPLE	S09V000199		0	0	A		Vanadium	SOLID	N/A	3.1500E+01			0.89989	ug/g			
26	SAMPLE	S09V000199		0	1	A	*	Nickel	SOLID	N/A	1.0776E+01			0.044994	ug/g			
26	SAMPLE	S09V000199		0	1	A	*	Cobalt	SOLID	N/A	4.0345E+00			0.074991	ug/g			
Sample Sequence 27																		
27	CCV	S0912180058		0	0			Silver	LIQUID	.0004	3.1840E-04			8.00E-06	ug/mL	79.6	% Recovery	
27	CCV	S0912180058		0	0			Arsenic	LIQUID	.002	2.0890E-03			4.20E-05	ug/mL	104.45	% Recovery	
27	CCV	S0912180058		0	0			Cobalt	LIQUID	.002	1.9940E-03			2.00E-05	ug/mL	99.7	% Recovery	
27	CCV	S0912180058		0	0			Cadmium	LIQUID	.002	2.0480E-03			3.00E-06	ug/mL	102.4	% Recovery	
27	CCV	S0912180058		0	0			Chromium	LIQUID	.002	2.0330E-03			1.40E-04	ug/mL	101.65	% Recovery	
27	CCV	S0912180058		0	0			Lead	LIQUID	.002	2.1900E-03			3.10E-05	ug/mL	109.5	% Recovery	
28	CCV	S0912180058		0	1			Antimony	LIQUID	.002	2.0580E-03			4.40E-05	ug/mL	102.9	% Recovery	

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00017063

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
27	CCV	S0912180058		0	0	Selenium	LIQUID	.002	2.0920E-03			6.10E-05	ug/mL	104.6	% Recovery	
28	CCV	S0912180058		0	1	Thallium	LIQUID	.002	2.1500E-03			3.00E-06	ug/mL	107.5	% Recovery	
27	CCV	S0912180058		0	0	Vanadium	LIQUID	.002	2.0160E-03			2.40E-05	ug/mL	100.8	% Recovery	
27	CCV	S0912180058		0	0	Nickel	LIQUID	.002	2.0230E-03			1.20E-05	ug/mL	101.15	% Recovery	
Sample Sequence 29																
29	CCB	S0912180059		0	0	Silver	LIQUID		<8.0000E-06			8.00E-06	ug/mL			
29	CCB	S0912180059		0	0	Arsenic	LIQUID		<4.2000E-05			4.20E-05	ug/mL			
29	CCB	S0912180059		0	0	Cobalt	LIQUID		<2.0000E-05			2.00E-05	ug/mL			
29	CCB	S0912180059		0	0	Cadmium	LIQUID		<3.0000E-06			3.00E-06	ug/mL			
29	CCB	S0912180059		0	0	Chromium	LIQUID		<1.4000E-04			1.40E-04	ug/mL			
29	CCB	S0912180059		0	0	Lead	LIQUID		<3.1000E-05			3.10E-05	ug/mL			
29	CCB	S0912180059		0	0	Antimony	LIQUID		<4.4000E-05			4.40E-05	ug/mL			
29	CCB	S0912180059		0	0	Selenium	LIQUID		<6.1000E-05			6.10E-05	ug/mL			
29	CCB	S0912180059		0	0	Thallium	LIQUID		<3.0000E-06			3.00E-06	ug/mL			
29	CCB	S0912180059		0	0	Vanadium	LIQUID		<2.4000E-05			2.40E-05	ug/mL			
29	CCB	S0912180059		0	0	Nickel	LIQUID		<1.2000E-05			1.20E-05	ug/mL			
Sample Sequence 30																
30	CCV	S0912180060		0	0	Silver	LIQUID	.0004	2.7710E-04			8.00E-06	ug/mL	69.275	% Recovery	
30	CCV	S0912180060		0	0	Arsenic	LIQUID	.002	2.1580E-03			4.20E-05	ug/mL	107.9	% Recovery	
30	CCV	S0912180060		0	0	Cobalt	LIQUID	.002	1.8970E-03			2.00E-05	ug/mL	94.85	% Recovery	
30	CCV	S0912180060		0	0	Cadmium	LIQUID	.002	1.8550E-03			3.00E-06	ug/mL	92.75	% Recovery	
30	CCV	S0912180060		0	0	Chromium	LIQUID	.002	2.1000E-03			1.40E-04	ug/mL	105	% Recovery	
30	CCV	S0912180060		0	0	Lead	LIQUID	.002	2.0210E-03			3.10E-05	ug/mL	101.05	% Recovery	
31	CCV	S0912180060		0	1	Antimony	LIQUID	.002	2.1460E-03			4.40E-05	ug/mL	107.3	% Recovery	
30	CCV	S0912180060		0	0	Selenium	LIQUID	.002	1.8530E-03			6.10E-05	ug/mL	92.65	% Recovery	
31	CCV	S0912180060		0	1	Thallium	LIQUID	.002	2.1950E-03			3.00E-06	ug/mL	109.75	% Recovery	
30	CCV	S0912180060		0	0	Vanadium	LIQUID	.002	2.1250E-03			2.40E-05	ug/mL	106.25	% Recovery	
30	CCV	S0912180060		0	0	Nickel	LIQUID	.002	1.9370E-03			1.20E-05	ug/mL	96.85	% Recovery	
Sample Sequence 32																
32	CCB	S0912180061		0	0	Silver	LIQUID		<8.0000E-06			8.00E-06	ug/mL			
32	CCB	S0912180061		0	0	Arsenic	LIQUID		<4.2000E-05			4.20E-05	ug/mL			
32	CCB	S0912180061		0	0	Cobalt	LIQUID		<2.0000E-05			2.00E-05	ug/mL			
32	CCB	S0912180061		0	0	Cadmium	LIQUID		<3.0000E-06			3.00E-06	ug/mL			
32	CCB	S0912180061		0	0	Chromium	LIQUID		<1.4000E-04			1.40E-04	ug/mL			
32	CCB	S0912180061		0	0	Lead	LIQUID		<3.1000E-05			3.10E-05	ug/mL			
32	CCB	S0912180061		0	0	Antimony	LIQUID		<4.4000E-05			4.40E-05	ug/mL			
32	CCB	S0912180061		0	0	Selenium	LIQUID		3.7790E-04			6.10E-05	ug/mL			
32	CCB	S0912180061		0	0	Thallium	LIQUID		<3.0000E-06			3.00E-06	ug/mL			
32	CCB	S0912180061		0	0	Vanadium	LIQUID		<2.4000E-05			2.40E-05	ug/mL			
32	CCB	S0912180061		0	0	Nickel	LIQUID		<1.2000E-05			1.20E-05	ug/mL			
Sample Sequence 33																

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LABCORE Completed Batch Report for Batch# 00017063

Seq	Type	Sample#	Assoc. Sample	RepR		A		Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
35	SPK-POST	S0912180057	S09V000464	0	2			Silver	SOLID	.004	5.7020E-03			8.00E-06	ug/mL	118.84	% Recovery	
35	SPK-POST	S0912180057	S09V000464	0	2			Arsenic	SOLID	.02	3.7540E-02			4.20E-05	ug/mL	76.8	% Recovery	
35	SPK-POST	S0912180057	S09V000464	0	2			Cobalt	SOLID	.02	4.4820E-02			2.00E-05	ug/mL	78.7	% Recovery	
35	SPK-POST	S0912180057	S09V000464	0	2			Cadmium	SOLID	.02	1.8380E-02			3.00E-06	ug/mL	89.522	% Recovery	
35	SPK-POST	S0912180057	S09V000464	0	2			Lead	SOLID	.02	5.4140E-02			3.10E-05	ug/mL	112.4	% Recovery	
36	SPK-POST	S0912180057	S09V000464	0	3			Antimony	SOLID	.02	2.2720E-02			4.40E-05	ug/mL	113.6	% Recovery	
33	SPK-POST	S0912180057	S09V000464	0	0			Selenium	SOLID	.2	1.9974E-01			6.10E-05	ug/mL	99.87	% Recovery	
36	SPK-POST	S0912180057	S09V000464	0	3			Thallium	SOLID	.02	2.1940E-02			3.00E-06	ug/mL	107.32	% Recovery	
33	SPK-POST	S0912180057	S09V000464	0	0			Vanadium	SOLID	.2	4.7920E-01			2.40E-05	ug/mL	93.6	% Recovery	
35	SPK-POST	S0912180057	S09V000464	0	2			Nickel	SOLID	.02	4.8200E-02			1.20E-05	ug/mL	241	% Recovery	
Sample Sequence 37																		
37	STD-PREP	S0907160099		0	0	A	*	Silver	LIQUID	1	1.2590E+00			0.04	ug/mL	125.9	% Recovery	
37	STD-PREP	S0907160099		0	0	A		Arsenic	LIQUID	5	5.1550E+00			0.21	ug/mL	103.1	% Recovery	
37	STD-PREP	S0907160099		0	0	A	*	Cobalt	LIQUID	5	4.9285E+00			0.1	ug/mL	98.57	% Recovery	
37	STD-PREP	S0907160099		0	0	A	*	Cadmium	LIQUID	5	4.7355E+00			0.015	ug/mL	94.71	% Recovery	
37	STD-PREP	S0907160099		0	0	A		Lead	LIQUID	5	5.1200E+00			0.155	ug/mL	102.4	% Recovery	
37	STD-PREP	S0907160099		0	0	A		Antimony	LIQUID	5	5.4550E+00			0.22	ug/mL	109.1	% Recovery	
37	STD-PREP	S0907160099		0	0	A	*	Selenium	LIQUID	5	4.6915E+00			0.305	ug/mL	93.83	% Recovery	
38	STD-PREP	S0907160099		0	1	A		Thallium	LIQUID	5	5.8750E+00			0.015	ug/mL	117.5	% Recovery	
37	STD-PREP	S0907160099		0	0	A		Vanadium	LIQUID	5	4.7595E+00			0.12	ug/mL	95.19	% Recovery	
37	STD-PREP	S0907160099		0	0	A	*	Nickel	LIQUID	5	4.9555E+00			0.06	ug/mL	99.11	% Recovery	
Sample Sequence 39																		
39	SPK-PREDIG	S0907160101	S09V000464	0	0	A	*	Silver	SOLID	197.47235	2.4032E+02			7.8989	ug/g	N/A		
39	SPK-PREDIG	S0907160101	S09V000464	0	0	A		Arsenic	SOLID	987.36175	1.0278E+03			41.469	ug/g	103.66	% Recovery	
39	SPK-PREDIG	S0907160101	S09V000464	0	0	A	*	Cobalt	SOLID	987.36175	9.8677E+02			19.747	ug/g	N/A		
39	SPK-PREDIG	S0907160101	S09V000464	0	0	A	*	Cadmium	SOLID	987.36175	9.2387E+02			2.9621	ug/g	N/A		
39	SPK-PREDIG	S0907160101	S09V000464	0	0	A		Lead	SOLID	987.36175	9.9131E+02			30.608	ug/g	99.778	% Recovery	
39	SPK-PREDIG	S0907160101	S09V000464	0	0	A		Antimony	SOLID	987.36175	9.7828E+02			43.444	ug/g	99.08	% Recovery	
39	SPK-PREDIG	S0907160101	S09V000464	0	0	A	*	Selenium	SOLID	987.36175	9.7640E+02			60.229	ug/g	N/A		
39	SPK-PREDIG	S0907160101	S09V000464	0	0	A		Vanadium	SOLID	987.36175	1.0604E+03			23.697	ug/g	101.66	% Recovery	
39	SPK-PREDIG	S0907160101	S09V000464	0	0	A	*	Nickel	SOLID	987.36175	1.0130E+03			11.848	ug/g	N/A		
Sample Sequence 40																		
40	SPK-PREDIG	S0907160102	S09V000464	0	0	A		Thallium	SOLID	990.88385	1.0969E+03			2.9727	ug/g	110.69	% Recovery	
Sample Sequence 41																		
41	CCV	S0912180063		0	0			Silver	LIQUID	.0004	2.2510E-04			8.00E-06	ug/mL	56.275	% Recovery	
41	CCV	S0912180063		0	0			Arsenic	LIQUID	.002	2.1790E-03			4.20E-05	ug/mL	108.95	% Recovery	
41	CCV	S0912180063		0	0			Cobalt	LIQUID	.002	1.7910E-03			2.00E-05	ug/mL	89.55	% Recovery	
41	CCV	S0912180063		0	0			Cadmium	LIQUID	.002	1.7510E-03			3.00E-06	ug/mL	87.55	% Recovery	
41	CCV	S0912180063		0	0			Chromium	LIQUID	.002	2.0520E-03			1.40E-04	ug/mL	102.6	% Recovery	
41	CCV	S0912180063		0	0			Lead	LIQUID	.002	1.8670E-03			3.10E-05	ug/mL	93.35	% Recovery	
42	CCV	S0912180063		0	1			Antimony	LIQUID	.002	2.0920E-03			4.40E-05	ug/mL	104.6	% Recovery	

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LABCORE Completed Batch Report for Batch# 00017063

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
41	CCV	S0912180063		0 0		Selenium	LIQUID	.002	1.6290E-03			6.10E-05	ug/mL	81.45	% Recovery	
42	CCV	S0912180063		0 1		Thallium	LIQUID	.002	2.1190E-03			3.00E-06	ug/mL	105.95	% Recovery	
41	CCV	S0912180063		0 0		Vanadium	LIQUID	.002	2.0130E-03			2.40E-05	ug/mL	100.65	% Recovery	
41	CCV	S0912180063		0 0		Nickel	LIQUID	.002	1.7860E-03			1.20E-05	ug/mL	89.3	% Recovery	
Sample Sequence 43																
45	LLS	S0912180064		0 2		Silver	LIQUID	.00002	2.1340E-05			8.00E-06	ug/mL	106.7	% Recovery	
45	LLS	S0912180064		0 2		Arsenic	LIQUID	.0001	9.2710E-05			4.20E-05	ug/mL	92.71	% Recovery	
45	LLS	S0912180064		0 2		Cobalt	LIQUID	.0001	9.3580E-05			2.00E-05	ug/mL	93.58	% Recovery	
45	LLS	S0912180064		0 2		Cadmium	LIQUID	.0001	9.1020E-05			3.00E-06	ug/mL	91.02	% Recovery	
45	LLS	S0912180064		0 2		Chromium	LIQUID	.0001	9.8700E-05			9.00E-05	ug/mL	98.7	% Recovery	
45	LLS	S0912180064		0 2		Lead	LIQUID	.0001	8.9670E-05			3.10E-05	ug/mL	89.67	% Recovery	
46	LLS	S0912180064		0 3		Antimony	LIQUID	.00025	2.6270E-04			4.40E-05	ug/mL	105.08	% Recovery	
43	LLS	S0912180064		0 0		Selenium	LIQUID	.00001	1.5990E-04			6.10E-05	ug/mL	1599	% Recovery	
44	LLS	S0912180064		0 1		Thallium	LIQUID	.00002	1.9080E-05			3.00E-06	ug/mL	95.4	% Recovery	
45	LLS	S0912180064		0 2		Vanadium	LIQUID	.0001	9.1300E-05			2.40E-05	ug/mL	91.3	% Recovery	
45	LLS	S0912180064		0 2		Nickel	LIQUID	.0001	9.5450E-05			1.20E-05	ug/mL	95.45	% Recovery	
Sample Sequence 47																
47	CCB	S0912180062		0 0		Silver	LIQUID		<8.0000E-06			8.00E-06	ug/mL			
47	CCB	S0912180062		0 0		Arsenic	LIQUID		<4.2000E-05			4.20E-05	ug/mL			
47	CCB	S0912180062		0 0		Cobalt	LIQUID		<2.0000E-05			2.00E-05	ug/mL			
47	CCB	S0912180062		0 0		Cadmium	LIQUID		<3.0000E-06			3.00E-06	ug/mL			
47	CCB	S0912180062		0 0		Chromium	LIQUID		<1.4000E-04			1.40E-04	ug/mL			
47	CCB	S0912180062		0 0		Lead	LIQUID		<3.1000E-05			3.10E-05	ug/mL			
47	CCB	S0912180062		0 0		Antimony	LIQUID		<4.4000E-05			4.40E-05	ug/mL			
47	CCB	S0912180062		0 0		Selenium	LIQUID		7.7710E-05			6.10E-05	ug/mL			
47	CCB	S0912180062		0 0		Thallium	LIQUID		<3.0000E-06			3.00E-06	ug/mL			
47	CCB	S0912180062		0 0		Vanadium	LIQUID		<2.4000E-05			2.40E-05	ug/mL			
47	CCB	S0912180062		0 0		Nickel	LIQUID		<1.2000E-05			1.20E-05	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

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LABCORE Completed Batch Report for Batch# 00017063

Final Page for Batch# 00017063

Roxie Ross 1/5/2010
Reviewer Signature Date

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LABCORE Completed Batch Report for Batch# 00017063

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0912180053	ICV				
2	S0912180053	ICV				
3	S0912180055	LLS				
4	S0912180055	LLS				
5	S0912180055	LLS				
6	S0912180055	LLS				
7	S0912180054	ICB				
8	S0907160098	BLNK-PREP				
9	S0912180056	SERDIL	S09V000464			
10	S0912180056	SERDIL	S09V000464			
11	S09V000464	SAMPLE		20090325	B1YT92	C Farm WMA C
12	S09V000464	SAMPLE		20090325	B1YT92	C Farm WMA C
13	S0907160100	DUP	S09V000464			
14	S0907160100	DUP	S09V000464			
15	S09V000471	SAMPLE		20090325	B1YT98	C Farm WMA C
16	S09V000471	SAMPLE		20090325	B1YT98	C Farm WMA C
17	S09V000406	SAMPLE		20090325	B1YTB1	C Farm WMA C
18	S09V000406	SAMPLE		20090325	B1YTB1	C Farm WMA C
19	S09V000421	SAMPLE		20090325	B1YTB4	C Farm WMA C
20	S09V000421	SAMPLE		20090325	B1YTB4	C Farm WMA C
21	S09V000438	SAMPLE		20090325	B1YTB7	C Farm WMA C
22	S09V000438	SAMPLE		20090325	B1YTB7	C Farm WMA C
23	S09V000453	SAMPLE		20090325	B1YTC0	C Farm WMA C
24	S09V000453	SAMPLE		20090325	B1YTC0	C Farm WMA C
25	S09V000199	SAMPLE		20090160	B1YT83	C Farm WMA C
26	S09V000199	SAMPLE		20090160	B1YT83	C Farm WMA C
27	S0912180058	CCV				
28	S0912180058	CCV				
29	S0912180059	CCB				
30	S0912180060	CCV				
31	S0912180060	CCV				
32	S0912180061	CCB				
33	S0912180057	SPK-POST	S09V000464			
34	S0912180057	SPK-POST	S09V000464			
35	S0912180057	SPK-POST	S09V000464			

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LABCORE Completed Batch Report for Batch# 00017063

36	S0912180057	SPK-POST	S09V000464
37	S0907160099	STD-PREP	
38	S0907160099	STD-PREP	
39	S0907160101	SPK-PREDIG	S09V000464
40	S0907160102	SPK-PREDIG	S09V000464
41	S0912180063	CCV	
42	S0912180063	CCV	
43	S0912180064	LLS	
44	S0912180064	LLS	
45	S0912180064	LLS	
46	S0912180064	LLS	
47	S0912180062	CCB	

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N, A = Non-reported Analyte

ATL	ICP-MS DATA REVIEW CHECKLIST	○ IH ◉ NON IH

(R3) 1/6/2010

○ LA-506-102 Rev _____ (*) ◉ LA-506-103 Rev A-0 (*) ○ _____ Rev _____ (*)

Worklist/Project Information: 00017~~222~~ 063 / Periodic Table on C Farm solids

Analysis Date: 12/8/2009 Instrument Id: Agilent Prep Batches Run: 00015032

Review Items	Yes	No	N/A
A. Calibration			
1. Was the instrument tuned according to the SOP?	◉	○	○
2. Are the mass calibration and resolution within required limits?	◉	○	○
3. Was the stability %RSD documented as <5%?	◉	○	○
4. Was the instrument calibrated per SOP and at specified levels?	◉	○	○
5. Were ICV/CCV analyzed at appropriate frequency and were recoveries within control limits of 90 - 110%? If not in control, was the CCV reanalyzed to show return to control?	○	◉	○
6. Were ICB/CCB analyzed at appropriate frequency and were results < EQL (or, with client consent, <5% of lowest sample result)? N/A if all samples are ND.	○	◉	○
7. Was an LLS run at required frequency and were recoveries within control limits of 75 - 125% for IH or 70 - 130% for non-IH work?	○	◉	○
B. Sample Results			
1. Were samples with concentrations above the linear range for any analyte diluted and reanalyzed?	○	○	◉
2. Are all reported results bracketed by in control QC?	◉	○	○
3. Were sample analyses done within holding time?	○	○	◉
C. Preparation/Matrix QC			
1. Was a method blank done per prep batch and were results < EQL or less than 5% of lowest sample result?	○	◉	○
2. Was an LCS (and LCS dup, if required) done per prep batch and were recoveries within control limits of 80 - 120%, and % RPD <20%?	○	◉	○
3. Was an MS run as required and was recovery within control limits of 75 - 125% for all analytes for which the spike level was at least 25% of the sample result?	◉	○	○
4. Was an MSD or DUP run at required frequency and was the % RPD within control limits of <20% (or, with client consent, <30%) for all analytes > EQL?	○	◉	○
5. Was a serial dilution done per analytical batch, if required, and was the % difference within control limits of <10% for all analytes > 100 times the DL?	◉	○	○
6. Was a post digest spike analyzed if required and was the recovery within control limits of 75 - 125%?	◉	○	○
D. Other			
1. Are all nonconformances documented appropriately?	◉	○	○
2. Is current IDL/MDL/EQL data on file?	◉	○	○
3. Were calculations checked for errors?	◉	○	○
4. Were transcriptions and data upload checked for errors? (Example: Are dilution factors that are entered into the sequence log correct?)	◉	○	○
5. Were all client/project specific requirements met?	◉	○	○
6. Was the date/time of analysis verified as correct?	◉	○	○

Comments/Samples Affected (indicate review item letter and number):

NOTE: Cobalt, Selenium and Cadmium were rerun on 12/23/2009 and Silver, and Nickel were rerun on 12/29/2009 due to problems with QC results and all are reported in batch 00017222. The analytical QC results are reported for these analytes in this batch for control chart purposes.

A-5. The Ag, Co, Cd, Se and Ni were out of limits for the final CCV. These analytes were

(*) This form is not used by the subject procedure; rather, it is used to assist in verifying the data produced during the performance of the procedure.

A-6005-346 (REV 0)

COPY

ATL	ICP-MS DATA REVIEW CHECKLIST (continued)	◯ IH ◉ NON IH

◯ LA-506-102 Rev _____ (*) ◉ LA-506-103 Rev A-0 (*) ◯ _____ Rev _____ (*)

Worklist/Project Information: 00017063 / Periodic Table on C Farm solids

Run Date: 12/8/2009 Instrument Id: Agilent Prep Batches Run: 00016729

rerun later and are reported in batch 00017222.

A-6. The Se CCB results were >DL, <EQL. Se was rerun and is reported in batch 00017222.

A-7. The initial LLS recovery for Se was out high so Se was rerun and reported in batch 00017222.

C-1. The Preparation blank result for Tl was >DL, <EQL but >5% of the sample results, so a B-flag was applied to all samples for this analyte.

C-2. The LCS recovery for Ag was low so Ag was rerun and is reported in batch 00017222.

C-4. The duplicate %RPD for Tl was >30%, but the sample result was J-flagged so the acceptance limits do not apply for this analyte.

C-5. The serdil % difference was >10% for Tl, but the sample result was J-flagged so the acceptance limits do not apply for this analyte. The % difference for As and Pb were >10%, but the sample results were <100xDL so the acceptance limits do not apply for these analytes.

1st Level Data Reviewer: Roxie Ross (Signature) Date: 1-6-2010 2nd Level Data Reviewer: [signature] (Signature) Date: 1/6/2010

PM Review: [signature] 01-24-2010

(*) This form is not used by the subject procedure; rather, it is used to assist in verifying the data produced during the performance of the procedure.

A-6005-346 (REV 0)

LABCORE Completed Batch Report for Batch# 00017222

Analyst: Mull, Bryanna

Book#: see bench sheet

Instrument: ICP/MS AGILENT

Method: MS PERIODIC TABLE, LA-506-103 Rev/Mod A-0

Specification: C Farm WMA C

Prep Batch: 00015032

Batch Comment: C FARM PERIODIC TABLE ICPMS RUNS

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
3 ICV	S1001050001		0 2		Silver	LIQUID	.0001	9.8990E-05			8.00E-06	ug/mL	98.99	% Recovery	
1 ICV	S1001050001		0 0		Cobalt	LIQUID	.002	2.0290E-03			2.00E-05	ug/mL	101.45	% Recovery	
1 ICV	S1001050001		0 0		Cadmium	LIQUID	.002	2.0360E-03			3.00E-06	ug/mL	101.8	% Recovery	
2 ICV	S1001050001		0 1		Selenium	LIQUID	.002	2.0250E-03			6.10E-05	ug/mL	101.25	% Recovery	
3 ICV	S1001050001		0 2		Nickel	LIQUID	.002	2.0740E-03			1.20E-05	ug/mL	103.7	% Recovery	
Sample Sequence 4															
6 LLS	S1001050003		0 2		Silver	LIQUID	.00001	9.0940E-06			8.00E-06	ug/mL	90.94	% Recovery	
4 LLS	S1001050003		0 0		Cobalt	LIQUID	.00005	5.0590E-05			2.00E-05	ug/mL	101.18	% Recovery	
4 LLS	S1001050003		0 0		Cadmium	LIQUID	.00005	4.9140E-05			3.00E-06	ug/mL	98.28	% Recovery	
5 LLS	S1001050003		0 1		Selenium	LIQUID	.00024	2.2740E-04			6.10E-05	ug/mL	94.75	% Recovery	
7 LLS	S1001050003		0 3		Nickel	LIQUID	.00005	3.9380E-05			1.20E-05	ug/mL	78.76	% Recovery	
Sample Sequence 8															
8 ICB	S1001050002		0 0		Silver	LIQUID		<8.0000E-06			8.00E-06	ug/mL			
9 ICB	S1001050002		0 1		Cobalt	LIQUID		<2.0000E-05			2.00E-05	ug/mL			
9 ICB	S1001050002		0 1		Cadmium	LIQUID		<3.0000E-06			3.00E-06	ug/mL			
9 ICB	S1001050002		0 1		Selenium	LIQUID		<6.1000E-05			6.10E-05	ug/mL			
8 ICB	S1001050002		0 0		Nickel	LIQUID		<1.2000E-05			1.20E-05	ug/mL			
Sample Sequence 10															
10 BLNK-PREP	S0907160098		0 1	A	Silver	LIQUID		<8.0000E-04			8.00E-04	ug/mL			
11 BLNK-PREP	S0907160098		0 2	A	Cobalt	LIQUID		<4.0000E-04			4.00E-04	ug/mL			
11 BLNK-PREP	S0907160098		0 2	A	Cadmium	LIQUID		<6.0000E-05			6.00E-05	ug/mL			
11 BLNK-PREP	S0907160098		0 2	A	Selenium	LIQUID		1.9970E-03			1.22E-03	ug/mL			
10 BLNK-PREP	S0907160098		0 1	A	Nickel	LIQUID		<1.2000E-03			1.20E-03	ug/mL			
Sample Sequence 12															
12 SERDIL	S1001050004	S09V000464	0 0		Silver	SOLID		<7.7640E-01			0.7764	ug/g	N/A		
13 SERDIL	S1001050004	S09V000464	0 1		Cobalt	SOLID		7.5893E+00			0.3882	ug/g	19.135	% Diff	
13 SERDIL	S1001050004	S09V000464	0 1		Cadmium	SOLID		7.7814E-02			0.05823	ug/g	12.083	% Diff	
13 SERDIL	S1001050004	S09V000464	0 1		Selenium	SOLID		<1.1840E+00			1.184	ug/g	N/A		
12 SERDIL	S1001050004	S09V000464	0 0		Nickel	SOLID		9.8505E+00			1.1646	ug/g	3.5286	% Diff	

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

1/8/2010 8:51:00AM
CompleteBatch Version 2.7.25
batchreports 2.7.26

LABCORE Completed Batch Report for Batch# 00017222

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
14	SAMPLE	S09V000464		0 2	A	Silver	SOLID	N/A	1.6042E-01			0.15528	ug/g			J
15	SAMPLE	S09V000464		0 3	A	Cobalt	SOLID	N/A	6.3703E+00			0.07764	ug/g			
15	SAMPLE	S09V000464		0 3	A	Cadmium	SOLID	N/A	8.8509E-02			0.011646	ug/g			J
15	SAMPLE	S09V000464		0 3	A	Selenium	SOLID	N/A	<2.3680E-01			0.2368	ug/g			U
14	SAMPLE	S09V000464		0 2	A	Nickel	SOLID	N/A	9.5148E+00			0.23292	ug/g			
Sample Sequence 16																
16	DUP	S0907160100	S09V000464	0 2	A	Silver	SOLID	1.6042E-01	<1.5570E-01			0.1557	ug/g			
17	DUP	S0907160100	S09V000464	0 3	A	Cadmium	SOLID	8.8509E-02	9.2526E-02			0.011678	ug/g	4.4375	% RPD	
17	DUP	S0907160100	S09V000464	0 3	A	Selenium	SOLID	<2.3680E-01	<2.3745E-01			0.23745	ug/g			
16	DUP	S0907160100	S09V000464	0 2	A	Nickel	SOLID	9.5148E+00	8.7563E+00			0.23355	ug/g	8.3022	% RPD	
17	DUP	S0907160100	S09V000464	0 3	A	Cobalt	SOLID	6.3703E+00	6.1035E+00			0.077851	ug/g	4.2784	% RPD	
Sample Sequence 18																
18	SAMPLE	S09V000471		0 2	A	Silver	SOLID	N/A	1.5639E-01			0.15498	ug/g			J
19	SAMPLE	S09V000471		0 3	A	Cadmium	SOLID	N/A	1.0333E-01			0.011623	ug/g			J
19	SAMPLE	S09V000471		0 3	A	Selenium	SOLID	N/A	<2.3634E-01			0.23634	ug/g			U
18	SAMPLE	S09V000471		0 2	A	Nickel	SOLID	N/A	8.7602E+00			0.23247	ug/g			
19	SAMPLE	S09V000471		0 3	A	Cobalt	SOLID	N/A	6.4975E+00			0.077489	ug/g			
Sample Sequence 20																
20	SAMPLE	S09V000406		0 2	A	Silver	SOLID	N/A	<1.5742E-01			0.15742	ug/g			U
21	SAMPLE	S09V000406		0 3	A	Cadmium	SOLID	N/A	1.0433E-01			0.011806	ug/g			J
21	SAMPLE	S09V000406		0 3	A	Selenium	SOLID	N/A	<2.4006E-01			0.24006	ug/g			U
20	SAMPLE	S09V000406		0 2	A	Nickel	SOLID	N/A	6.9461E+00			0.23613	ug/g			
21	SAMPLE	S09V000406		0 3	A	Cobalt	SOLID	N/A	5.0964E+00			0.078709	ug/g			
Sample Sequence 22																
22	SAMPLE	S09V000421		0 2	A	Silver	SOLID	N/A	1.6470E-01			0.15134	ug/g			J
23	SAMPLE	S09V000421		0 3	A	Cadmium	SOLID	N/A	6.9391E-02			0.011351	ug/g			J
23	SAMPLE	S09V000421		0 3	A	Selenium	SOLID	N/A	<2.3080E-01			0.2308	ug/g			U
22	SAMPLE	S09V000421		0 2	A	Nickel	SOLID	N/A	1.0528E+01			0.22701	ug/g			
23	SAMPLE	S09V000421		0 3	A	Cobalt	SOLID	N/A	6.9958E+00			0.075672	ug/g			
Sample Sequence 24																
24	SAMPLE	S09V000438		0 2	A	Silver	SOLID	N/A	1.8035E-01			0.15408	ug/g			J
25	SAMPLE	S09V000438		0 3	A	Cadmium	SOLID	N/A	9.1487E-02			0.011556	ug/g			J
25	SAMPLE	S09V000438		0 3	A	Selenium	SOLID	N/A	<2.3498E-01			0.23498	ug/g			U
24	SAMPLE	S09V000438		0 2	A	Nickel	SOLID	N/A	1.0260E+01			0.23112	ug/g			
25	SAMPLE	S09V000438		0 3	A	Cobalt	SOLID	N/A	5.0270E+00			0.077042	ug/g			
Sample Sequence 26																
26	SAMPLE	S09V000453		0 2	A	Silver	SOLID	N/A	<1.5004E-01			0.15004	ug/g			U
27	SAMPLE	S09V000453		0 3	A	Cadmium	SOLID	N/A	4.9175E-02			0.011253	ug/g			J
27	SAMPLE	S09V000453		0 3	A	Selenium	SOLID	N/A	<2.2881E-01			0.22881	ug/g			U
26	SAMPLE	S09V000453		0 2	A	Nickel	SOLID	N/A	2.0518E+01			0.22506	ug/g			
27	SAMPLE	S09V000453		0 3	A	Cobalt	SOLID	N/A	4.2011E+00			0.075019	ug/g			

LABCORE Completed Batch Report for Batch# 00017222

Seq	Type	Sample#	Assoc. Sample	Rep	R	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
26	SAMPLE	S09V000453		0	2	A	Nickel	SOLID	N/A	2.0518E+01			0.22506	ug/g			
27	SAMPLE	S09V000453		0	3	A	Cobalt	SOLID	N/A	4.2011E+00			0.075019	ug/g			
Sample Sequence 28																	
28	SAMPLE	S09V000199		0	2	A	Silver	SOLID	N/A	<1.4998E-01			0.14998	ug/g			U
29	SAMPLE	S09V000199		0	3	A	Cadmium	SOLID	N/A	6.3705E-02			0.011249	ug/g			J
29	SAMPLE	S09V000199		0	3	A	Selenium	SOLID	N/A	<2.2872E-01			0.22872	ug/g			U
28	SAMPLE	S09V000199		0	2	A	Nickel	SOLID	N/A	1.2647E+01			0.22497	ug/g			
29	SAMPLE	S09V000199		0	3	A	Cobalt	SOLID	N/A	4.0532E+00			0.074991	ug/g			
Sample Sequence 30																	
30	CCV	S1001050006		0	0		Silver	LIQUID	.0001	9.9250E-05			8.00E-06	ug/mL	99.25	% Recovery	
31	CCV	S1001050006		0	1		Cobalt	LIQUID	.002	2.0500E-03			2.00E-05	ug/mL	102.5	% Recovery	
31	CCV	S1001050006		0	1		Cadmium	LIQUID	.002	2.0320E-03			3.00E-06	ug/mL	101.6	% Recovery	
31	CCV	S1001050006		0	1		Selenium	LIQUID	.002	2.1250E-03			6.10E-05	ug/mL	106.25	% Recovery	
30	CCV	S1001050006		0	0		Nickel	LIQUID	.002	2.0490E-03			1.20E-05	ug/mL	102.45	% Recovery	
Sample Sequence 32																	
32	CCB	S1001050007		0	0		Silver	LIQUID		<8.0000E-06			8.00E-06	ug/mL			
33	CCB	S1001050007		0	1		Cobalt	LIQUID		<2.0000E-05			2.00E-05	ug/mL			
33	CCB	S1001050007		0	1		Cadmium	LIQUID		<3.0000E-06			3.00E-06	ug/mL			
33	CCB	S1001050007		0	1		Selenium	LIQUID		<6.1000E-05			6.10E-05	ug/mL			
32	CCB	S1001050007		0	0		Nickel	LIQUID		<1.2000E-05			1.20E-05	ug/mL			
Sample Sequence 34																	
34	STD-PREP	S0907160099		0	2	A	Silver	LIQUID	1	9.9550E-01			0.08	ug/mL	99.55	% Recovery	
35	STD-PREP	S0907160099		0	3	A	Cobalt	LIQUID	5	5.1750E+00			0.1	ug/mL	103.5	% Recovery	
35	STD-PREP	S0907160099		0	3	A	Cadmium	LIQUID	5	5.1500E+00			0.015	ug/mL	103	% Recovery	
35	STD-PREP	S0907160099		0	3	A	Selenium	LIQUID	5	5.3500E+00			0.305	ug/mL	107	% Recovery	
34	STD-PREP	S0907160099		0	2	A	Nickel	LIQUID	5	4.9080E+00			0.12	ug/mL	98.16	% Recovery	
Sample Sequence 36																	
36	SPK-PREDIG	S0907160101	S09V000464	0	1	A	Silver	SOLID	197.47235	2.0498E+02			15.798	ug/g	103.72	% Recovery	
37	SPK-PREDIG	S0907160101	S09V000464	0	2	A	Cobalt	SOLID	987.36175	1.0673E+03			19.747	ug/g	107.45	% Recovery	
37	SPK-PREDIG	S0907160101	S09V000464	0	2	A	Cadmium	SOLID	987.36175	1.0387E+03			2.9621	ug/g	105.19	% Recovery	
37	SPK-PREDIG	S0907160101	S09V000464	0	2	A	Selenium	SOLID	987.36175	1.0703E+03			60.229	ug/g	108.4	% Recovery	
36	SPK-PREDIG	S0907160101	S09V000464	0	1	A	Nickel	SOLID	987.36175	1.0397E+03			23.697	ug/g	104.34	% Recovery	
Sample Sequence 38																	
39	SPK-POST	S1001050005	S09V000464	0	1		Silver	SOLID	.01	1.0560E-02			8.00E-06	ug/g	97.335	% Recovery	
40	SPK-POST	S1001050005	S09V000464	0	2		Cobalt	SOLID	.02	4.7840E-02			2.00E-05	ug/g	75.1	% Recovery	
40	SPK-POST	S1001050005	S09V000464	0	2		Cadmium	SOLID	.02	2.0500E-02			3.00E-06	ug/g	100.22	% Recovery	
40	SPK-POST	S1001050005	S09V000464	0	2		Selenium	SOLID	.02	1.4984E-02			6.10E-05	ug/g	74.92	% Recovery	
38	SPK-POST	S1001050005	S09V000464	0	0		Nickel	SOLID	.2	2.3930E-01			1.20E-05	ug/g	95.14	% Recovery	
Sample Sequence 41																	
41	CCV	S1001050008		0	0		Silver	LIQUID	.0001	9.6640E-05			8.00E-06	ug/mL	96.64	% Recovery	

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00017222

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
42	CCV	S1001050008		0	1	Cobalt	LIQUID	.002	2.0370E-03			2.00E-05	ug/mL	101.85	% Recovery	
42	CCV	S1001050008		0	1	Cadmium	LIQUID	.002	2.0320E-03			3.00E-06	ug/mL	101.6	% Recovery	
42	CCV	S1001050008		0	1	Selenium	LIQUID	.002	2.0990E-03			6.10E-05	ug/mL	104.95	% Recovery	
41	CCV	S1001050008		0	0	Nickel	LIQUID	.002	2.0560E-03			1.20E-05	ug/mL	102.8	% Recovery	
Sample Sequence 43																
43	LLS	S1001050011		0	0	Silver	LIQUID	.00001	9.2830E-06			8.00E-06	ug/mL	92.83	% Recovery	
45	LLS	S1001050011		0	2	Cobalt	LIQUID	.00005	5.1360E-05			2.00E-05	ug/mL	102.72	% Recovery	
45	LLS	S1001050011		0	2	Cadmium	LIQUID	.00005	5.1620E-05			3.00E-06	ug/mL	103.24	% Recovery	
46	LLS	S1001050011		0	3	Selenium	LIQUID	.00024	2.6600E-04			6.10E-05	ug/mL	110.83	% Recovery	
44	LLS	S1001050011		0	1	Nickel	LIQUID	.00005	4.3250E-05			1.20E-05	ug/mL	86.5	% Recovery	
Sample Sequence 47																
47	CCB	S1001050009		0	0	Silver	LIQUID		<8.0000E-06			8.00E-06	ug/mL			
48	CCB	S1001050009		0	1	Cobalt	LIQUID		<2.0000E-05			2.00E-05	ug/mL			
48	CCB	S1001050009		0	1	Cadmium	LIQUID		<3.0000E-06			3.00E-06	ug/mL			
48	CCB	S1001050009		0	1	Selenium	LIQUID		<6.1000E-05			6.10E-05	ug/mL			
47	CCB	S1001050009		0	0	Nickel	LIQUID		<1.2000E-05			1.20E-05	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00017222

Roxie Ross 1/5/2010
Reviewer Signature Date

LABCORE Completed Batch Report for Batch# 00017222

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1001050001	ICV				
2	S1001050001	ICV				
3	S1001050001	ICV				
4	S1001050003	LLS				
5	S1001050003	LLS				
6	S1001050003	LLS				
7	S1001050003	LLS				
8	S1001050002	ICB				
9	S1001050002	ICB				
10	S0907160098	BLNK-PREP				
11	S0907160098	BLNK-PREP				
12	S1001050004	SERDIL	S09V000464			
13	S1001050004	SERDIL	S09V000464			
14	S09V000464	SAMPLE		20090325	B1YT92	C Farm WMA C
15	S09V000464	SAMPLE		20090325	B1YT92	C Farm WMA C
16	S0907160100	DUP	S09V000464			
17	S0907160100	DUP	S09V000464			
18	S09V000471	SAMPLE		20090325	B1YT98	C Farm WMA C
19	S09V000471	SAMPLE		20090325	B1YT98	C Farm WMA C
20	S09V000406	SAMPLE		20090325	B1YTB1	C Farm WMA C
21	S09V000406	SAMPLE		20090325	B1YTB1	C Farm WMA C
22	S09V000421	SAMPLE		20090325	B1YTB4	C Farm WMA C
23	S09V000421	SAMPLE		20090325	B1YTB4	C Farm WMA C
24	S09V000438	SAMPLE		20090325	B1YTB7	C Farm WMA C
25	S09V000438	SAMPLE		20090325	B1YTB7	C Farm WMA C
26	S09V000453	SAMPLE		20090325	B1YTC0	C Farm WMA C
27	S09V000453	SAMPLE		20090325	B1YTC0	C Farm WMA C
28	S09V000199	SAMPLE		20090160	B1YT83	C Farm WMA C
29	S09V000199	SAMPLE		20090160	B1YT83	C Farm WMA C
30	S1001050006	CCV				
31	S1001050006	CCV				
32	S1001050007	CCB				
33	S1001050007	CCB				
34	S0907160099	STD-PREP				
35	S0907160099	STD-PREP				

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* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00017222

36	S0907160101	SPK-PREDIG	S09V000464
37	S0907160101	SPK-PREDIG	S09V000464
38	S1001050005	SPK-POST	S09V000464
39	S1001050005	SPK-POST	S09V000464
40	S1001050005	SPK-POST	S09V000464
41	S1001050008	CCV	
42	S1001050008	CCV	
43	S1001050011	LLS	
44	S1001050011	LLS	
45	S1001050011	LLS	
46	S1001050011	LLS	
47	S1001050009	CCB	
48	S1001050009	CCB	

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

ATL	ICP-MS DATA REVIEW CHECKLIST	○ IH ◉ NON IH

○ LA-506-102 Rev _____ (*) ◉ LA-506-103 Rev A-0 (*) ○ _____ Rev _____ (*)

Worklist/Project Information: 00017222 / Periodic Table on C Farm solids

Analysis Date: 12/23&29/09 Instrument Id: Agilent Prep Batches Run: 00015032

Review Items	Yes	No	N/A
A. Calibration			
1. Was the instrument tuned according to the SOP?	◉	○	○
2. Are the mass calibration and resolution within required limits?	◉	○	○
3. Was the stability %RSD documented as <5%?	◉	○	○
4. Was the instrument calibrated per SOP and at specified levels?	◉	○	○
5. Were ICV/CCV analyzed at appropriate frequency and were recoveries within control limits of 90 - 110%? If not in control, was the CCV reanalyzed to show return to control?	◉	○	○
6. Were ICB/CCB analyzed at appropriate frequency and were results < EQL (or, with client consent, <5% of lowest sample result)? N/A if all samples are ND.	◉	○	○
7. Was an LLS run at required frequency and were recoveries within control limits of 75 - 125% for IH or 70 - 130% for non-IH work?	◉	○	○
B. Sample Results			
1. Were samples with concentrations above the linear range for any analyte diluted and reanalyzed?	○	○	◉
2. Are all reported results bracketed by in control QC?	◉	○	○
3. Were sample analyses done within holding time?	○	○	◉
C. Preparation/Matrix QC			
1. Was a method blank done per prep batch and were results < EQL or less than 5% of lowest sample result?	◉	○	○
2. Was an LCS (and LCS dup, if required) done per prep batch and were recoveries within control limits of 80 - 120%, and % RPD <20%?	◉	○	○
3. Was an MS run as required and was recovery within control limits of 75 - 125% for all analytes for which the spike level was at least 25% of the sample result?	◉	○	○
4. Was an MSD or DUP run at required frequency and was the % RPD within control limits of <20% (or, with client consent, <30%) for all analytes > EQL?	◉	○	○
5. Was a serial dilution done per analytical batch, if required, and was the % difference within control limits of <10% for all analytes > 100 times the DL?	◉	○	○
6. Was a post digest spike analyzed if required and was the recovery within control limits of 75 - 125%?	◉	○	○
D. Other			
1. Are all nonconformances documented appropriately?	◉	○	○
2. Is current IDL/MDL/EQL data on file?	◉	○	○
3. Were calculations checked for errors?	◉	○	○
4. Were transcriptions and data upload checked for errors? (Example: Are dilution factors that are entered into the sequence log correct?)	◉	○	○
5. Were all client/project specific requirements met?	◉	○	○
6. Was the date/time of analysis verified as correct?	◉	○	○

Comments/Samples Affected (indicate review item letter and number):

NOTE: Cobalt, Selenium and Cadmium were rerun on 12/23/2009 and Silver and Nickel were rerun on 12/29/2009 due to problems with QC results and all are reported in batch 00017222. The remaining analytes for these samples were reported in batch 00017063.

C-1. The preparation blank result for Se was >DL, <EQL and all sample results were <DL so no B-flag was added.

(*) This form is not used by the subject procedure; rather, it is used to assist in verifying the data produced during the performance of the procedure.

ATL	ICP-MS DATA REVIEW CHECKLIST (continued)	○ IH ◉ NON IH

○ LA-506-102 Rev _____ (*) ◉ LA-506-103 Rev A-0 (*) ○ _____ Rev _____ (*)

Worklist/Project Information: 00017222 / Periodic Table on C Farm solids

Run Date: _____ Instrument Id: Agilent Prep Batches Run: 00015032

C-5. The serdil % difference for Co and Cd were >10%. The Cd result was J-flagged and the Co result was <100xDL so the acceptance limits do not apply for these analytes.

1st Level Data Reviewer: Roxie Ross (Signature) Date: 1/6/2010 2nd Level Data Reviewer: [signature] (Signature) Date: 1/6/2010

PM Reviewer: [signature] 01-08-10

(*) This form is not used by the subject procedure; rather, it is used to assist in verifying the data produced during the performance of the procedure.

Date: 28 April 2010
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: WMA C
Subject: General Chemistry - Sample Data Group (SDG) 20090160

INTRODUCTION

This memorandum presents the results of data validation for SDG 20090160 prepared by 222-S Laboratory. A list of samples validated along with the analytical methods is provided in the following table.

Sample ID	Sample Date	Media	Validation Level	Analytical Methods
B1YT71	4/14/2009	Soil	C	See note 1
B1YT74	4/21/2009	Soil	C	See note 1
B1YT77	4/22/2009	Soil	C	See note 1
B1YT80	4/30/2009	Soil	C	See note 1
B1YT83	4/30/2009	Soil	C	See note 1

1 – 300.7 (ammonium), 9014 (total cyanide), 9045 (pH), 9056 (anions) and 9215 (sulfide)

Data validation was conducted in accordance with the CHPRC validation statement of work and the Field Sampling and Analysis Plan for Sites P and L at Waste Management Area C, RPP-PLAN-40564, Rev. 0 (SAP). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Documentation Requested By Client

DATA QUALITY OBJECTIVES

- **Holding Times and Sample Preservation**

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The holding time requirements are as follows:

- All anions – analysis within 48 hours of sample preparation
- Ammonium – analysis within 28 days of sample collection
- pH – analysis as soon as possible after sample collection
- Sulfide – analysis within 7 days of sample collection
- Total cyanide – analysis within 14 days of sample collection

Sample preservation requires chilling to 4 degrees Celsius.

The samples were extracted and analyzed within the prescribed holding times and properly preserved with the following exceptions.

For total cyanide analysis, sample B1YT71 was analyzed beyond the holding time but within 2X the holding time. The cyanide result for this sample was a non-detect and should be qualified as an estimate and flagged "UJ."

All samples were analyzed for pH between 2 days and 17 days after sample collection. All pH sample results should be qualified as estimates and flagged "J."

- **Blanks**

The blank data results are reviewed to assess the extent of contamination introduced through sampling, sample preparation, and analysis.

Laboratory Blanks

All laboratory blank results were acceptable with the following exceptions.

For anions batch 16700, the nitrate and nitrite laboratory blank results were > the MDLs. The nitrate results for all samples were detects >5X the blank result and should not be qualified. The nitrite results for all samples were detects <5X the blank result and should be qualified as non-detect estimates and flagged "UJ."

Trip Blanks

No trip blanks were submitted for analysis.

Field Blanks

No field blanks were submitted for analysis.

Equipment Blanks

No equipment blanks were submitted for analysis.

- **Accuracy**

Accuracy is evaluated by reviewing matrix spike sample results and laboratory control sample results. According to the SAP, the laboratory control sample accuracy limits are 80% to 120%, and the matrix spike sample accuracy limits are 75% to 125%. The limits for reported analytes not listed in the SAP are specified by the DV procedure.

Matrix Spike (MS) Samples

All MS recoveries were acceptable.

Laboratory Control Samples (LCSs)

All LCS recoveries were acceptable.

- **Precision**

Precision is evaluated by reviewing laboratory duplicate sample results, field duplicate sample results, and field split sample results. These QC results provide information on the laboratory reproducibility and whether sampling activities are adequate to acquire consistent sample results. According to the SAP, the relative percent difference (RPD) limits are ±30%. The limits for reported analytes not listed in the SAP are specified by the DV procedure. When duplicate RPDs exceed the limits and have associated results <5X the SAP required detection limits (or <5X the target detection limits when required detection limits are not provided) with differences <2X the required/target detection limits no precision infraction occurred.

Laboratory Duplicate Samples

All laboratory duplicate results were acceptable.

Field Duplicate Samples

No field duplicates were submitted for analysis.

Field Split Samples

No field splits were submitted for analysis.

- **Detection Limits**

Reported MDLs are compared against the contractually required detection limits (CRDLs) to ensure that laboratory detection limits meet the required criteria.

All reported sample MDLs were below the CRDLs [or Target Detection Limits (TDLs) when CRDLs were not provided in the SAP] with the following exceptions. Note, the following lists associated non-detected sample results only since MDLs > CRDLs/TDLs are not an issue for detected results.

For sample B1YT77, the sulfide MDL was slightly > the TDL.
For all samples, the cyanide MDLs were > the TDL.

- **Completeness**

SDG 20090160 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Minor deficiencies leading to qualification of results as estimates were due to holding time infractions and laboratory blank infractions. See the table in Appendix 2 for a listing of all affected sample results.

REFERENCES

HNF-20433, Rev. 0, *Data Validation Procedure for Chemical Analyses*, June 2004.

RPP-PLAN-40564, Rev. 0, *Field Sampling and Analysis Plan for Sites P and L at Waste Management Area C*, March 2009.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers that may be applied by data validators in compliance with the CHPRC statement of work are as follows:

- **U** — The constituent was analyzed for and was not detected. The data should be considered usable for decision-making purposes.

- **UJ** — The constituent was analyzed for and was not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the MDL. The data should be considered usable for decision-making purposes.

- **J** — Indicates the constituent was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **UR** — Indicates the constituent was analyzed for and not detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

- **R** — Indicates the constituent was analyzed for and detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

Appendix 2

Summary of Data Qualification

General Chemistry Data Qualification Summary			
SDG: 20090160	Reviewer: AQA	Project: WMA C	Page 1 of 1
Analyte(s)	**Qualifier**	**Samples Affected**	**Reason**
Cyanide	UJ	B1YT71	Analysis beyond the holding time but within 2X the holding time
pH	J	B1YT71, B1YT74, B1YT77, B1YT80, B1YT83	Analysis beyond the holding time
Nitrite	UJ	B1YT71, B1YT74, B1YT77, B1YT80, B1YT83	Laboratory blank contamination

Comments: None

Appendix 3

Annotated Laboratory Reports

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT71
Sample Depth: 14-15

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000171			%WATERA	%WATER-APD		%	n/a	n/a	9.120	n/a	n/a	n/a	n/a	n/a	n/a	
S09V000171			57-12-5	Cyanide	UJ	ug/g	108	<0.0370	<4.77	<4.82	n/a	n/a	102	4.77	n/a	U
S09V000171			10198-40-0	Cobalt-60		uCi/g	103	<2.35E-07	8.33E-07	n/a	n/a	n/a	n/a	2.40E-07	15.31	
S09V000171			14234-35-6	Antimony-125		uCi/g	n/a	<6.05E-07	1.12E-06	n/a	n/a	n/a	n/a	8.68E-07	40.05	J
S09V000171			10045-97-3	Cesium-137		uCi/g	108	<2.89E-07	7.31E-05	n/a	n/a	n/a	n/a	2.89E-07	6.25	
S09V000171			14683-23-9	Europium-152		uCi/g	n/a	<1.20E-06	<1.28E-06	n/a	n/a	n/a	n/a	1.28E-06	n/a	U
S09V000171			15585-10-1	Europium-154		uCi/g	n/a	<7.88E-07	<8.85E-07	n/a	n/a	n/a	n/a	8.85E-07	n/a	U
S09V000171			14391-16-3	Europium-155		uCi/g	n/a	<4.64E-07	<7.81E-07	n/a	n/a	n/a	n/a	7.81E-07	n/a	U
S09V000171			7439-97-6	Mercury		ug/g	100	<1.00E-04	<0.0175	<0.0201	n/a	n/a	97.3	0.0175	n/a	U
S09V000171			15046-84-1	Iodine-129		uCi/g	91.4	<2.74E-07	<2.98E-07	n/a	n/a	n/a	n/a	2.98E-07	n/a	U
S09V000171			PH	pH	J	unitless	n/a	n/a	10.1	10.1	10.1	0.396	n/a	0.0100	n/a	
S09V000171			18496-25-8	Sulfide		ug/g	107	<0.180	32.2	32.1	32.15	0.142	113	7.61	n/a	J
S09V000179		O	120-82-1	1,2,4-Trichlorobenzene		ug/kg	72.4	<774	<72.9	n/a	n/a	n/a	n/a	72.9	n/a	U
S09V000179		O	95-50-1	1,2-Dichlorobenzene		ug/kg	n/a	<1.01E+03	<94.8	n/a	n/a	n/a	n/a	94.8	n/a	U
S09V000179		O	106-46-7	1,4-Dichlorobenzene		ug/kg	68.5	<1.13E+03	<107	n/a	n/a	n/a	n/a	107	n/a	U
S09V000179		O	121-14-2	2,4-Dinitrotoluene		ug/kg	80.0	<381	<35.9	n/a	n/a	n/a	n/a	35.9	n/a	U
S09V000179		O	95-95-4	2,4,5-Trichlorophenol		ug/kg	n/a	<440	<41.4	n/a	n/a	n/a	n/a	41.4	n/a	U
S09V000179		O	88-06-2	2,4,6-Trichlorophenol		ug/kg	n/a	<495	<46.6	n/a	n/a	n/a	n/a	46.6	n/a	U
S09V000179		O	95-48-7	2-Methylphenol		ug/kg	n/a	<575	<54.1	n/a	n/a	n/a	n/a	54.1	n/a	U
S09V000179		O	88-75-5	2-Nitrophenol		ug/kg	n/a	<537	<50.6	n/a	n/a	n/a	n/a	50.6	n/a	U
S09V000179		O	108-39-4M	Cresol (m & p)		ug/kg	n/a	<514	<48.4	n/a	n/a	n/a	n/a	48.4	n/a	U
S09V000179		O	83-32-9	Acenaphthene		ug/kg	76.9	<176	<16.6	n/a	n/a	n/a	n/a	16.6	n/a	U
S09V000179		O	56-55-3	Benzo(a)anthracene		ug/kg	n/a	<378	<35.6	n/a	n/a	n/a	n/a	35.6	n/a	U
S09V000179		O	205-99-2	Benzo(b)fluoranthene		ug/kg	n/a	<489	<46.0	n/a	n/a	n/a	n/a	46.0	n/a	U
S09V000179		O	50-32-8	Benzo(a)pyrene		ug/kg	n/a	<412	<38.8	n/a	n/a	n/a	n/a	38.8	n/a	U
S09V000179		O	117-81-7	Bis(2-ethylhexyl) phthalate		ug/kg	n/a	<5.90E+03	<556	n/a	n/a	n/a	n/a	556	n/a	U
S09V000179		O	207-08-9	Benzo(k)fluoranthene		ug/kg	n/a	<391	<36.8	n/a	n/a	n/a	n/a	36.8	n/a	U
S09V000179		O	85-68-7	Butylbenzylphthalate		ug/kg	n/a	<500	<47.1	n/a	n/a	n/a	n/a	47.1	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated
B - Found in Blank
X - Comment
U - Less Than Detection Limit
a - LCS Outside Range
Y - Comment
c - RPD Outside Range
b - MS/MSD Outside Range
e - SERDIL Outside Range

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT71
Sample Depth: 14-15

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S09V000195~~		~~A~~	~~13982-70-2~~	~~Uranium-236~~	~~ug/g~~	~~n/a~~	~~<2.00E-07~~	~~0.00E-04~~	~~7.03E-04~~	~~.0000545~~	~~14.9~~	~~n/a~~	~~4.04E-05~~	~~n/a~~	
S09V000195		A	13994-20-2	Neptunium-237	ug/g	112	<2.65E-06	2.07E-03	1.28E-03	.001675	47.5	109	5.35E-04	n/a	BJ
S09V000195		A	U-238	Uranium-238	ug/g	102	<2.75E-05	1.46	1.84	1.65	23.3	104	5.56E-03	n/a	
S09V000195		A	7440-22-4	Silver	ug/g	107	2.07E-04	0.137	0.134	.1355	2.17	107	0.0323	n/a	BJ
S09V000195		A	7440-38-2	Arsenic	ug/g	114	<8.40E-04	5.62	5.70	5.66	1.44	113	0.170	n/a	
S09V000195		A	7440-48-4	Cobalt	ug/g	110	<4.00E-04	8.96	9.66	9.31	7.47	109	0.808	n/a	
S09V000195		A	7440-43-9	Cadmium	ug/g	106	7.01E-05	0.125	0.120	.1225	3.53	106	0.0121	n/a	B
S09V000195		A	7440-47-3	Chromium	ug/g	110	<2.80E-03	8.23	8.12	8.175	1.29	109	0.566	n/a	
S09V000195		A	7439-92-1	Lead	ug/g	116	<6.20E-04	7.74	7.75	7.745	0.162	110	0.125	n/a	
S09V000195		A	7440-36-0	Antimony	ug/g	110	<8.80E-04	0.184	0.187	.1855	1.38	103	0.178	n/a	J
S09V000195		A	7782-49-2	Selenium	ug/g	112	<1.22E-03	<0.246	<0.246	n/a	n/a	110	0.246	n/a	U
S09V000195		A	7440-28-0	Thallium	ug/g	111	6.92E-05	0.0941	0.100	.09705	6.40	109	0.0121	n/a	BJ
S09V000195		A	7440-62-2	Vanadium	ug/g	113	<4.80E-04	60.2	61.1	60.65	1.46	109	0.970	n/a	
S09V000195		A	7440-02-0	Nickel	ug/g	109	3.20E-04	12.3	10.2	11.25	18.7	106	0.485	n/a	
S09V000203		E	CM-243/244	Curium-243/244	uCi/g	n/a	<4.01E-07	<4.60E-07	n/a	n/a	n/a	n/a	4.60E-07	n/a	U
S09V000203		E	14596-10-2	Americium-241	uCi/g	102	<1.00E-06	2.20E-06	n/a	n/a	n/a	n/a	1.15E-06	12.87	
S09V000203		E	15510-73-3	Curium-242	uCi/g	n/a	<4.01E-07	<4.60E-07	n/a	n/a	n/a	n/a	4.60E-07	n/a	U
S09V000203		E	13981-37-8	Nickel-63	uCi/g	85.5	<6.14E-05	<6.85E-05	n/a	n/a	n/a	n/a	6.85E-05	n/a	U
S09V000203		E	PU-239/240	Plutonium-239/240	uCi/g	96.1	<7.24E-07	1.07E-05	n/a	n/a	n/a	n/a	1.10E-06	6.9	
S09V000203		E	13981-16-3	Plutonium-238	uCi/g	n/a	<7.24E-07	<1.10E-06	n/a	n/a	n/a	n/a	1.10E-06	n/a	U
S09V000203		E	15758-45-9	Selenium-79	uCi/g	n/a	<3.20E-06	2.50E-06	n/a	n/a	n/a	n/a	1.50E-06	4309.52	J
S09V000203		E	SR-89/90	Strontium-89/90	uCi/g	99.9	<1.56E-06	1.20E-04	n/a	n/a	n/a	n/a	2.98E-06	8.5	
S09V000211		A	14133-76-7	Technetium-99	ug/g	104	<6.00E-06	1.40E-03	<1.22E-03	n/a	n/a	100	1.21E-03	n/a	J
S09V000211		A	SN-117	Tin-117	ug/g	142	9.07E-04	<0.0445	<0.0447	n/a	n/a	86.7	0.0445	n/a	Ua
~~S09V000211~~		~~A~~	~~15092-58-5~~	~~Tin-126~~	~~ug/g~~	~~n/a~~	~~<4.00E-06~~	~~<8.09E-04~~	~~<8.13E-04~~	~~n/a~~	~~n/a~~	~~n/a~~	~~8.09E-04~~	~~n/a~~	~~U~~
S09V000219		S	14798-03-9	Ammonium	ug/g	99.1	<0.0120	4.03	4.54	4.285	11.8	95.7	0.478	n/a	J
S09V001330		W	16984-48-8	Fluoride	ug/g	97.1	<1.61E-03	4.76	3.15	3.955	40.8	101	0.0199	n/a	Bc
S09V001330		W	666-14-8	Glycolate	ug/g	99.8	<9.37E-03	<0.116	<0.116	n/a	n/a	102	0.116	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated
B - Found in Blank
X - Comment
U - Less Than Detection Limit
a - LCS Outside Range
Y - Comment
c - RPD Outside Range
b - MS/MSD Outside Range
e - SERDIL Outside Range

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT71
Sample Depth: 14-15

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V001330		W	71-50-1	Acetate	ug/g	103	<6.04E-03	3.19	2.07	2.63	42.7	105	0.0745	n/a	c
S09V001330		W	12311-97-6	Formate	ug/g	101	<4.67E-03	1.73	0.741	1.2355	79.9	103	0.0576	n/a	J
S09V001330		W	16887-00-6	Chloride	ug/g	97.1	<9.98E-03	1.34	1.00	1.17	28.6	98.8	0.123	n/a	
S09V001330		W	14797-65-0	Nitrite UJ	ug/g	102	0.160	1.24	1.18	1.21	4.88	104	0.237	n/a	BJ
S09V001330		W	14808-79-8	Sulfate	ug/g	99.7	<0.0187	17.3	12.7	15	30.8	100	0.231	n/a	c
S09V001330		W	338-70-5	Oxalate	ug/g	98.8	<0.0231	2.58	1.47	2.025	54.6	99.3	0.285	n/a	J
S09V001330		W	14797-55-8	Nitrate	ug/g	97.0	0.0219	13.6	9.80	11.7	32.4	101	0.257	n/a	c
S09V001330		W	14265-44-2	Phosphate	ug/g	97.6	<0.0167	11.6	7.76	9.68	39.5	100	0.206	n/a	c

NA = Not Analyzed, ND = Not Detected

J - Estimated
B - Found in Blank
X - Comment
U - Less Than Detection Limit
a - LCS Outside Range
Y - Comment
c - RPD Outside Range
b - MS/MSD Outside Range
e - SERDIL Outside Range

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT74
Sample Depth: 19.5-21.5

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000172			%WATERA	%WATER-APD		%	n/a	n/a	6.890	n/a	n/a	n/a	n/a	n/a	n/a	
S09V000172			57-12-5	Cyanide		ug/g	108	<0.0370	<4.67	n/a	n/a	n/a	n/a	4.67	n/a	U
S09V000172			10198-40-0	Cobalt-60		uCi/g	103	<2.35E-07	6.26E-07	n/a	n/a	n/a	n/a	2.05E-07	18.79	
S09V000172			14234-35-6	Antimony-125		uCi/g	n/a	<6.05E-07	<6.99E-07	n/a	n/a	n/a	n/a	6.99E-07	n/a	U
S09V000172			10045-97-3	Cesium-137		uCi/g	108	<2.89E-07	6.31E-06	n/a	n/a	n/a	n/a	3.26E-07	7.66	
S09V000172			14683-23-9	Europium-152		uCi/g	n/a	<1.20E-06	<1.19E-06	n/a	n/a	n/a	n/a	1.19E-06	n/a	U
S09V000172			15585-10-1	Europium-154		uCi/g	n/a	<7.88E-07	2.28E-06	n/a	n/a	n/a	n/a	8.08E-07	8.41	
S09V000172			14391-16-3	Europium-155		uCi/g	n/a	<4.64E-07	8.10E-07	n/a	n/a	n/a	n/a	4.95E-07	39.17	J
S09V000172			7439-97-6	Mercury		ug/g	100	<1.00E-04	<0.0205	n/a	n/a	n/a	n/a	0.0205	n/a	U
S09V000172			15046-84-1	Iodine-129		uCi/g	91.4	<2.74E-07	<2.02E-07	n/a	n/a	n/a	n/a	2.02E-07	n/a	U
S09V000172			PH	pH	J	unitless	n/a	7.99	10.3	10.3	10.3	0.291	n/a	0.0100	n/a	
S09V000172			18496-25-8	Sulfide		ug/g	93.1	<0.180	10.3	7.96	9.13	26.0	81.9	5.24	n/a	J
S09V000180		O	120-82-1	1,2,4-Trichlorobenzene		ug/kg	72.4	<774	<77.5	n/a	n/a	n/a	65.5	77.5	n/a	U
S09V000180		O	95-50-1	1,2-Dichlorobenzene		ug/kg	n/a	<1.01E+03	<101	n/a	n/a	n/a	n/a	101	n/a	U
S09V000180		O	106-46-7	1,4-Dichlorobenzene		ug/kg	68.5	<1.13E+03	<113	n/a	n/a	n/a	61.3	113	n/a	U
S09V000180		O	121-14-2	2,4-Dinitrotoluene		ug/kg	80.0	<381	<38.2	n/a	n/a	n/a	76.9	38.2	n/a	U
S09V000180		O	95-95-4	2,4,5-Trichlorophenol		ug/kg	n/a	<440	<44.1	n/a	n/a	n/a	n/a	44.1	n/a	U
S09V000180		O	88-06-2	2,4,6-Trichlorophenol		ug/kg	n/a	<495	<49.6	n/a	n/a	n/a	n/a	49.6	n/a	U
S09V000180		O	95-48-7	2-Methylphenol		ug/kg	n/a	<575	<57.6	n/a	n/a	n/a	n/a	57.6	n/a	U
S09V000180		O	88-75-5	2-Nitrophenol		ug/kg	n/a	<537	<53.8	n/a	n/a	n/a	n/a	53.8	n/a	U
S09V000180		O	108-39-4M	Cresol (m & p)		ug/kg	n/a	<514	<51.5	n/a	n/a	n/a	n/a	51.5	n/a	U
S09V000180		O	83-32-9	Acenaphthene		ug/kg	76.9	<176	<17.6	n/a	n/a	n/a	70.9	17.6	n/a	U
S09V000180		O	56-55-3	Benzo(a)anthracene		ug/kg	n/a	<378	<37.9	n/a	n/a	n/a	n/a	37.9	n/a	U
S09V000180		O	205-99-2	Benzo(b)fluoranthene		ug/kg	n/a	<489	<49.0	n/a	n/a	n/a	n/a	49.0	n/a	U
S09V000180		O	50-32-8	Benzo(a)pyrene		ug/kg	n/a	<412	<41.3	n/a	n/a	n/a	n/a	41.3	n/a	U
S09V000180		O	117-81-7	Bis(2-ethylhexyl) phthalate		ug/kg	n/a	<5.90E+03	<591	n/a	n/a	n/a	n/a	591	n/a	U
S09V000180		O	207-08-9	Benzo(k)fluoranthene		ug/kg	n/a	<391	<39.2	n/a	n/a	n/a	n/a	39.2	n/a	U
S09V000180		O	85-68-7	Butylbenzylphthalate		ug/kg	n/a	<500	<50.1	n/a	n/a	n/a	n/a	50.1	n/a	U

NA = Not Analyzed, ND = Not Detected

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X - Comment
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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT74
Sample Depth: 19.5-21.5

LS
4-28-2010

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S09V000196~~	~~A~~	~~13966-29-5~~	~~Uranium-234~~	~~ug/g~~	~~n/a~~	~~<2.50E-07~~	~~0.00E-05~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~5.00E-05~~	~~n/a~~	~~J~~
S09V000196	A	15117-96-1	Uranium-235	ug/g	101	<5.50E-07	0.0107	n/a	n/a	n/a	n/a	1.11E-04	n/a	
S09V000196	A	13982-70-2	Uranium-236	ug/g	n/a	<2.00E-07	3.84E-04	n/a	n/a	n/a	n/a	4.03E-05	n/a	J
S09V000196	A	13994-20-2	Neptunium-237	ug/g	112	<2.65E-06	5.59E-04	n/a	n/a	n/a	n/a	5.33E-04	n/a	BJ
S09V000196	A	U-238	Uranium-238	ug/g	102	<2.75E-05	1.38	n/a	n/a	n/a	n/a	5.54E-03	n/a	
S09V000196	A	7440-22-4	Silver	ug/g	107	2.07E-04	0.118	n/a	n/a	n/a	n/a	0.0322	n/a	BJ
S09V000196	A	7440-38-2	Arsenic	ug/g	114	<8.40E-04	3.06	n/a	n/a	n/a	n/a	0.169	n/a	
S09V000196	A	7440-48-4	Cobalt	ug/g	110	<4.00E-04	7.15	n/a	n/a	n/a	n/a	0.805	n/a	J
S09V000196	A	7440-43-9	Cadmium	ug/g	106	7.01E-05	0.0671	n/a	n/a	n/a	n/a	0.0121	n/a	BJ
S09V000196	A	7440-47-3	Chromium	ug/g	110	<2.80E-03	9.34	n/a	n/a	n/a	n/a	0.564	n/a	
S09V000196	A	7439-92-1	Lead	ug/g	116	<6.20E-04	4.26	n/a	n/a	n/a	n/a	0.125	n/a	
S09V000196	A	7440-36-0	Antimony	ug/g	110	<8.80E-04	<0.177	n/a	n/a	n/a	n/a	0.177	n/a	U
S09V000196	A	7782-49-2	Selenium	ug/g	112	<1.22E-03	<0.246	n/a	n/a	n/a	n/a	0.246	n/a	U
S09V000196	A	7440-28-0	Thallium	ug/g	111	6.92E-05	0.0727	n/a	n/a	n/a	n/a	0.0121	n/a	BJ
S09V000196	A	7440-62-2	Vanadium	ug/g	113	<4.80E-04	55.8	n/a	n/a	n/a	n/a	0.966	n/a	
S09V000196	A	7440-02-0	Nickel	ug/g	109	3.20E-04	9.58	n/a	n/a	n/a	n/a	0.483	n/a	
S09V000204	E	CM-243/244	Curium-243/244	uCi/g	n/a	<4.01E-07	<3.90E-07	n/a	n/a	n/a	n/a	3.90E-07	n/a	U
S09V000204	E	14596-10-2	Americium-241	uCi/g	102	<1.00E-06	1.39E-06	n/a	n/a	n/a	n/a	9.75E-07	16.21	
S09V000204	E	15510-73-3	Curium-242	uCi/g	n/a	<4.01E-07	<3.90E-07	n/a	n/a	n/a	n/a	3.90E-07	n/a	U
S09V000204	E	13981-37-8	Nickel-63	uCi/g	85.5	<6.14E-05	<6.91E-05	n/a	n/a	n/a	n/a	6.91E-05	n/a	U
S09V000204	E	PU-239/240	Plutonium-239/240	uCi/g	96.1	<7.24E-07	<6.77E-07	n/a	n/a	n/a	n/a	6.77E-07	n/a	U
S09V000204	E	13981-16-3	Plutonium-238	uCi/g	n/a	<7.24E-07	<6.77E-07	n/a	n/a	n/a	n/a	6.77E-07	n/a	U
S09V000204	E	15758-45-9	Selenium-79	uCi/g	n/a	<3.20E-06	<3.10E-06	n/a	n/a	n/a	n/a	3.10E-06	n/a	U
S09V000204	E	SR-89/90	Strontium-89/90	uCi/g	99.9	<1.56E-06	2.37E-05	n/a	n/a	n/a	n/a	2.32E-06	20.89	
S09V000212	A	14133-76-7	Technetium-99	ug/g	104	<6.00E-06	2.66E-03	n/a	n/a	n/a	n/a	1.20E-03	n/a	J
S09V000212	A	SN-117	Tin-117	ug/g	142	9.07E-04	<0.0439	n/a	n/a	n/a	n/a	0.0439	n/a	Ua
~~S09V000212~~	~~A~~	~~15832-50-5~~	~~Tin-126~~	~~ug/g~~	~~n/a~~	~~<4.00E-06~~	~~<7.37E-04~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~7.37E-04~~	~~n/a~~	~~U~~
S09V000220	S	14798-03-9	Ammonium	ug/g	99.1	<0.0120	<0.478	n/a	n/a	n/a	n/a	0.478	n/a	U

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT74
Sample Depth: 19.5-21.5

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V001331		W	16984-48-8	Fluoride	ug/g	97.1	<1.61E-03	2.63	n/a	n/a	n/a	n/a	0.0198	n/a	c
S09V001331		W	666-14-8	Glycolate	ug/g	99.8	<9.37E-03	<0.115	n/a	n/a	n/a	n/a	0.115	n/a	U
S09V001331		W	71-50-1	Acetate	ug/g	103	<6.04E-03	2.19	n/a	n/a	n/a	n/a	0.0742	n/a	Jc
S09V001331		W	12311-97-6	Formate	ug/g	101	<4.67E-03	0.696	n/a	n/a	n/a	n/a	0.0574	n/a	J
S09V001331		W	16887-00-6	Chloride	ug/g	97.1	<9.98E-03	0.731	n/a	n/a	n/a	n/a	0.123	n/a	
S09V001331		W	14797-65-0	Nitrite UJ	ug/g	102	0.160	0.785	n/a	n/a	n/a	n/a	0.236	n/a	BJ
S09V001331		W	14808-79-8	Sulfate	ug/g	99.7	<0.0187	9.35	n/a	n/a	n/a	n/a	0.230	n/a	c
S09V001331		W	338-70-5	Oxalate	ug/g	98.8	<0.0231	0.868	n/a	n/a	n/a	n/a	0.284	n/a	J
S09V001331		W	14797-55-8	Nitrate	ug/g	97.0	0.0219	7.82	n/a	n/a	n/a	n/a	0.256	n/a	c
S09V001331		W	14265-44-2	Phosphate	ug/g	97.6	<0.0167	6.99	n/a	n/a	n/a	n/a	0.205	n/a	c

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT77
Sample Depth: 25-27

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000173			%WATERA	%WATER-APD		%	n/a	n/a	9.136	n/a	n/a	n/a	n/a	n/a	n/a	
S09V000173			57-12-5	Cyanide		ug/g	108	<0.0370	<5.01	n/a	n/a	n/a	n/a	5.01	n/a	U
S09V000173			10198-40-0	Cobalt-60		uCi/g	103	<2.35E-07	<2.00E-07	<2.47E-07	n/a	n/a	n/a	2.00E-07	n/a	U
S09V000173			14234-35-6	Antimony-125		uCi/g	n/a	<6.05E-07	<6.87E-07	<6.36E-07	n/a	n/a	n/a	6.87E-07	n/a	U
S09V000173			10045-97-3	Cesium-137		uCi/g	108	<2.89E-07	1.31E-06	1.37E-06	00000134	4.69	n/a	4.03E-07	20.88	
S09V000173			14683-23-9	Europium-152		uCi/g	n/a	<1.20E-06	<1.25E-06	<1.24E-06	n/a	n/a	n/a	1.25E-06	n/a	U
S09V000173			15585-10-1	Europium-154		uCi/g	n/a	<7.88E-07	<8.67E-07	<7.97E-07	n/a	n/a	n/a	8.67E-07	n/a	U
S09V000173			14391-16-3	Europium-155		uCi/g	n/a	<4.64E-07	<5.11E-07	<4.86E-07	n/a	n/a	n/a	5.11E-07	n/a	U
S09V000173			7439-97-6	Mercury		ug/g	100	<1.00E-04	<0.0221	n/a	n/a	n/a	n/a	0.0221	n/a	U
S09V000173			15046-84-1	Iodine-129		uCi/g	91.4	<2.74E-07	<1.92E-07	<2.18E-07	n/a	n/a	n/a	1.92E-07	n/a	U
S09V000173			PH	pH	J	unitless	n/a	7.99	10.1	n/a	n/a	n/a	n/a	0.0100	n/a	
S09V000173			18496-25-8	Sulfide		ug/g	93.1	<0.180	<5.25	n/a	n/a	n/a	n/a	5.25	n/a	U
S09V000181		O	120-82-1	1,2,4-Trichlorobenzene		ug/kg	69.4	<774	<97.7	n/a	n/a	n/a	59.7	97.7	n/a	U
S09V000181		O	95-50-1	1,2-Dichlorobenzene		ug/kg	n/a	<1.01E+03	<127	n/a	n/a	n/a	n/a	127	n/a	U
S09V000181		O	106-46-7	1,4-Dichlorobenzene		ug/kg	67.5	<1.13E+03	<143	n/a	n/a	n/a	57.0	143	n/a	U
S09V000181		O	121-14-2	2,4-Dinitrotoluene		ug/kg	70.1	<381	<48.1	n/a	n/a	n/a	72.2	48.1	n/a	U
S09V000181		O	95-95-4	2,4,5-Trichlorophenol		ug/kg	n/a	<440	<55.5	n/a	n/a	n/a	n/a	55.5	n/a	U
S09V000181		O	88-06-2	2,4,6-Trichlorophenol		ug/kg	n/a	<495	<62.5	n/a	n/a	n/a	n/a	62.5	n/a	U
S09V000181		O	95-48-7	2-Methylphenol		ug/kg	n/a	<575	<72.5	n/a	n/a	n/a	n/a	72.5	n/a	U
S09V000181		O	88-75-5	2-Nitrophenol		ug/kg	n/a	<537	<67.8	n/a	n/a	n/a	n/a	67.8	n/a	U
S09V000181		O	108-39-4M	Cresol (m & p)		ug/kg	n/a	<514	<64.8	n/a	n/a	n/a	n/a	64.8	n/a	U
S09V000181		O	83-32-9	Acenaphthene		ug/kg	69.7	<176	<22.2	n/a	n/a	n/a	63.5	22.2	n/a	U
S09V000181		O	56-55-3	Benzo(a)anthracene		ug/kg	n/a	<378	<47.7	n/a	n/a	n/a	n/a	47.7	n/a	U
S09V000181		O	205-99-2	Benzo(b)fluoranthene		ug/kg	n/a	<489	<61.7	n/a	n/a	n/a	n/a	61.7	n/a	U
S09V000181		O	50-32-8	Benzo(a)pyrene		ug/kg	n/a	<412	<52.0	n/a	n/a	n/a	n/a	52.0	n/a	U
S09V000181		O	117-81-7	Bis(2-ethylhexyl) phthalate		ug/kg	n/a	<5.90E+03	<745	n/a	n/a	n/a	n/a	745	n/a	U
S09V000181		O	207-08-9	Benzo(k)fluoranthene		ug/kg	n/a	<391	<49.3	n/a	n/a	n/a	n/a	49.3	n/a	U
S09V000181		O	85-68-7	Butylbenzylphthalate		ug/kg	n/a	<500	<63.1	n/a	n/a	n/a	n/a	63.1	n/a	U

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT77
Sample Depth: 25-27

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000197		A	15117-96-1	Uranium-235	ug/g	101	<5.50E-07	3.36E-03	n/a	n/a	n/a	n/a	1.10E-04	n/a	
S09V000197		A	13982-70-2	Uranium-236	ug/g	n/a	<2.00E-07	5.50E-05	n/a	n/a	n/a	n/a	4.01E-05	n/a	J
S09V000197		A	13994-20-2	Neptunium-237	ug/g	112	<2.65E-06	<5.32E-04	n/a	n/a	n/a	n/a	5.32E-04	n/a	U
S09V000197		A	U-238	Uranium-238	ug/g	102	<2.75E-05	0.495	n/a	n/a	n/a	n/a	5.52E-03	n/a	
S09V000197		A	7440-22-4	Silver	ug/g	107	2.07E-04	0.0903	n/a	n/a	n/a	n/a	0.0321	n/a	BJ
S09V000197		A	7440-38-2	Arsenic	ug/g	114	<8.40E-04	2.22	n/a	n/a	n/a	n/a	0.169	n/a	
S09V000197		A	7440-48-4	Cobalt	ug/g	110	<4.00E-04	6.35	n/a	n/a	n/a	n/a	0.803	n/a	J
S09V000197		A	7440-43-9	Cadmium	ug/g	106	7.01E-05	0.0618	n/a	n/a	n/a	n/a	0.0120	n/a	BJ
S09V000197		A	7440-47-3	Chromium	ug/g	110	<2.80E-03	15.1	n/a	n/a	n/a	n/a	0.562	n/a	
S09V000197		A	7439-92-1	Lead	ug/g	116	<6.20E-04	3.62	n/a	n/a	n/a	n/a	0.124	n/a	
S09V000197		A	7440-36-0	Antimony	ug/g	110	<8.80E-04	<0.177	n/a	n/a	n/a	n/a	0.177	n/a	U
S09V000197		A	7782-49-2	Selenium	ug/g	112	<1.22E-03	<0.245	n/a	n/a	n/a	n/a	0.245	n/a	U
S09V000197		A	7440-28-0	Thallium	ug/g	111	6.92E-05	0.0797	n/a	n/a	n/a	n/a	0.0120	n/a	BJ
S09V000197		A	7440-62-2	Vanadium	ug/g	113	<4.80E-04	37.7	n/a	n/a	n/a	n/a	0.963	n/a	
S09V000197		A	7440-02-0	Nickel	ug/g	109	3.20E-04	30.6	n/a	n/a	n/a	n/a	0.482	n/a	
S09V000205		E	CM-243/244	Curium-243/244	uCi/g	n/a	<4.01E-07	<3.95E-07	<3.97E-07	n/a	n/a	n/a	3.95E-07	n/a	U
S09V000205		E	14596-10-2	Americium-241	uCi/g	102	<1.00E-06	<9.88E-07	<9.92E-07	n/a	n/a	n/a	9.88E-07	n/a	U
S09V000205		E	15510-73-3	Curium-242	uCi/g	n/a	<4.01E-07	<3.95E-07	<3.97E-07	n/a	n/a	n/a	3.95E-07	n/a	U
S09V000205		E	13981-37-8	Nickel-63	uCi/g	85.5	<6.14E-05	<5.48E-05	<6.76E-05	n/a	n/a	n/a	5.48E-05	n/a	U
S09V000205		E	PU-239/240	Plutonium-239/240	uCi/g	96.1	<7.24E-07	<6.15E-07	<5.49E-07	n/a	n/a	n/a	6.15E-07	n/a	U
S09V000205		E	13981-16-3	Plutonium-238	uCi/g	n/a	<7.24E-07	<6.15E-07	<5.49E-07	n/a	n/a	n/a	6.15E-07	n/a	U
S09V000205		E	15758-45-9	Selenium-79	uCi/g	n/a	<3.20E-06	1.97E-06	<1.57E-06	n/a	n/a	n/a	1.72E-06	-378.63	J
S09V000205		E	SR-89/90	Strontium-89/90	uCi/g	99.9	<1.56E-06	3.88E-06	3.49E-06	.000003685	10.4	n/a	3.05E-06	122.25	J
S09V000213		A	14133-76-7	Technetium-99	ug/g	104	<6.00E-06	<1.21E-03	n/a	n/a	n/a	n/a	1.21E-03	n/a	U
S09V000213		A	SN-117	Tin-117	ug/g	142	9.07E-04	<0.0445	n/a	n/a	n/a	n/a	0.0445	n/a	Ua
S09V000213		A	15832-50-5	Tin-126	ug/g	n/a	<1.00E-06	<8.09E-04	n/a	n/a	n/a	n/a	8.09E-04	n/a	U
S09V000221		S	14798-03-9	Ammonium	ug/g	99.1	<0.0120	<0.476	n/a	n/a	n/a	n/a	0.476	n/a	U
S09V001332		W	16984-48-8	Fluoride	ug/g	97.1	<1.61E-03	1.87	n/a	n/a	n/a	n/a	0.0199	n/a	c

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT77
Sample Depth: 25-27

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V001332		W	666-14-8	Glycolate	ug/g	99.8	<9.37E-03	<0.116	n/a	n/a	n/a	n/a	0.116	n/a	U
S09V001332		W	71-50-1	Acetate	ug/g	103	<6.04E-03	0.383	n/a	n/a	n/a	n/a	0.0747	n/a	Jc
S09V001332		W	12311-97-6	Formate	ug/g	101	<4.67E-03	0.534	n/a	n/a	n/a	n/a	0.0578	n/a	J
S09V001332		W	16887-00-6	Chloride	ug/g	97.1	<9.98E-03	5.43	n/a	n/a	n/a	n/a	0.124	n/a	
S09V001332		W	14797-65-0	Nitrite UJ	ug/g	102	0.160	1.81	n/a	n/a	n/a	n/a	0.238	n/a	BJ
S09V001332		W	14808-79-8	Sulfate	ug/g	99.7	<0.0187	57.6	n/a	n/a	n/a	n/a	0.231	n/a	c
S09V001332		W	338-70-5	Oxalate	ug/g	98.8	<0.0231	0.431	n/a	n/a	n/a	n/a	0.286	n/a	J
S09V001332		W	14797-55-8	Nitrate	ug/g	97.0	0.0219	19.4	n/a	n/a	n/a	n/a	0.257	n/a	c
S09V001332		W	14265-44-2	Phosphate	ug/g	97.6	<0.0167	1.19	n/a	n/a	n/a	n/a	0.207	n/a	Jc

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT80
Sample Depth: 42-44

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000174			%WATERA	%WATER-APD	%	n/a	n/a	5.455	5.652	5.5525	3.564	n/a	n/a	n/a	
S09V000174			57-12-5	Cyanide	ug/g	108	<0.0370	<4.46	<4.55	n/a	n/a	94.3	4.46	n/a	U
S09V000174			10198-40-0	Cobalt-60	uCi/g	99.1	<3.66E-07	<4.98E-07	n/a	n/a	n/a	n/a	4.98E-07	n/a	U
S09V000174			14234-35-6	Antimony-125	uCi/g	n/a	<8.57E-07	<1.09E-06	n/a	n/a	n/a	n/a	1.09E-06	n/a	U
S09V000174			10045-97-3	Cesium-137	uCi/g	104	<5.59E-07	1.64E-06	n/a	n/a	n/a	n/a	6.47E-07	27.15	
S09V000174			14683-23-9	Europium-152	uCi/g	n/a	<1.70E-06	<2.07E-06	n/a	n/a	n/a	n/a	2.07E-06	n/a	U
S09V000174			15585-10-1	Europium-154	uCi/g	n/a	<1.19E-06	<1.38E-06	n/a	n/a	n/a	n/a	1.38E-06	n/a	U
S09V000174			14391-16-3	Europium-155	uCi/g	n/a	<9.66E-07	<1.04E-06	n/a	n/a	n/a	n/a	1.04E-06	n/a	U
S09V000174			7439-97-6	Mercury	ug/g	108	<1.00E-04	<0.0100	n/a	n/a	n/a	n/a	0.0100	n/a	U
S09V000174			15046-84-1	Iodine-129	uCi/g	91.4	<2.74E-07	<1.95E-07	n/a	n/a	n/a	n/a	1.95E-07	n/a	U
S09V000174			PH	pH	unitless	n/a	n/a	9.02	9.00	9.01	0.222	n/a	0.0100	n/a	
S09V000174			18496-25-8	Sulfide	ug/g	98.2	<0.180	14.6	10.1	12.35	35.7	89.3	5.25	n/a	J
S09V000182		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	87.1	<77.4	<76.5	n/a	n/a	n/a	n/a	76.5	n/a	U
S09V000182		O	95-50-1	1,2-Dichlorobenzene	ug/kg	n/a	<101	<99.5	n/a	n/a	n/a	n/a	99.5	n/a	U
S09V000182		O	106-46-7	1,4-Dichlorobenzene	ug/kg	85.1	<113	<112	n/a	n/a	n/a	n/a	112	n/a	U
S09V000182		O	121-14-2	2,4-Dinitrotoluene	ug/kg	90.9	<38.1	<37.7	n/a	n/a	n/a	n/a	37.7	n/a	U
S09V000182		O	95-95-4	2,4,5-Trichlorophenol	ug/kg	n/a	<44.0	<43.5	n/a	n/a	n/a	n/a	43.5	n/a	U
S09V000182		O	88-06-2	2,4,6-Trichlorophenol	ug/kg	n/a	<49.5	<48.9	n/a	n/a	n/a	n/a	48.9	n/a	U
S09V000182		O	95-48-7	2-Methylphenol	ug/kg	n/a	<57.5	<56.8	n/a	n/a	n/a	n/a	56.8	n/a	U
S09V000182		O	88-75-5	2-Nitrophenol	ug/kg	n/a	<53.7	<53.1	n/a	n/a	n/a	n/a	53.1	n/a	U
S09V000182		O	108-39-4M	Cresol (m & p)	ug/kg	n/a	<51.4	<50.8	n/a	n/a	n/a	n/a	50.8	n/a	U
S09V000182		O	83-32-9	Acenaphthene	ug/kg	97.0	<17.6	<17.4	n/a	n/a	n/a	n/a	17.4	n/a	U
S09V000182		O	56-55-3	Benzo(a)anthracene	ug/kg	n/a	<37.8	<37.4	n/a	n/a	n/a	n/a	37.4	n/a	U
S09V000182		O	205-99-2	Benzo(b)fluoranthene	ug/kg	n/a	<48.9	<48.3	n/a	n/a	n/a	n/a	48.3	n/a	U
S09V000182		O	50-32-8	Benzo(a)pyrene	ug/kg	n/a	<41.2	<40.7	n/a	n/a	n/a	n/a	40.7	n/a	U
S09V000182		O	117-81-7	Bis(2-ethylhexyl) phthalate	ug/kg	n/a	<590	5.05E+03	n/a	n/a	n/a	n/a	583	n/a	J
S09V000182		O	207-08-9	Benzo(k)fluoranthene	ug/kg	n/a	<39.1	<38.7	n/a	n/a	n/a	n/a	38.7	n/a	U
S09V000182		O	85-68-7	Butylbenzylphthalate	ug/kg	n/a	<50.0	<49.4	n/a	n/a	n/a	n/a	49.4	n/a	U

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT80
Sample Depth: 42-44

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S09V000198~~		~~A~~	~~13982-70-2~~	~~Uranium-236~~	~~ug/g~~	~~n/a~~	~~<2.08E-07~~	~~<4.08E-05~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~4.08E-05~~	~~n/a~~	~~U~~
S09V000198		A	13994-20-2	Neptunium-237	ug/g	112	<2.65E-06	<5.34E-04	n/a	n/a	n/a	n/a	5.34E-04	n/a	U
S09V000198		A	U-238	Uranium-238	ug/g	102	<2.75E-05	0.446	n/a	n/a	n/a	n/a	5.54E-03	n/a	
S09V000198		A	7440-22-4	Silver	ug/g	107	2.07E-04	0.0812	n/a	n/a	n/a	n/a	0.0822	n/a	BJ
S09V000198		A	7440-38-2	Arsenic	ug/g	114	<8.40E-04	2.73	n/a	n/a	n/a	n/a	0.169	n/a	
S09V000198		A	7440-48-4	Cobalt	ug/g	110	<4.00E-04	4.62	n/a	n/a	n/a	n/a	0.805	n/a	J
S09V000198		A	7440-43-9	Cadmium	ug/g	106	7.01E-05	0.0402	n/a	n/a	n/a	n/a	0.0121	n/a	BJ
S09V000198		A	7440-47-3	Chromium	ug/g	110	<2.80E-03	12.6	n/a	n/a	n/a	n/a	0.564	n/a	
S09V000198		A	7439-92-1	Lead	ug/g	116	<6.20E-04	2.72	n/a	n/a	n/a	n/a	0.125	n/a	
S09V000198		A	7440-36-0	Antimony	ug/g	110	<8.80E-04	<0.177	n/a	n/a	n/a	n/a	0.177	n/a	U
S09V000198		A	7782-49-2	Selenium	ug/g	112	<1.22E-03	<0.246	n/a	n/a	n/a	n/a	0.246	n/a	U
S09V000198		A	7440-28-0	Thallium	ug/g	111	6.92E-05	0.0532	n/a	n/a	n/a	n/a	0.0121	n/a	BJ
S09V000198		A	7440-62-2	Vanadium	ug/g	113	<4.80E-04	33.9	n/a	n/a	n/a	n/a	0.967	n/a	
S09V000198		A	7440-02-0	Nickel	ug/g	109	3.20E-04	9.35	n/a	n/a	n/a	n/a	0.483	n/a	
S09V000206		E	CM-243/244	Curium-243/244	uCi/g	n/a	<4.01E-07	<4.00E-07	n/a	n/a	n/a	n/a	4.00E-07	n/a	U
S09V000206		E	14596-10-2	Americium-241	uCi/g	102	<1.00E-06	<1.00E-06	n/a	n/a	n/a	n/a	1.00E-06	n/a	U
S09V000206		E	15510-73-3	Curium-242	uCi/g	n/a	<4.01E-07	<4.00E-07	n/a	n/a	n/a	n/a	4.00E-07	n/a	U
S09V000206		E	13981-37-8	Nickel-63	uCi/g	85.5	<6.14E-05	<5.99E-05	n/a	n/a	n/a	n/a	5.99E-05	n/a	U
S09V000206		E	PU-239/240	Plutonium-239/240	uCi/g	96.1	<7.24E-07	<5.82E-07	n/a	n/a	n/a	n/a	5.82E-07	n/a	U
S09V000206		E	13981-16-3	Plutonium-238	uCi/g	n/a	<7.24E-07	<5.82E-07	n/a	n/a	n/a	n/a	5.82E-07	n/a	U
S09V000206		E	15758-45-9	Selenium-79	uCi/g	n/a	<3.20E-06	4.14E-06	n/a	n/a	n/a	n/a	1.66E-06	161.04	J
S09V000206		E	SR-89/90	Strontium-89/90	uCi/g	99.9	<1.56E-06	6.68E-06	n/a	n/a	n/a	n/a	1.72E-06	44.96	J
S09V000214		A	14133-76-7	Technetium-99	ug/g	104	<6.00E-06	<1.19E-03	n/a	n/a	n/a	n/a	1.19E-03	n/a	U
S09V000214		A	SN-117	Tin-117	ug/g	142	9.07E-04	<0.0435	n/a	n/a	n/a	n/a	0.0435	n/a	Ua
~~S09V000214~~		~~A~~	~~15832-50-5~~	~~Tin-126~~	~~ug/g~~	~~n/a~~	~~<1.00E-06~~	~~<7.91E-04~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~7.91E-04~~	~~n/a~~	~~U~~
S09V000222		S	14798-03-9	Ammonium	ug/g	100	<0.0120	1.13	1.15	1.14	1.25	96.8	0.488	n/a	U
S09V001333		W	16984-48-8	Fluoride	ug/g	97.1	<1.61E-03	0.760	n/a	n/a	n/a	n/a	0.0201	n/a	c
S09V001333		W	666-14-8	Glycolate	ug/g	99.8	<9.37E-03	<0.117	n/a	n/a	n/a	n/a	0.117	n/a	U

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT80
Sample Depth: 42-44

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V001333		W	71-50-1	Acetate	ug/g	103	<6.04E-03	0.263	n/a	n/a	n/a	n/a	0.0754	n/a	Jc
S09V001333		W	12311-97-6	Formate	ug/g	101	<4.67E-03	0.380	n/a	n/a	n/a	n/a	0.0583	n/a	J
S09V001333		W	16887-00-6	Chloride	ug/g	97.1	<9.98E-03	2.38	n/a	n/a	n/a	n/a	0.125	n/a	
S09V001333		W	14797-65-0	Nitrite UJ	ug/g	102	0.160	1.15	n/a	n/a	n/a	n/a	0.240	n/a	BJ
S09V001333		W	14808-79-8	Sulfate	ug/g	99.7	<0.0187	21.8	n/a	n/a	n/a	n/a	0.233	n/a	c
S09V001333		W	338-70-5	Oxalate	ug/g	98.8	<0.0231	0.570	n/a	n/a	n/a	n/a	0.288	n/a	J
S09V001333		W	14797-55-8	Nitrate	ug/g	97.0	0.0219	4.40	n/a	n/a	n/a	n/a	0.260	n/a	Bc
S09V001333		W	14265-44-2	Phosphate	ug/g	97.6	<0.0167	0.634	n/a	n/a	n/a	n/a	0.208	n/a	Jc

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT83
Sample Depth: 56-58

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000175			%WATERA	%WATER-APD	%	n/a	n/a	3.836	n/a	n/a	n/a	n/a	n/a	n/a	
S09V000175			57-12-5	Cyanide	ug/g	108	<0.0370	<5.07	n/a	n/a	n/a	n/a	5.07	n/a	U
S09V000175			13966-00-2	Potassium-40	uCi/g	n/a	n/a	1.91E-05	n/a	n/a	n/a	n/a	8.04E-06	28.59	
S09V000175			10198-40-0	Cobalt-60	uCi/g	99.1	<3.66E-07	<3.96E-07	n/a	n/a	n/a	n/a	3.96E-07	n/a	U
S09V000175			14234-35-6	Antimony-125	uCi/g	n/a	<8.57E-07	<1.13E-06	n/a	n/a	n/a	n/a	1.13E-06	n/a	U
S09V000175			10045-97-3	Cesium-137	uCi/g	104	<5.59E-07	<5.47E-07	n/a	n/a	n/a	n/a	5.47E-07	n/a	U
S09V000175			14683-23-9	Europium-152	uCi/g	n/a	<1.70E-06	<1.97E-06	n/a	n/a	n/a	n/a	1.97E-06	n/a	U
S09V000175			15585-10-1	Europium-154	uCi/g	n/a	<1.19E-06	<1.44E-06	n/a	n/a	n/a	n/a	1.44E-06	n/a	U
S09V000175			14391-16-3	Europium-155	uCi/g	n/a	<9.66E-07	<1.05E-06	n/a	n/a	n/a	n/a	1.05E-06	n/a	U
S09V000175			7439-97-6	Mercury	ug/g	108	<1.00E-04	<0.0110	n/a	n/a	n/a	n/a	0.0110	n/a	U
S09V000175			15046-84-1	Iodine-129	uCi/g	91.4	<2.74E-07	<2.42E-07	n/a	n/a	n/a	n/a	2.42E-07	n/a	U
S09V000175			PH	pH	unitless	n/a	n/a	9.20	n/a	n/a	n/a	n/a	0.0100	n/a	
S09V000175			18496-25-8	Sulfide	ug/g	98.2	<0.180	7.48	n/a	n/a	n/a	n/a	5.56	n/a	J
S09V000183		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	87.1	<77.4	<78.8	n/a	n/a	n/a	75.4	78.8	n/a	U
S09V000183		O	95-50-1	1,2-Dichlorobenzene	ug/kg	n/a	<101	<102	n/a	n/a	n/a	n/a	102	n/a	U
S09V000183		O	106-46-7	1,4-Dichlorobenzene	ug/kg	85.1	<113	<115	n/a	n/a	n/a	71.3	115	n/a	U
S09V000183		O	121-14-2	2,4-Dinitrotoluene	ug/kg	90.9	<38.1	<38.8	n/a	n/a	n/a	91.1	38.8	n/a	U
S09V000183		O	95-95-4	2,4,5-Trichlorophenol	ug/kg	n/a	<44.0	<44.8	n/a	n/a	n/a	n/a	44.8	n/a	U
S09V000183		O	88-06-2	2,4,6-Trichlorophenol	ug/kg	n/a	<49.5	<50.4	n/a	n/a	n/a	n/a	50.4	n/a	U
S09V000183		O	95-48-7	2-Methylphenol	ug/kg	n/a	<57.5	<58.5	n/a	n/a	n/a	n/a	58.5	n/a	U
S09V000183		O	88-75-5	2-Nitrophenol	ug/kg	n/a	<53.7	<54.7	n/a	n/a	n/a	n/a	54.7	n/a	U
S09V000183		O	108-39-4M	Cresol (m & p)	ug/kg	n/a	<51.4	<52.3	n/a	n/a	n/a	n/a	52.3	n/a	U
S09V000183		O	83-32-9	Acenaphthene	ug/kg	97.0	<17.6	<17.9	n/a	n/a	n/a	88.4	17.9	n/a	U
S09V000183		O	56-55-3	Benzo(a)anthracene	ug/kg	n/a	<37.8	<38.5	n/a	n/a	n/a	n/a	38.5	n/a	U
S09V000183		O	205-99-2	Benzo(b)fluoranthene	ug/kg	n/a	<48.9	<49.8	n/a	n/a	n/a	n/a	49.8	n/a	U
S09V000183		O	50-32-8	Benzo(a)pyrene	ug/kg	n/a	<41.2	<41.9	n/a	n/a	n/a	n/a	41.9	n/a	U
S09V000183		O	117-81-7	Bis(2-ethylhexyl) phthalate	ug/kg	n/a	<590	<601	n/a	n/a	n/a	n/a	601	n/a	U
S09V000183		O	207-08-9	Benzo(k)fluoranthene	ug/kg	n/a	<39.1	<39.8	n/a	n/a	n/a	n/a	39.8	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Estimated
B - Found in Blank
X - Comment
U - Less Than Detection Limit
a - LCS Outside Range
Y - Comment
c - RPD Outside Range
b - MS/MSD Outside Range
e - SERDIL Outside Range

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT83
Sample Depth: 56-58

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4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S09V000199~~		~~A~~	~~13968-55-3~~	~~Uranium-233~~	~~ug/g~~	~~n/a~~	~~<2.00E-07~~	~~1.21E-04~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~3.75E-05~~	~~n/a~~	~~J~~
S09V000199		A	13966-29-5	Uranium-234	ug/g	n/a	<1.00E-07	<1.87E-05	n/a	n/a	n/a	n/a	1.87E-05	n/a	U
S09V000199		A	15117-96-1	Uranium-235	ug/g	96.5	5.35E-07	3.03E-03	n/a	n/a	n/a	n/a	4.12E-05	n/a	
S09V000199		A	13982-70-2	Uranium-236	ug/g	n/a	<8.00E-08	<1.50E-05	n/a	n/a	n/a	n/a	1.50E-05	n/a	U
S09V000199		A	13994-20-2	Neptunium-237	ug/g	107	<1.06E-06	7.19E-04	n/a	n/a	n/a	n/a	1.99E-04	n/a	J
S09V000199		A	U-238	Uranium-238	ug/g	102	1.34E-04	0.433	n/a	n/a	n/a	n/a	2.06E-03	n/a	B
S09V000199		A	7440-22-4	Silver	ug/g	99.6	<8.00E-04	<0.150	n/a	n/a	n/a	n/a	0.150	n/a	U
S09V000199		A	7440-38-2	Arsenic	ug/g	103	<8.40E-04	2.65	n/a	n/a	n/a	n/a	0.157	n/a	
S09V000199		A	7440-48-4	Cobalt	ug/g	104	<4.00E-04	4.05	n/a	n/a	n/a	n/a	0.0750	n/a	
S09V000199		A	7440-43-9	Cadmium	ug/g	103	<6.00E-05	0.0637	n/a	n/a	n/a	n/a	0.0112	n/a	J
S09V000199		A	7439-92-1	Lead	ug/g	102	<6.20E-04	4.03	n/a	n/a	n/a	n/a	0.116	n/a	
S09V000199		A	7440-36-0	Antimony	ug/g	109	<8.80E-04	<0.165	n/a	n/a	n/a	n/a	0.165	n/a	U
S09V000199		A	7782-49-2	Selenium	ug/g	107	2.00E-03	<0.229	n/a	n/a	n/a	n/a	0.229	n/a	U
S09V000199		A	7440-28-0	Thallium	ug/g	118	5.12E-04	0.0899	n/a	n/a	n/a	n/a	0.0112	n/a	BJ
S09V000199		A	7440-62-2	Vanadium	ug/g	95.2	<4.80E-04	31.5	n/a	n/a	n/a	n/a	0.900	n/a	
S09V000199		A	7440-02-0	Nickel	ug/g	98.2	<1.20E-03	12.6	n/a	n/a	n/a	n/a	0.225	n/a	
S09V000207		E	CM-243/244	Curium-243/244	uCi/g	n/a	<4.01E-07	<4.39E-07	n/a	n/a	n/a	n/a	4.39E-07	n/a	U
S09V000207		E	14596-10-2	Americium-241	uCi/g	102	<1.00E-06	<1.10E-06	n/a	n/a	n/a	n/a	1.10E-06	n/a	U
S09V000207		E	15510-73-3	Curium-242	uCi/g	n/a	<4.01E-07	<4.39E-07	n/a	n/a	n/a	n/a	4.39E-07	n/a	U
S09V000207		E	13981-37-8	Nickel-63	uCi/g	85.5	<6.14E-05	<8.50E-05	n/a	n/a	n/a	n/a	8.50E-05	n/a	U
S09V000207		E	PU-239/240	Plutonium-239/240	uCi/g	96.1	<7.24E-07	<6.99E-07	n/a	n/a	n/a	n/a	6.99E-07	n/a	U
S09V000207		E	13981-16-3	Plutonium-238	uCi/g	n/a	<7.24E-07	<6.99E-07	n/a	n/a	n/a	n/a	6.99E-07	n/a	U
S09V000207		E	15758-45-9	Selenium-79	uCi/g	n/a	<3.20E-06	2.11E-06	n/a	n/a	n/a	n/a	2.11E-06	-716.52	J
~~S09V000207~~		~~E~~	~~SR-89/90~~	~~Strontium-89/90~~	~~uCi/g~~	~~99.9~~	~~<1.56E-06~~	~~4.92E-06~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~2.06E-06~~	~~68.59~~	~~J~~
S09V000223		S	14798-03-9	Ammonium	ug/g	100	<0.0120	1.45	n/a	n/a	n/a	n/a	0.480	n/a	J
S09V001334		W	16984-48-8	Fluoride	ug/g	97.1	<1.61E-03	1.08	n/a	n/a	n/a	n/a	0.0198	n/a	c
S09V001334		W	666-14-8	Glycolate	ug/g	99.8	<9.37E-03	<0.115	n/a	n/a	n/a	n/a	0.115	n/a	U
S09V001334		W	71-50-1	Acetate	ug/g	103	<6.04E-03	0.246	n/a	n/a	n/a	n/a	0.0744	n/a	Jc

NA = Not Analyzed, ND = Not Detected

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X - Comment
U - Less Than Detection Limit
a - LCS Outside Range
Y - Comment
c - RPD Outside Range
b - MS/MSD Outside Range
e - SERDIL Outside Range

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT83
Sample Depth: 56-58

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4-28-2010

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V001334		W	12311-97-6	Formate		ug/g	101	<4.67E-03	0.482	n/a	n/a	n/a	n/a	0.0575	n/a	J
S09V001334		W	16887-00-6	Chloride		ug/g	97.1	<9.98E-03	4.30	n/a	n/a	n/a	n/a	0.123	n/a	
S09V001334		W	14797-65-0	Nitrite	UJ	ug/g	102	0.160	3.79	n/a	n/a	n/a	n/a	0.236	n/a	B
S09V001334		W	14808-79-8	Sulfate		ug/g	99.7	<0.0187	45.0	n/a	n/a	n/a	n/a	0.230	n/a	c
S09V001334		W	338-70-5	Oxalate		ug/g	98.8	<0.0231	1.64	n/a	n/a	n/a	n/a	0.285	n/a	J
S09V001334		W	14797-55-8	Nitrate		ug/g	97.0	0.0219	7.71	n/a	n/a	n/a	n/a	0.256	n/a	c
S09V001334		W	14265-44-2	Phosphate		ug/g	97.6	<0.0167	0.476	n/a	n/a	n/a	n/a	0.206	n/a	Jc
~~S09V001554~~		~~A~~	~~14133-76-7~~	~~Technetium-99~~		~~ug/g~~	~~96.4~~	~~<6.00E-06~~	~~<1.06E-03~~	~~<1.08E-03~~	~~n/a~~	~~n/a~~	~~100~~	~~1.06E-03~~	~~n/a~~	~~U~~
S09V001554		A	SN-117	Tin-117		ug/g	88.7	<2.20E-04	<0.0390	<0.0396	n/a	n/a	102	0.0390	n/a	U
~~S09V001554~~		~~A~~	~~13982-50-5~~	~~Tin-126~~		~~ug/g~~	~~n/a~~	~~<4.00E-06~~	~~<7.09E-04~~	~~<7.20E-04~~	~~n/a~~	~~n/a~~	~~n/a~~	~~7.09E-04~~	~~n/a~~	~~U~~

NA = Not Analyzed, ND = Not Detected

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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

222-S LABORATORY

FINAL ANALYTICAL REPORT FOR SAMPLES FROM WASTE MANAGEMENT AREA C FOR CORE HOLES: C6392, C6400, C6402 C6404, AND C6406 IN SUPPORT OF RCRA SOIL CHARATERICZATION

1.0 INTRODUCTION

This final report presents the results for the samples taken from Waste Management Area C between March 11th and June 15th, 2009. The samples were analyzed in accordance with RPP-PLAN-40564, *Field Sampling and Analysis Plan for Sites P and L at Waste Management Area C,* (FSAP); RPP-PLAN 3877, *Sampling and Analysis Plan for Phase 2 Characterization of Vadose Zone Soil in Waste Management Area C* (SAP); ATL-MP-1011, *ATL Quality Assurance Project Plan for 222-S Laboratory* (QAPP); *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* (SW-846); and the additional guidance given by the client's point of contact.

Because the 222-S Laboratory Facility was designed to analyze hazardous and complex tank waste samples, most SW-846 test methods performed at the 222-S Laboratory contain deviations that are listed in an appendix in the analytical procedures. All known deviations or variances from SW-846 are documented in this narrative. The following attachments are included in this report.

Attachment 1	Data Summary Report
Attachment 2	Sample Breakdown Diagrams
Attachment 3	Holding Time Report
Attachment 4	Tentatively Identified Compounds (TIC) for Organic Analyses
Attachment 5	Correspondence
Attachment 6	Receipt Paperwork

This report also contains the following appendices.

Appendix A	Geologic Report
Appendix B	Analytical Raw Data

2.0 SAMPLE RECEIPT AND BREAKDOWN

2.1.1 Sample Receipt

A total of 25 core intervals from five core holes along with two equipment blanks and three trip blanks were received by 222-S beginning March 11th and ending June 15th, 2009. The samples were delivered in a cooler with ice or, in the case of the volatile organic samples, in a freezer. The temperature of a randomly selected sample from each cooler or freezer was measured and recorded on the chain of custody. Laboratory sample receipt personnel failed to record the receipt temperature for four core intervals:

- C6404 - 6 ft. to 8 ft
- C6404 - 10 ft. to 12 ft.
- C6406 - 54.5 ft. to 56.5 ft.
- C6406 - 59 ft. to 61 ft.

This was caused partially by the confusion from the delivery of multiple core projects at the same time and failure of laboratory personnel to follow the sample receipt procedure. These issues have been addressed and corrective measures have been taken. Many of the samples received were outside the required temperature ranges. This was due to the fact that these samples had not been in the cooler or freezer long enough to reach equilibrium. This can be verified, in most cases, by comparing the receipt time with the sampling time. The cooler and freezer walls were sometimes measured and were within the required temperature range. This temperature was not generally recorded since this measurement is not called out in the procedure. For future projects, the temperature of a temperature blank or the side of the cooler or freezer will be measured and recorded as described in SW-846.

2.1.2 Sample Breakdown

The laboratory received each core interval as a set of volatile organic analysis (VOA) samples and three liner samples, when complete core recovery was obtained. Nine core intervals had less than full recovery (see Attachment 2 and Attachment 6). The liner samples from each core interval were extruded, described, and composited by the Washington River Protection Solutions, Inc. (WRPS) geologist. The geologist's report is included in Appendix A. Provided sufficient samples existed, the composite for each core interval was analyzed as described in the SAP and FSAP. WRPS shipped a subsample of each composite to an offsite laboratory, when sufficient sample was available. The results of these analyses are not discussed in this report.

The 10-ft. to 12-ft. interval from core hole C6404 consisted of only VOA vial samples. No core liners were received for this interval. A limited suite for radiochemical analyses was performed using the methanol-preserved VOA sample. No other analyses were performed.

3.0 ANALYTICAL RESULTS SUMMARY

The Data Summary Report (Attachment 1) presents the final analytical results for those analytes requested in the SAP and FSAP. Secondary analytes are only reported if detected. The TIC from gas chromatography-mass spectrometry (GC/MS) analysis of semivolatile organic compounds (SVOC) is presented in Attachment 4. In addition to the required isotopes, all isotopes with positive gamma energy analysis (GEA) results were reported.

The "Det Limit" column in Attachment 1 contains the method detection limit (MDL) for non-radionuclide analyses, or the minimum detectable activity for radionuclides.

In Attachment 1 the column labeled "A#" indicates the aliquot class or the method used for sample preparation before analysis. For solid samples, the aliquot classes are defined as follows:

"A" indicates samples that were prepared by SW846-3050B.

"E" indicates samples that were prepared by a strong acid digest.

"O" indicates samples that were extracted for organic analysis.

"S" indicates samples that were prepared by a distillation.

"W" indicates samples that were prepared by a water digest.

Samples without a letter identifier in the "A#" column were analyzed directly with no separate preparation or with sample preparation performed as a part of the procedure steps.

The "Qual Flags" column in Attachment 1 contains data qualifier flags that are defined as follows:

"B" is used to indicate that the analyte was detected in the method or preparation blank and in the sample, and the result for the blank was greater than 5% of the reported sample result.

"J" indicates that the reported result should be considered an estimate because it is below the quantitation limit. The "J" flag is applied to sample concentrations that are greater than the MDL but less than the quantitation limit or sample activity with a counting uncertainty greater than 30%.

"N" indicates a TIC which has been named.

"Q" indicates that the result is qualitative only.

"T" indicated a TIC.

"U" indicates that the reported result is less than the calculated detection limit.

"Y" indicates that the percent difference (%D) for the continuing calibration verification standard (CCV) was greater than -20%.

"X" indicates that the initial calibration verification (ICV) standard was outside the range specified in the QAPP.

"a" indicates that the laboratory control sample (LCS) was outside of the specified range in the QAPP or SAP.

"b" indicates that the matrix spike (MS) was outside of the specified range in the QAPP or SAP.

"c" indicates that the relative percent difference (RPD) between the sample and the duplicate is greater than 30%.

"e" indicates that the %D between the sample result and the serial dilution exceeded 10%.

"f" indicates that the MS failed and the serial dilution passed.

Manual calculations using rounded results from the Data Summary Report or result calculation forms may differ slightly from the actual results derived from the raw data.

3.1 SAMPLE DIGESTIONS

3.1.1 Radiochemistry Strong Acid Digestion

Strong acid digestions with a hot plate for the heat source were performed using a mixture of concentrated nitric and hydrochloric acids. For each digest, approximately 10 grams of sample were digested, filtered, and diluted to a final volume of 100 or 125 mL. This digestion was used for all radiochemical analyses except tritium, ^{14}C, and ^{129}I. This digestion is a leach of the acid soluble species only.

3.1.2 SW846-3050B - Acid Digestion-Heating Block

This acid digestion follows SW846-3050B using a heating block and nitric and hydrochloric acids. Approximately 0.25 g of sample was digested. All heating-block digestions were filtered and diluted to a final volume of 50 mL. In soil, this digestion is a leach of the acid soluble species only. This digestion was used for all inductively coupled plasma/mass spectrometry (ICP/MS) and inductively coupled plasma/atomic emission spectroscopy (ICP/AES) analyses except for ^{99}Tc and isotopic tin (^{117}Sn and ^{126}Sn) analysis. The digestion is modified for the ^{99}Tc analysis by using only nitric acid. This is done to eliminate the possibility of the formation a zinc-chlorine ion pair of mass 99. The laboratory believes this ion, when present, is responsible for low level false positives.

3.1.3 Water Digestion

A water digestion or leach was prepared for the anions by ion chromatography, ^{14}C, and tritium analyses using approximately 0.25 to 4 g of sample diluted to 25 mL. Sonification was used, and the leachate was then filtered. In soil, this digestion is a leach of the water soluble species only.

3.2 INORGANIC ANALYSES

3.2.1 Cyanide

The cyanide analysis was performed on direct subsamples of the liner composite samples. All analyses met the SW846 holding time of 14 days except for sample B1YT71 (S09V000171). The holding time was missed due to the need for reanalysis, which was caused by quality control (QC) failures during the first analysis. The sample was initially analyzed within the holding time, but the final analysis, which passed all QC requirements, was 1 day past the holding. The sample result was the same for both analyses. The laboratory believes there was no effect on the final result from this missed holding time. There was no required reporting limit in the SAP for cyanide. The target detection limit was 0.5 µg/g, which is at least an order of magnitude lower than the current laboratory method (lachet micro-distillation) can reach.

3.2.2 Sulfide

Sulfide analysis was performed on direct subsamples of the liner composite samples. All analysis met the SW846 holding time of 7 days except for samples B1YT92 (S09V000382), B1YTH1

(S09V000626), and B1YTH3 (S09V000642). The first holding time was missed due to the lack of analytical personnel resources. The other two missed holding times were caused by the inability of the analytical personnel to access the laboratory due the lack of facility support, which is beyond the control of analytical personnel and their management. There was no required reporting limit in the SAP for sulfide. The target detection limit was 5 µg/g. Three sample results had adjusted MDLs of 5 µg/g. The rest were between 6 µg/g and 8 µg/g.

Batches 13951, 13952, 14332, 14517, 14598, and 14778: There were no notable issues with these batches and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 14184: The RPD between the sample and duplicate exceeded the required 30% in the SAP at 36%. Since the sample result was below the quantitation limit, this criterion is not applicable. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

Batch 14354: The RPD between the sample and duplicate exceeded the required 30% in the SAP at 32%. Since the sample result was below the quantitation limit, this criterion is not applicable. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

3.2.3 pH Analysis

The pH analysis was performed on the liner composite samples. These analyses met all QC requirements in the FSAP, SAP, and QAPP. The FSAP lists a pH holding time requirement of "as soon as possible." All pH measurements were taken immediately after the water leach was performed, but the sampling to analysis date varied from 2 to 20 days (see Attachment 3). There is no correlation between pH results and days to analysis, and the results fall within an expected range for alkaline soils. This indicates that the large variation in time has no apparent effect on the results. However, the client's expectation was that analysis would be performed within 14 days. For future projects, the analysis will be performed in less time.

3.2.4 Mercury

Analysis for mercury was performed on digested subsamples of the liner composite samples. All results met the QC requirements in the FSAP, SAP, and QAPP. All analyses met the holding time of 28 days, except for samples B1YT80 (S09V000174), B1YT83 (S09V000175), and B1YT98 (S09V000392). This was apparently the result of an oversight error by the analytical staff. The laboratory is working on improvements in holding time expiration tracking.

This analysis met the required and target detection limits except for three samples: B1YT71 (S09V000171), B1YT74 (S09V000172), and B1YT77 (S09V000173). These sample results met the target detection limit of 0.2 mg/Kg but were twice the required detection limit of 0.01 mg/Kg.

3.2.5 Ion Chromatography - Ammonium

Analysis for NH_4^+ was performed using a distillation preparation of the liner composite samples. The SAP lists an administrative holding time of 7 days. The laboratory believes that after

distillation and preservation, the holding is 28 days based on EPA drinking water and waste water holding times for preserved samples. There is no regulatory holding time limit promulgated for ammonium in soil. Four samples were analyzed outside of the administrative 7-day holding time: B1YT71 (S09V000219), B1YT92 (S09V000425), B1YTH1 (S09V000632), and B1YTH3 (S09V000648). This was apparently the result of an oversight error by the analytical staff. The laboratory is working on improvements in holding time expiration tracking. These analyses met the target detection limit listed in the SAP. There was no required reporting limit in the SAP or FSAP for ammonium.

Batches 14073, 14226, 14237, and 14498: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 14301: The preparation blank had a result above the MDL but below the quantitation limit. Since the blank result was more than 5% of the sample, a "B" flag has been applied to the associated results. Since both the sample and the blank results were below the quantitation limit, reanalysis was not required. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

Batch 14710: Samples B1YTF4 (S09V000599) and B1YTF4 (S09V000615) were analyzed with an LCS and MS, which used a standard that was 2 days past the expiration date. Since the recoveries of the expired standards were within 95% to 100% of the expected value, and the analytical batch contained other valid standards with acceptable recoveries, it is the laboratory's opinion that the data quality was not affected. Therefore, no reanalysis was requested. One of the two preparation blanks contained in this analytical batch had an ammonium result slightly above the MDL. Since the associated samples were non-detect, there is no effect on the data. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

Batch 14840: The preparation blank had a result above the MDL but below the quantitation limit. Since the blank result was more than 5% of the sample results, a "B" flag has been applied to the associated results. Since the blank result was below the quantitation limit, reanalysis was not required. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

Batch 14659: The preparation blank had a result above the MDL but below the quantitation limit. Since the blank result was more than 5% of the sample results, a "B" flag has been applied to the associated results. Since both the sample and the blank results were below the quantitation limit, reanalysis was not required. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

3.2.6 Ion Chromatography – Anions and Small Organic Acids

Ion chromatography analysis was performed on a water digest of subsamples from all soil composite samples except for B20XV5. This was due to insufficient sample volume. This sample was the 6-ft. to 8-ft. interval from core hole C6402, which was a retake of the same interval in core hole C6404. The laboratory met all the required and target detection limits. All analyses were within the applicable holding time. All sample spikes used in this analysis are post digestion spikes. Current laboratory procedures and practice were developed for the analysis of concentrated waste, which typically does not include the use of predigestion spikes for this

analysis. The laboratory will change to predigestion spike for future projects. In general, these samples experienced multiple RPD failures in every batch. All samples were reanalyzed and little improvement was seen. Other analyses also experienced high RPDs. The exact cause of the IC failures is unknown at this time, but it is matrix related. The "c" has been applied to all samples in the batch, not just the sample used for the duplicate analysis.

Batch 16700: Nitrite and nitrate were present in the preparation blank at levels below the quantitation limit; therefore, reanalysis was not required. Sample results have been flagged with "B" when appropriate. The RPD for formate and oxalate exceeded the required 30%. However, since the results for these analytes were below the quantitation limit, the criterion does not apply. The RPD for fluoride, acetate, sulfate, nitrate, and phosphate exceeded the 30% requirement, and results were all above the quantitation limit. The sample results have been flagged with a "c."

Batch 16701: The preparation blank result for chloride was above the MDL but less than the quantitation limit. Therefore, the data quality was not affected and reanalysis was not required. The samples were "B" flagged as appropriate. The closing continuing calibration blank (CCB) result for formate was above the MDL but less than the quantitation limit. Therefore, the data quality was not affected and reanalysis was not required. The samples were "B" flagged as appropriate. The RPD for nitrite and oxalate exceeded the required 30%. However, since the results for these analytes were below the quantitation limit, the criterion does not apply. The RPD for sulfate, nitrate, and chloride exceeded the 30% requirement, and results were all above the quantitation limit. The sample results have been flagged with a "c."

Batch 16744: The RPD for acetate exceeded the required 30%. Since the result for this analyte was below the quantitation limit, the criterion does not apply. The RPD for nitrite exceeded the 30% requirement, and all results were above the quantitation limit. The sample results have been flagged with a "c."

Batch 17027: The RPD for oxalate and formate exceeded the required 30%. Since the result for these analytes were below the quantitation limit, the criterion does not apply. The RPD for acetate, nitrate, nitrite, and sulfate exceeded the 30% requirement, and results were all above the quantitation limit. The sample results have been flagged with a "c."

3.2.7 Inductively Coupled Plasma/Atomic Emission Spectroscopy

The ICP/AES analysis was performed on an acid-digest (SW846-3050B) of all liner composite samples. In general, the ICP/AES analysis experienced repeated failures for the duplicate RPDs, serial dilutions, and matrix spike recoveries. The laboratory believes these failures are due to interferences from high levels of iron and aluminum, and sample inhomogeneity. This is supported by the fact that there were no post digestion spike failures. The interference from the iron and aluminum appeared to cause signal suppression in most cases. The impact of this interference could be reduced by reanalyzing the samples using smaller aliquots or greater dilution, but this would cause some primary elements to be reported as estimated or non-detected above the required detection limits. This was discussed with the client, who agreed that reanalysis would not improve the overall analytical results (see Attachment 5). Additionally, it was noted that some of the secondary analytes experienced LCS failures and that reanalysis was not required for secondary elements. In particular, the digestion method used, which was an acid

leach, does not produce consistent results for silicon. The amount of silicon leached from a highly siliceous material, like soil, is not consistent when using an acid leach. Also, the LCS recoveries are somewhat variable and may be related to the concentration and types of acid used. Silicon is not listed with other elements in SW846-3050B, section 1.1, under "Scope and Application" for the method.

The ICP/AES analysis was unable to obtain the required detection limit for antimony, arsenic, cadmium, lead, nickel, selenium, silver, thallium, and vanadium. These elements have been reported from separate ICP/MS analyses. Additionally, some chromium and cobalt results were from these same ICP/MS analyses. Total uranium has been reported by the ICP/AES analysis but did not meet the required detection limits in the FSAP. Since the isotopic uranium analysis by ICP/MS met the required detection limit for ^{238}U, the overall data usability was not affected. For all other metals reported by ICP/AES, all target and required detection limits were met or the results were above the quantitation limit, with the exception of one sample. Sample B1YT71 from core C6392 failed to meet the required detection limit for molybdenum and the target detection limits for beryllium, copper, and molybdenum.

Batch 15041: The low level standard (LLS) for potassium failed low at 69%. This indicates that results near the LLS could be biased low. Since all potassium results were near the mid-range of the calibration, the data was not affected by the low LLS recovery. The MS recoveries for aluminum, calcium, and iron failed to meet the FSAP criterion. Since the sample concentrations of these analytes exceeded four times the spike level, the MS recovery criterion does not apply. The MS recovery for silicon exceeded the ±25% criterion in the SAP and FSAP at 311%. The laboratory believes that the failure is due to the inconsistent leaching of silicon discussed previously. The associated sample results have been flagged with a "b."

Batch 16002: The MS recoveries for aluminum, calcium, iron, and magnesium failed to meet the FSAP criterion. Since the sample concentrations of these analytes exceeded four times the spike level, the MS recovery criterion does not apply. The MS recovery for sodium, tantalum, titanium, and potassium exceeded the ±25% criterion in the SAP and FSAP, and the results have been flagged with a "b." The laboratory believes this is a result of matrix interference due to the high levels of other elements in these samples and sample inhomogeneity. This was discussed with the client (see Attachment 5), and reanalysis was deemed unnecessary. The MS recovery for tantalum was less than 1%. The laboratory believes this was due to an issue with the standard. Since tantalum is not a required analyte, reanalysis was not required. Zinc was detected in the preparation blank above the MDL but less than the quantitation limit. Since the result was less than 5% of the sample result, the data quality was not affected.

Batch 16229: Calcium was present in the preparation blank but was less than 5% of the lowest sample result. The MS recoveries for aluminum, calcium, iron, silicon, titanium, and magnesium failed to meet the FSAP criterion. Since the sample concentrations of these analytes exceeded four times the spike level, the MS recovery criterion does not apply. The serial dilution for manganese and sodium failed the 10% requirement at 19% and 12%, respectively. The results have been flagged with an "e." This could indicate that the parent sample result is biased low due to matrix interference.

Batch 16778: The ICV standard recovery for rubidium was outside the 90% to 110% criterion at 112%. The sample results have been flagged with an "X." Reanalysis was not required since rubidium is a secondary analyte. The results for palladium and rubidium in the CCBs and initial calibration standard (ICB) were above MDL but below the quantitation limits. A "B" flag was applied since the blank result was greater than 5% of the sample results. Reanalysis was not required because all results (blank and samples) were below the quantitation limit. The LLS for rubidium, potassium, and palladium exceeded the 130% recovery criterion at 237%, 134%, and 137%, respectively. The palladium and rubidium results should be considered biased high. Since these are secondary analytes, reanalysis is not required. All potassium results are above the ICV and CCV level. Therefore, the slightly high recovery of the LLS does not impact the data quality. The LCS for silicon failed low at 52%. Silicon results should be considered biased low and are flagged with an "a." The preparation blank results for calcium and zinc were above the MDL but below the quantitation limit and less than 5% of the sample result. Therefore, the sample results were not affected. The duplicate RPD for praseodymium exceeded the 30% requirement in the SAP and FSAP. Since the sample result was below the quantitation limit, this criterion does not apply. The MS recoveries for aluminum, calcium, iron, and magnesium were outside the ±25% requirement in the SAPs. However, since the sample results for these elements were more than four times the spike level, the criterion does not apply. The MS recoveries for sodium, potassium, rubidium, silicon, and titanium were outside the 75% to 125% requirement, so all associated sample results have been flagged with a "b." The laboratory believes this is a result of matrix interference due to the high levels of other elements in these samples. The %D for the serial dilutions exceeded 10% for magnesium, phosphorous, silicon, and titanium. The laboratory believes this is a result of matrix interference due to the high levels of other elements in these samples. An "e" flag has been applied to these results. Since the post digestion spike passed, the serial dilution was not required, nor was reanalysis. However, these results do indicate matrix interference.

Batch 16822: The mid batch CCB result for praseodymium was above the MDL but below the quantitation limit. All associated sample results were less than 20 times the CCB result and were flagged with a "B." Since the blank and sample results were below the quantitation limit, reanalysis was not required. The initial calibration blank result for iron was above the MDL but less than the quantitation limit and much less than 5% of the sample results; therefore, the data quality was not affected. The LCS failed low for silicon and tungsten; since these were secondary analytes, reanalysis was not required. The affected sample results have been flagged with an "a." The duplicate RPD for cerium, cobalt, europium, sulfur, and praseodymium exceeded the required 30%. Since the results were below the quantitation limit, this criterion does apply. The duplicate RPD for aluminum, calcium, copper, iron, magnesium, manganese, sodium, neodymium, phosphorous, strontium, titanium, yttrium, and zinc exceeded the 30% criterion, and the associated samples have been flagged with "c." The laboratory believes that this particular failure is due to sample inhomogeneity. The serial dilution for silicon, magnesium, calcium, iron, and manganese exceeded the required 10% criterion. Since the post digestion spike passed, the serial dilution was not required, nor was reanalysis. However, these results do indicate matrix interference. The MS recovery for aluminum, calcium, iron, and magnesium exceeded the 30% requirement in the SAP and FSAP. Since the sample results were more than four times the spike concentration, this criterion does not apply. The MS recovery for phosphorous, potassium, sodium, and tungsten exceeded the 30% requirement in the SAP and FSAP. The laboratory believes this is a result of matrix interference due to the high levels of

other elements in these samples and sample inhomogeneity. This was discussed with the client (see Attachment 5), and reanalysis was deemed unnecessary. The MS recovery for cerium was less than 1%. The laboratory believes this was due to an issue with the standard. Since cerium is not a required analyte, reanalysis was not required.

3.2.8 Inductively Coupled Plasma/Mass Spectroscopy

The ICP/MS actinide analysis was performed on the SW846-3050 acid digestion of all liner composite samples. The ICP/MS ^{126}Sn and ^{99}Tc analysis was performed on the same digest, without the addition of the hydrochloric acid. Hydrochloric acid is not used for ^{99}Tc analysis because of the potential formation of a ZnCl ion pair with mass 99.

Direct calibration, where a standard containing the isotope and element of interest is used to calibrate the response of the isotope, is the most accurate type of calibration. Standard material is not available for all the isotopes of interest. Those isotopes without available standards are calibrated using the instrument's mass-response curve that is generated by using the intensity/concentration relationship for the available isotope standards. While the isotope results calibrated in this manner are designated "semi-quantitative" in the procedure, the differences in instrument response along the curve are generally small enough across the actinide mass range such that the results generated might be expected to be within similar uncertainties associated with quantitative results (i.e., those obtained directly against an isotope-specific standard).

A similar approach is used to evaluate the recoveries of calibration checks, standards, and spikes. Just as all of the elemental isotopes of interest are not available for calibration, they are also not available for the various QC samples. Because the chemical properties of an element are the same for all of its isotopes, one elemental isotope can be used as a measure for other isotopes of interest. For example, by measuring the recovery of ^{238}U in the various QC samples, the accuracy of the other uranium isotopes also can be evaluated. Table 1 lists the isotopes used for standards and spike samples for ICP-MS analyses. A response curve is derived using the slopes of the calibration lines of the available isotope standards. Slopes for the isotopes without available standards are then derived from the response curve, and results are calculated using the derived slopes.

Table 1. Inductively Coupled Plasma-Mass Spectroscopy Standards and Spikes.

Standard Type	Analytes Analyzed
Initial calibration verification (nondigested)	^{232}Th, ^{235}U, ^{238}U, ^{237}Np, ^{99}Tc, ^{117}Sn
Acid digest standard (laboratory control standard)	^{232}Th, ^{235}U, ^{238}U, ^{237}Np, ^{99}Tc, ^{117}Sn
Predigest spike (MS)	^{232}Th, ^{235}U, ^{238}U, ^{237}Np, ^{99}Tc, ^{117}Sn
Post-digest spike	^{232}Th, ^{235}U, ^{238}U, ^{237}Np, ^{99}Tc, ^{117}Sn
No standard or spike of either type	^{126}Sn, ^{230}Th, ^{233}U, ^{234}U, ^{236}U,

3.2.8.1 Technetium-99 and Tin-126

The required detection limit listed in the SAP for ^{99}Tc was met. The target detection limit for ^{99}Tc was not met. There were no required or target detection limits for ^{126}Sn listed in the SAP. The FSAP lists a holding time of isotopic analytes as 6 months. All samples were initially

analyzed within the holding time. However, due to a required reanalysis, nine samples exceeded the holding time. The reanalysis was delayed by instrument repair, failure of the chemist review to recognize the need for reanalysis, and delayed third level review by the project manager. Additionally, Washington River Projection System's management set the analytical priority of C Farm analysis behind other projects. Since the analytical results did not significantly change from the initial to the final analysis, the laboratory does not believe these exceedances affected the final results.

Batches 16639, 16734, and 16982: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 16341: The preparation blank contained ^{117}Sn below the quantitation limit. However, all samples in the batch were nondetect for ^{117}Sn, so the data was not affected. The LCS for ^{117}Sn exceeded the required 120% at 141% and the associated results have been flagged with an "a." This could indicate a high bias for these results. However, since the results for all samples were below the MDL, the data was not affected. The MS for ^{117}Sn met the recovery requirements, demonstrating preparation batch accuracy to some degree.

Batch 16865: The mid-run CCB contained ^{99}Tc below the quantitation limit. All field samples in this batch demonstrated results below the MDL; therefore, the data was not affected.

Batch 16970: All blanks contained a low level of ^{126}Sn, and the preparation blank contained a low level of ^{126}Sn and ^{99}Tc. Since neither ^{126}Sn or ^{99}Tc were detected in the samples, the data quality was not affected and reanalysis was not required.

3.2.8.2 Actinides

The required and target detection limits were met for all isotopes and in all samples. The FSAP lists the holding time for isotopic analytes as 6 months. All samples were initially analyzed within the holding time. However, due to a required reanalysis, 11 samples exceeded the holding time. The reanalysis was delayed by instrument repair, failure of the chemist review to recognize the need for reanalysis, and a delayed third level review by the project manager. Additionally, Washington River Projection System's management set the analytical priority of C Farm analysis behind other projects. Since the analytical results did not significantly change from the initial to the final analysis, the laboratory does not believe these exceedances affected the final results.

Batch 15672: Neptunium-237 was detected in the mid-run CCB below the quantitation level. All affected samples have a similar result and have been flagged with a "B." Since all ^{237}Np results were below the quantitation level, reanalysis is not required. All blanks (CCB and preparation blanks) contained ^{232}Th below the quantitation level and were less than 5% of the sample results. Therefore, the results were not affected and reanalysis was not required. The LLS for ^{235}U was recovered above the 130% requirement at 131%. Since the lowest sample result was more than 10 times the LLS level, the results were not affected. The RPD for ^{237}Np exceeded the 30% requirement at 47%. Since the results were below the quantitation limit, this criterion does not apply. The closing CCB result for ^{238}U was above the MDL but below the quantitation limit and less than 5% of the sample results; therefore, reanalysis was not required.

Batch 16171: The preparation blank result for ^{235}U was below the quantitation limit but less than 5% of the lowest sample result. Therefore, no reanalysis was required and the data quality was

not affected. The preparation blank result for ^{232}Th was above the quantitation limit but less than 5% for the sample result; therefore, reanalysis was not required and the data quality was not affected. The preparation blank contained ^{238}U above the quantitation level and was greater than 5% of three of the sample results. However, since the sample results were below the TDL and above the quantitation limit, the client gave permission to report the data with a "B" qualifier (see Attachment 5). The ending LLS for ^{235}U exceeded the 130% requirement at 133%. This could indicate a high bias for ^{235}U results near the LLS level. However, the lowest sample result for ^{235}U was approximately 80 times the LLS level and the data quality was not affected.

Batch 16595: The preparation blank contained ^{238}U and ^{235}U above the quantitation level and was greater than 5% of all of the sample results in this batch. Since the sample results were above the quantitation level but below the TDL, the client gave permission to report the data with a "B" qualifier and narration of the issue (see Attachment 5). The preparation blank result for ^{233}U was below the quantitation limit and greater than 5% of the sample results. Since both the sample results and the blank result were below the quantitation level, reanalysis was not required. The associated results have been flagged with a "B." The preparation blank result for ^{232}Th was above the quantitation limit but less than 5% of the sample results; therefore, reanalysis was not required and the data quality was not affected. The ICB and CCBs contained ^{232}Th below the quantitation limit, which had no effect on the data quality. The RPD for ^{234}U exceeded the 30% requirement at 38%; since the sample result was below the quantitation limit, this criterion does not apply.

Batch 17023: The closing LLS exceeded the 130% criterion for ^{232}Th at 164%. However, all results were near the CCV level, which is 200 times the LLS. Therefore, the data quality was not affected. The RPD for ^{234}U and ^{238}U exceeded the 30% requirement; since the sample result was below the quantitation limit, this criterion does not apply.

Batch 17024: The first CCB contained ^{235}U at a level equal to the MDL; since it was below the quantitation limit, the data quality was not affected. The initial LLS exceeded the 130% for ^{232}Th criterion at 164%. However, all results were near the CCV, which is 200 times the LLS, and therefore, there was no effect on the data quality. The RPD for ^{234}U exceeded the 30% requirement; since the sample result was below the quantitation limit, this criterion does not apply.

3.2.8.3 Trace Metals

Antimony, arsenic, cadmium, lead, nickel, selenium, silver, thallium, and vanadium were analyzed by ICP/MS to obtain the required detection limits in the SAP. Additionally, some chromium and cobalt results were used from the ICP/MS analyses. Except for the required detection limit for selenium, all target and required detection limits were met or the sample results were above the quantitation limit and the sample detection limit criteria do not apply. The target detection limit for selenium was approximately an order of magnitude below the detection limit obtained by using ICP/MS. The laboratory does not anticipate reaching this detection limit for future projects. The FSAP lists the holding time of isotopic analytes as 6 months. All samples were initially analyzed within the holding time using ICP/AES. However, due to a required reanalysis, 23 samples exceeded this holding time. The reanalysis was delayed by instrument repair, failure of the chemist review to recognize the need for reanalysis, and a delayed third level review by the project manager. Additionally, Washington River Projection System's management set the analytical priority of C Farm analysis behind other projects. Since the

analytes with results that could be compared (chromium, cobalt, nickel, and vanadium) did not significantly change from the initial ICP/AES to the final ICP/MS analysis, the laboratory does not believe these exceedances affected the final results.

SW846-6020A requires that an interference check standard be used to determine possible isobaric or polyatomic ion interferences. The current laboratory procedure does not require the use of this standard, and it was not included in these analyses. However, interferences were mitigated by the use of the collision cell, or gas mode, of the instrument. This was used for arsenic and vanadium to mitigate chloride interference. Since the blank result for these elements were below the MDL, the mitigation appears to have been successful. The laboratory plans to use the required interference check standard for future projects.

Batch 16927: The initial LLS recovered Cr at 152%. Since all chromium results were above the ICV/CCV level, the high recovery of the LLS does not affect data quality for chromium. The selenium recoveries for the LLS were outside the 70% to 130% requirement in SW846 at 167% for the initial LLS and 36% for the final LLS. The selenium concentration selected for the LLS was only slightly above the MDL and was determined to be too low. Some of the subsequent analyses used a more appropriate LLS level of selenium. The preparation blank contained silver, cadmium, thallium, and nickel above their MDLs but below the quantitation limits. All sample results, except for nickel, have been flagged with a “B” because the blank result was greater than 5% of the sample results. Reanalysis was not required because the blank results were below the quantitation limits.

Batch 16990: The preparation blank and mid-run CCB results for thallium were above the MDL but less than the quantitation limit. Since the blank result was greater than 5% of all sample results, a “B” flag has been applied. Reanalysis was not required since the blank result was below the quantitation limit.

Batch 17021: The closing LLS for selenium was recovered at 202%. Since all sample results for selenium were below the MDL, the data quality was not affected. The selenium concentration selected for the LLS was at the MDL and was determined to be too low. Some of the subsequent batches used a more appropriate LLS concentration of selenium. The preparation blank result for selenium was above the MDL. However, since all sample results were below the MDL, the data quality was not affected. The closing CCV for silver was below the required 90% at 89.3%. This CCV bracketed only QC samples, all of which met requirements. Therefore, reanalysis was deemed unnecessary. The duplicate RPD for nickel exceeded the 30% requirement at 45%, and the associated results have been flagged with a “c.” The laboratory believes this is due to sample inhomogeneity, and with client agreement, reanalysis was not performed (see Attachment 5).

Batch 17062: The LLS recoveries for selenium were 213% and 220%. Since all sample results for selenium were below the MDL, the data quality was not affected. The selenium concentration selected for this LLS, though higher than previously used, was determined to be too low. Subsequent analyses used a more appropriate LLS concentration of selenium. The preparation blank and closing CCB results for selenium were above the MDL. However, since all sample results were below the MDL, the data quality was not affected. The duplicate RPD for cadmium exceeded the 30% requirement at 33%. Since the sample result was below the quantitation level, this criterion does not apply. The duplicate RPD for lead, thallium, and vanadium exceeded the 30% requirement at 47%, 59%, and 44%, respectively, and the associated results have been flagged with a “c.” Based on ICP/AES and other analyses, the laboratory believes this is due to

sample inhomogeneity and, with client agreement, no reanalysis was performed (see Attachment 5).

Batch 17063: The preparation blank result for thallium was above the MDL but less than the quantitation limit. Since the blank result was greater than 5% of all sample results, a "B" flag has been applied. Reanalysis was not required since the blank result was below the quantitation limit. The duplicate RPD for thallium exceeded the 30% requirement at 32%. Since the sample result was below the quantitation level, this criterion does not apply.

Batch 17222: The preparation blank result for selenium was above the MDL. However, since all sample results were below the MDL, the data quality was not affected.

Batch 17230: The post digestion spike failed low at 42% for selenium. However, since the MS met the required recovery criteria at 102%, a post digestion spike is not required (per SW846). It should be noted that the raw sample result was negative, indicating a matrix interference. This may be the cause of the low post digestion spike recovery. The spike level for the MS is higher than the post digestion spike and possibly negated the interference.

Batch 17234: There were no notable issues with this batch; all QC requirements in the FSAP, SAP, and the QAPP were met.

3.3 RADIOCHEMICAL ANALYSIS

The holding time listed in the FSAP for radioactive isotopes is 6 months. SW846 does not address holding times for these analytes. All radiochemical analyses met the 6-month holding time. Holding time tables for these analytes have not been included in Attachment 2.

3.3.1 Gamma Energy Analysis

Gamma energy analysis was performed directly on approximately 60 mL of soil from all liner composite samples. Sample B1YT98 was inadvertently analyzed twice. The sample with the highest ^{137}Cs result (S09V000473) has been reported in Attachment 1. The other analysis results and raw data are contained in Appendix 2. The GEA analysis met all the required detection limits in the SAP. The laboratory was unable to meet any of the target detection limits.

Batches 13909, 15005, 15098, 15100, and 15511: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batches 15099: This batch did not contain a field sample duplicate as required in the QAPP. However, the client indicated (see Attachment 5) the FSAP and SAP only requires one field duplicate per core hole. Since the client QC requirement was met, reanalysis was not required.

3.3.2 Strontium-90/89

Strontium-90/89 analysis was performed on a strong acid digest of all liner composite samples. Fifteen of the sample analyses met the required detection limit of 2.3 pCi/g listed in the FSAP or had results above the quantitation limit. Of the remaining ten samples, all but one achieved a detection limit between 2.3 pCi/g and 4.2 pCi/g. No detection limit exceeded the lowest action limit of 23 pCi/g in Table 5.2 of the SAP.

Batches 16420, 16466, and 16485: There were no notable QC issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 16482: The preparation blank had a positive result slightly above the minimum detectable activity with a counting error of 117%. All samples, except one, had results below the MDA. The sample result above the MDA was below the quantitation limit and has been flagged with a "B." Because the result of the blank and the sample were below the quantitation limit, reanalysis was not performed.

Batch 16610: The RPD between the sample and duplicate was 116%. The original digestates were reanalyzed with similar results. There was insufficient sample to perform a second preparation of the sample. A "c" flag has been applied to all samples in the batch.

Batch 16776: The blank result displayed in Attachment 1 for sample S09V000509 (<2.7E-6 μCi/g), is different from that in the batch report (<1.95E-6 μCi/g). This resulted from the sample being rejected and reanalyzed in a new batch (16776) while the remaining samples in the original batch were reported from the original batch. Both batches share the same preparation blank, which has now been analyzed twice. Currently, the Data Summary Report (Attachment 1) reports only one blank result; it is from the original batch. Additional programming is required to change this. The two blank results are essentially the same.

3.3.3 Tritium

The tritium analysis was performed on a water leach of all liner composite samples. This method only measured the tritium in the samples which can be dissolved in water. This analysis achieved the required detection limit in the FSAP but could not meet the target detection limit. There were no notable issues with any of the tritium batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

3.3.4 Selenium-79

The ^{79}Se analysis was performed on a strong acid digest of all liner composite samples. The analysis achieved the target detection limit in the FSAP. No required detection limit was listed. No standard is currently available for ^{79}Se. A cold carrier is used to monitor recovery and is measured gravimetrically.

Batches 16105 and 16145: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batches 16188, 16194, and 16259: The preparation blanks for these batches demonstrated positive results below the quantitation limit, as did many of the samples. All results had very large counting errors and were below the target detection limit. Because of these factors, reanalysis was not required. The associated results have been flagged with a "B."

Batch 16409: The blank results displayed in Attachment 1 for sample S09V000509 (<1.51E-6 μCi/g) and S09V000666 (5.23E-6 μCi/g) are different from that in the batch report (<2.2E-6 μCi/g). This resulted from these samples being rejected and reanalyzed in a new batch

(16409), while the remaining samples in the original batch were reported from the original batch. Both batches share the same preparation blank, which has now been analyzed twice. The current Data Summary Report (Attachment 1) reports only one blank result; it is from the original batch. Additional programming is required to change this. The two blank results are essentially the same. Even though the original blank result for sample S09V000666 was positive, it had a counting uncertainty of 185%.

3.3.5 Carbon-14

The ^{14}C analysis was performed on a water leach of all liner composite samples. The 10-ft. to 12-ft. interval from core hole C6404 did not retrieve sufficient liner material to produce a sample for this analysis. The analysis achieved the required detection limit in the FSAP but exceeded the target detection limit. This analysis will only detect water soluble forms of ^{14}C. There were no notable issues with the batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

3.3.6 Nickel-63

The ^{63}Ni analysis was performed on a strong acid digest of all liner composite samples. The analysis achieved the required detection limit in the FSAP but exceeded the target detection limit of 30 pCi/g. Most samples had detection limits of between 50 pCi/g and 100 pCi/g.

Batches 15697, 16267, 16282, and 16392: There were no notable issues with these ^{63}Ni batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 16240: The preparation blank had a positive result slightly above the MDA with a counting error of 412%. All samples, except one, had results below the MDA. The sample result above the MDA was below the quantitation limit and has been flagged with a “B.” Because the results for the blank and the sample were below the quantitation limit, reanalysis was not performed.

Batch 16551: The blank result displayed in Attachment 1 for sample S09V000509 (<5.65E-5 μCi/g) is different from that in the batch report (<4.98E-6 μCi/g). This resulted from the sample being rejected and reanalyzed in a new batch (16551), while the remaining samples in the original batch were reported from the original batch. Both batches share the same preparation blank, which was analyzed twice. The current Data Summary Report (Attachment 1) reports only one blank result; it is from the original batch. Additional programming is required to change this. The two blank results are essentially the same.

3.3.7 Iodine-129

Analysis for ^{129}I was performed on an iodine specific fusion digest of all liner composite samples. The required and target detection limits in the SAP were met.

Batches 16203, 16246, and 16307: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 16468: The preparation blank result was above the quantitation limit but below the target detection limit. The customer contact agreed (see Attachment 5) that since the result was below the target detection limit, reanalysis was unnecessary. One of the samples in this batch had a result above the quantitation limit but below the target detection limit. This result has been flagged with a "B." The remaining sample results were nondetect.

Batch 16496: The preparation blank result was above the quantitation limit but below the target detection. Since the sample results were all nondetect, reanalysis was not required.

3.3.8 Americium-241, Curium-243/244, and Curium-242

Analysis for ^{241}Am, $^{243/244}$Cm, and ^{242}Cm was performed on a strong acid digest of all liner composite samples. For this analysis, there were no notable issues with any batches and all QC requirements in the FSAP, SAP, and the QAPP were met. The required detection limit in the SAP was met, and all but three samples met the target detection limit.

3.3.9 Plutonium-238 and Plutonium-239/240

Plutonium isotopic (^{238}Pu and $^{239/240}$Pu) analysis was performed on a strong acid digest of all liner composite samples. For this analysis, there were no notable issues with any batches and all QC requirements in the FSAP, SAP, and the QAPP were met. The required and target detection limits in the SAP were met

3.4 ORGANIC ANALYSES

3.4.1 Volatile Organic Analysis

The VOA was performed on all field samples by purge and trap. Field sampling, sample containers, and preservation followed SW846-5035. The soil samples were delivered in a freezer, in pre-weighed VOA vials with magnetic stir bars and approximately 5 g of sample. After receipt, the VOA samples were stored in a freezer. For each sample interval, an additional high level sample preserved in methanol was also received. These were not used because none of the results for the frozen samples were above the calibration range. The exact weight of the sample and the tare weight of the VOA vials were recorded by sampling personnel and delivered with the samples. Four liquid trip blank samples were also received and analyzed. The samples were preserved with either HCl or H_2SO_4 to a pH < 2.

The holding time for all samples is 14 days. All samples but two meet the required holding time. Sample B1YTB2 (S09V000410), a soil sample, exceeded the holding time requirement by 2 days. This was caused by a lack of facility resources (radiological control technicians), which was beyond the control of the analytical staff contractor at 222-S. The facility operator is addressing the issue by hiring additional facility support staff. Sample B1YY24 (S09V000493), a trip blank, was analyzed 1 day beyond the required holding time. This was due to an oversight by 222-S analytical personnel. The laboratory believes that the affect of the holding time exceedance on sample results is minimal. A study by the Department of Energy and others have

shown that exceedances of less than 2 weeks produce no statistical difference and only a few compounds are affected for up to 6 weeks (see Reference Section).

The VOA analysis met the target and required detection limits in the SAP with the following exceptions: for 2-nitropropane, one sample was slightly above the target detection limit; for cis-1,2-dichloroethene, trans-1,2-dichloroethene, m,p-xylene, o-xylene, and TCE, two samples were slightly above the target detection limits. These detection limit exceedances were caused by a less than 5 g aliquot in the VOA vial. The laboratory cannot adjust the amount of sample when following SW846-5035 and must analyze them as received.

Loss of Internal Standards, Spike Compounds, and Surrogates: During the VOA analysis of the C Farm soil samples, low recoveries of the internal standard and surrogates were frequently experienced. At times, the instrument produced no response at all for these monitoring compounds. The issue was extensively investigated and was isolated to only the C Farm soil samples. Liquid samples and laboratory prepared soil standards (using laboratory VOA vials and stir bars) were not affected. The C Farm soil samples were analyzed on different instruments, which eliminated instrumentation as the problem. The laboratory believes that this problem is related to the sample matrix and/or the oversized stir bars used by the client. Additionally, it was determined that some of the VOA vials provided by the client leaked around the cap during purging. The problem was determined to be some type of blockage that impeded purge flow. The laboratory eventually developed a technique that provided improved results. This technique consisted of lightly shaking the VOA vial while monitoring purge flow with an in-line flow meter. The laboratory has requested that the client discontinue the use of the large stir bar and use different VOA vials.

The purpose of the internal standard is to compensate for fluctuation and drift in instrument response. The instrument responses for spikes, surrogates, or compounds found in the sample are adjusted base on their closest internal standard. A complete loss of internal standard undoubtedly invalidates the sample results. However, low internal standard recoveries do not necessarily mean that the data is unusable. SW846 only specifies minimum internal standard recovery requirements for the CCV, not the samples. While there are no regulatory limits for internal standard recoveries in a sample, there are practical limitations to the amount of fluctuation that can be tolerated before quantitation is affected. Typically that value is around the limits specified for the CCV (-50 to +100% drift). The further that the sample internal standards are from the established CCV limit, the more likely the quantitation is adversely affected. When internal standard recoveries fall outside these limits, surrogate recoveries may be used to evaluate any adverse effects on quantitation. On all samples exhibiting low internal standard responses, associated surrogate recoveries were evaluated to determine if the loss had significant effect on the reported results. Based on this evaluation, the laboratory believes that the VOA results contained in this report are useable.

Samples and their associated MS and matrix spike duplicate (MSD) were initially analyzed together in a single analytical run. However, because of the frequent internal standard failures, many reanalyses were required. Due to the limited number of extra sample vials (five per sample), the reanalysis did not typically contain the original sample, MS, and MSD. Consequently, the analytical batches contained in this report have sample and associated QC results for different analytical runs, which were often on different days. The construction of

batches in this manner was necessary for the laboratory information management system to associate a sample and its MS/MSD pair. All information and data concerning the analysis and reanalysis are contained in the VOA section of Appendix B.

The discussion below of the individual batches will not contain additional information concerning the low recoveries of internal standards. Detailed information for each sample is contained Appendix B.

Batch 14157: The method blank contained 1,2-dichloroethane and acetone below the estimated quantitation limit. Since the sample results were below the MDL for these compounds, reanalysis is not required. The LCS demonstrated a high recovery for acetone, 1-butanol, 2-butanone, and methyl isobutyl ketone (MIBK). Since these compounds were non-detect in the sample, reanalysis is not required. Sample results have been flagged with an "a."

Batch 14180: Other than the previously discussed internal standard issue, there were no notable issues with this batch and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 15471: The RPD between the MS and MSD failed to meet the 30% requirement for acetone, 1-butanol, 2-butanone, and MIBK. Since the sample did not contain quantifiable amounts of these compounds, reanalysis was not necessary. However, the sample results were flagged with a "c" indicating a batch precision failure. The MS failed slightly high at 131% for 2-butanone. Since this compound was not detected above the quantitation level, reanalysis was not required. The sample was flagged with a "b."

Batch 15472: The second method blank contained acetone below the estimated quantitation limit. Since the associated sample did not contain acetone above the estimated quantitation limit, reanalysis is not required. A "B" flag has been applied to the sample result. Toluene was present in the second method blank below the estimated quantitation limit. Since the associated sample results were below the MDL, the data was not affected. The first LCS demonstrated a high recovery for 1,1-dichloroethene, MIBK, acetone, and 2-butanone. Since these compounds were not detected in the samples above the estimated quantitation limit, reanalysis is not required. Sample results have been flagged with an "a." The MS recovery for 1-butanol was above the 30% requirement and a "b" flag has been added to the associated results. Since this compound was not detected in the associated samples, reanalysis was not required. The CCV %D exceeded the ±20% requirement for trichlorofluoromethane, 1,1-dichloroethene, carbon disulfide, acetone, and 2-butanone. All were above the expected value. Since all compounds were either not detected or below the estimated quantitation limit, the results were not affected and reanalysis not required. The CCV met the 15% average %D requirement.

Batch 15474: The method blank contained acetone below the estimated quantitation limit. Since the associated sample did not contain acetone, reanalysis is not required. The CCV for acetone exceeded the 20% %D requirement. Since the CCV was above the calibration amount and the sample was nondetect, reanalysis was not required.

Batch 15476: The method blank contained acetone below the estimated quantitation limit. Since the associated sample did not contain acetone, reanalysis is not required.

Batch 15477: The method blank contained acetone below the estimated quantitation limit. Since the associated samples did not contain acetone above the estimated quantitation limit, reanalysis is not required. All acetone results were slightly above the MDL and have been flagged with a "B." The RPD between the MS and MSD exceeded the 30% requirement at 31% for 1-butanol. Since the samples were nondetect for this compound, reanalysis was not required. A "c" flag was added to the associated sample results. The CCV for acetone exceeded the 20% %D requirement. Since the CCV was above the calibration amount and the samples were below the estimated quantitation limit, reanalysis was not required.

Batch 15479: There were no notable issues with this liquid sample batch, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 15491: Other than the previously discussed internal standard issue, there were no notable issues with this batch and all QC requirements in the FSAP, SAP, and the QAPP were met. Since the client only required an MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6406 is in batch 15477.

Batch 15492: Other than the previously discussed internal standard issue, there were no notable issues with this batch and all QC requirements in the FSAP, SAP, and the QAPP were met. Since the client only required an MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6406 is in batch 15477, and the MS/MSD for core hole C6402 is in batch 15471.

Batch 15493: There were no notable issues with this liquid sample batch, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 15503: The method blank contained acetone below the estimated quantitation limit. Since associated samples did not contain acetone above the estimated quantitation limit, reanalysis is not required. Two samples contained acetone at slightly above the MDL and have been flagged with a "B." The method blank contained toluene below the estimated quantitation limit. Since associated samples did not contain toluene above the MDL, reanalysis was not required.

Batch 15525: The CCV %D for 1-butanol was slightly high at 20.6%. Since the sample did not contain 1-butanol above the MDL, the result was not adversely affected. Since the client only required an MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6404 is in batch 15674.

Batch 15671: The CCV associated with the field samples and the MSD for sample B1TY75 (S09V000125) had a %D of -23% for 1-butanol. This could indicate that positive results for 1-butanol could be biased low. A laboratory-defined "Y" flag has been applied to these results. 1-butanol was not detected in these samples. Additionally, the MSD was recovered at 90%, indicating that the low CCV had minimal affect on the results. The CCV associated with the MS/MSD for sample B1YT72 (S09V000124) and MS for sample B1YT75 (S09V000125) had a %D of -30% for 1-butanol. The recoveries for the field quality control samples were within the required 70% to 130%, indicating that the low CCV had minimal effect on the analysis results. The average %D was less than 15%, which meets the SW-846 requirement.

Batch 15673: The CCV %D exceeded the 20% limit for acetone. Acetone was recovered above the expected calibration value. This could indicate a high bias for acetone sample results. Since the sample result for acetone was below the estimated quantitation limit, reanalysis was not required and the data was not affected. The method blank contained acetone and toluene below the estimated quantitation limit. The sample contained acetone below the estimated quantitation limit and was nondetect for toluene. Since all results (blank and sample) were below the estimated quantitation limit, reanalysis was not required. Since the client only required an MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6400 is in batch 15503.

Batch 15674: The CCV had a %D at -21% for 1-butanol. This could indicate that positive results for 1-butanol could be biased low. A laboratory defined "Y" flag has been applied to these results. 1-butanol was not detected in these samples. The LCS and MS/MSD recoveries were within the required limits, indicating that the low CCV had minimal effect on the analysis results. The average %D was less than 15%, which meets the SW-846 requirement.

Batch15785: The LCS recoveries for 1-butanol, 2-butanone, MIBK, and acetone were above the required 130%. The sample did not contain these compounds above the MDL, so the results were not affected. The method blank contained toluene below the estimated quantitation limit. Since the associated sample did not contain toluene above the MDL, reanalysis was not required. The CCV %D for 1-butanol was slightly high at 20.1%. Since the sample did not contain 1-butanol above the MDL, the result was not adversely affected. Since the client only required and MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6404 is in batch 15674. The average %D was less than 15%, which meets the SW-846 requirement.

3.4.2 Semivolatile Organic Analysis

The semivolatile organic analysis (SVOA) was performed on methylene chloride extractions of all liner composite samples except B20XV5 and B20XW3. These samples were not analyzed based on the client's instructions. Each extract was analyzed twice using two separate calibration curves to provide calibrated results for all compounds listed in the FSAP and SAP. All holding times were met except for the extraction of sample B20XV9 (S09V000742). This was caused by failure to assign the test during log-in.

Ten of the twenty-two samples contained a low level of bis (2-ethylhexyl) phthalate, which was not detected above the MDL in the method blanks. Additionally, low levels of di-n-butylphthalate were detected in four samples and was present in the method blank associated with two of the samples. Low levels of phthalates may represent contamination of the samples during sampling and/or analysis, but environmental contamination could also be the source. If laboratory contamination is present, it will usually appear in the method blank. Due to the prevalence of low level phthalate contamination in the environment, it can be hard to determine the source of low level results. Equipment blanks can help isolate the source of phthalates, but no equipment blanks were analyzed with these samples. One possible source of phthalate could be the red plastic end caps used with the liners. It is the laboratory's opinion that the use of these end caps should be discontinued.

The SVOA analysis met the required and target detection limits with two exceptions:

- The adjusted MDLs for cyclohexanone were above the 0.5mg/kg target detection limit for most samples. This compound obtained detection limits between 0.5 mg/kg an 0.7 mg/kg. The adjusted MDLs for di-n-butyl-phthalate were above the target detection limit of 0.33 mg/kg. The analysis achieved a detection limit of between 0.5 mg/kg and 0.7 mg/kg for this compound.
- LCS, MS, and MSD recoveries were compared against the laboratory's statistical process control (SPC) limits, as required by SW-846. The use of SPC limits is allowed in the FSAP, SAP, and QAPP.

Batches 14181, 14528, 14529, and 15811: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 14169: The surrogate terphenyl-d14 was recovered below the laboratories SPC limits of 75% to 175% at 62%. It is the laboratory's opinion that this is not a particularly low recovery and the usability of the associated results was not affected. The SPC limits appear to be biased high. SPC limits are currently under review and will be updated. This bias is expected to be corrected. All other QC requirements were met.

Batch 14527: Di-n-butylphthalate was detected in the method blank below the quantitation limit. However, the blank result exceeded 5% of the associated sample results. These results have been flagged with a "B." Since the blank and sample results were below the quantitation limit, reanalysis was not required. No MS or MSD was analyzed with this batch. Since the client only required that an MS and MSD be analyzed once per core hole (see Attachment 5), this requirement was met in batch 14529. All other QC requirements were met.

Batch 14580: For two samples, the surrogate terphenyl-d14 was recovered below the laboratory's SPC limits of 75% to 175% at 64% and 58%. It is the laboratory's opinion that this is not a particularly low recovery and the usability of the associated results was not affected. The SPC limits appear to be biased high. SPC limits are currently under review and will be updated. This bias is expected to be corrected. All other QC requirements were met.

Batch 15509: All QC requirements were met. However, a large cyclohexene peak was detected during the second analysis of the samples. Since the TICs were reported from the 1st analysis only, this peak has not been reported. The laboratory believes that the cyclohexene was present in the methylene chloride used for the extraction.

3.4.3 Tentatively Identified Compounds

Unassigned peaks or TICs were treated as follows. Standards were obtained and analyzed for each secondary analyte identified in the SAP. This data was accumulated in the Hanford library. Following analysis, the largest TICs with instrument responses greater than 10% of the response of the nearest internal standard were evaluated and compared to the Hanford library. The estimated concentration of these TICs was calculated using measured response factors from the Hanford library compound list.

After comparison to the Hanford library, remaining unknowns were compared to the National Institute of Standards and Technology (NIST) 02, *HP Mass Spectral (compound) Libraries*. The estimated concentration of compounds identified from the NIST library was calculated based on an arbitrary response factor of 1.0. If the compounds were not identified as a result of this comparison, they were reported as "unknown." Summaries of the SVOA and VOA TICs from the field samples and method blanks are provided in Attachment 4. TICs found in the field samples and which were present in the associated batch method blank have been flagged with "B."

4.0 PROCEDURES

Table 2 lists the analytical procedures used for analysis of the C-Farm samples.

Table 2. Analytical Procedures.

Analysis	Preparation Method	Analysis Procedure
Inorganic Analyses		
Cyanide	LA-695-103, Rev. I-0, J-0 (SW-846 9010C)	LA-695-103, Rev. I-0, J-0 (SW-846 9014)
Sulfide	LA-361-101, Rev. D-0 (SW-846 9030B)	LA-361-101, Rev. D-0 (SW-846 9215)
pH	Direct	LA-212-105, Rev. G-0 (SW-846 9045D)
Mercury – Cold Vapor Atomic Absorption	LA-325-106, Rev. G-0 (SW-846 7470A, 7471A)	LA-325-106, Rev. G-0 (SW-846, 7470A, 7471A)
Ammonia – IC	LA-544-112, Rev. D-0	LA-533-101, Rev. O-0
Anions & Organic Acids – IC	LA-504-101, Rev. L-0	LA-533-115, Rev. J-0
Metals – ICP /AES	LA-505-163, Rev. F-0 (SW-846 3050B)	LA-505-161, Rev. I-0, J-0a (SW-846 6010C)
^{99}Tc, ^{126}Sn – ICP/MS	LA-505-163, Rev. F-0 (SW-846 3050B)	LA-506-102, Rev. E-0
Metals – ICP/MS	LA-505-163, Rev. F-0 (SW-846 3050B)	LA-506-103, Rev. A-0 (SW-846 6020A)
Actinides – ICP/MS	LA-505-163, Rev. F-0 (SW-846 3050B)	LA-506-102, Rev. E-0
Radiochemical Analyses		
GEA	Direct	LA-548-121, Rev. I-0
^{90}Sr – Separation/Beta counting	LA-544-101, Rev. F-0	LA-220-101, Rev. I-0
Tritium – LSC	LA-504-101, Rev. L-0	LA-218-114, Rev. F-0
^{14}C – LSC	LA-504-101, Rev. L-0	LA-348-104, Rev. H-0
^{79}Se – Separation/LSC	LA-544-101, Rev. F-0	LA-365-102, Rev. I-0
^{63}Ni – Separation/LSC	LA-544-101, Rev. F-0	LA-285-102, Rev. D-0
^{129}I – Separation/GEA	LA-544-101, Rev. F-0	LA-378-105, Rev. C-0
^{241}Am, $^{243/244, 242}$Cm – Separation/AEA	LA-544-101, Rev. F-0	LA-953-104, Rev. H-1
$^{239/240, 238}$Pu – Separation/AEA	LA-544-101 Rev. F-0	LA-953-104, Rev. H-1
Organic Analyses		
VOC – GC-MS	Direct	LA-523-118, Rev. G-0

Table 2. Analytical Procedures.

Analysis	Preparation Method	Analysis Procedure
SVOC – GC/MS	LA-523-138, Rev. F-0 (SW846-3540C)	LA-523-135, Rev. C-0

5.0 REFERENCES

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NIST 02, 2002, *HP Mass Spectral Libraries*, July 2002 Release, Hewlett-Packard Company, Palo Alto, California.

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DASTM STP 1057, 1991, *Waste Testing and Quality Assurance: Third Volume, Holding Times of Volatile Organics in Water*, American Society for Testing and Materials, Philadelphia, Pennsylvania.

CONF-96071123-5, 1996, *A Confirmatory Holding Time Study for purgeable VOCs in Water Samples,* Oak Ridge National Laboratory, Tennessee.

RPP-PLAN-40564, 2009, *Field Sampling and Analysis Plan for Sites P and L at Waste Management Area,* Rev. 0, Washington River Protection Solutions, Inc.

RPP-PLAN-38777, 2008, *Sampling and Analysis Plan for Phase 2 Characterization of Vadose Zone Soil in Waste Management Area C*, Rev. 0, Washington River Protection Solutions, Inc.

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-013	PAGE 1 OF 2
COLLECTOR Rosane, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C6392, I-003	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 56	ACTUAL SAMPLE DEPTH 14'-15"	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S20090160

SPECIAL HANDLING AND/OR STORAGE
7°C / 45°F

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C	
TYPE OF CONTAINER	aGs*	aGs*	
NO. OF CONTAINER(S)	5	3	
VOLUME	40mL	40mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B1YT69 / S09V000123	SOIL	4-14-09	1300	✓	✓								
~~+S09V000128~~	Called												
S09V000131													

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane, Larry Rosane	4-14-09/1515	T.W. Collock T.W. Collock	4-14-09 1515
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

CRCL 2009 0160
ZB, Ref 1 Rta

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-015	PAGE 2 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C6392, I-003	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg56	ACTUAL SAMPLE DEPTH 14'-15'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-015	PAGE 1 OF 2
COLLECTOR: Rosanne Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND
SAMPLING LOCATION: C6392, I-003	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 pg 56	ACTUAL SAMPLE DEPTH: 14'-15'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegitation, 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)

7°C/45°F

SPECIAL HANDLING AND/OR STORAGE: 222S20090160

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	~~1~~ 2 4-14-09
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1YT71/20090160	SOIL	4-14-09	1300	✓
S09V000148 → ZB				
S09V000149				

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne Larry Rosanne	4-14-09/1515	Tw Gllock [signature]	4-14-09 1515

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

only two liners were filled due to material

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-013	PAGE 2 OF 2
COLLECTOR Rosanne, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-003	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg56	ACTUAL SAMPLE DEPTH 14'-15'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-016	PAGE 1 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-004	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 57	ACTUAL SAMPLE DEPTH 19.5'-21.5'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S20090160

SPECIAL HANDLING AND/OR STORAGE
28°F/46°F
-2°C/8°C

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C	
TYPE OF CONTAINER	aGs*	aGs*	
NO. OF CONTAINER(S)	5	3	
VOLUME	40mL	40mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B1YT72	SOIL	4-21-09	1041	✓	✓								
S09V000124 (Low)													
S09V000132 (High)													

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne - Larry Rosanne	4-21-09/1330	R Steele R/Steele	4-21-09 1330
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-016	PAGE 2 OF 2
COLLECTOR Rosane, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P **AIR QUALITY** ☐	**DATA TURNAROUND** 75 Days / 75 Days
SAMPLING LOCATION C6392, I-004	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-W-576-3 pg 57	**ACTUAL SAMPLE DEPTH** 19.5', 21.5'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-018	PAGE 1 OF 2
COLLECTOR Rosanne, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-004	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 57	ACTUAL SAMPLE DEPTH 19.5'-21.5'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S20090160

SPECIAL HANDLING AND/OR STORAGE
8°C/46°F

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B1YT74	SOIL	4-21-09	1041
S09V000152 (a)			
153 (b)			
154 (c)			

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne, Larry Rosanne	4-21-09/1330	R Steele	4.21.09 1330
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-018	PAGE 2 OF 2
COLLECTOR Rosane, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P	**DATA TURNAROUND**
SAMPLING LOCATION C6392, I-004	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002	**AIR QUALITY** ☐	**75 Days / 75 Days**
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 pg 57	**ACTUAL SAMPLE DEPTH** 19.5'-21.5'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-019	PAGE 1 OF 2
COLLECTOR: Rosawe, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C6392, I-005	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HUF-W-576-3 pg 59	ACTUAL SAMPLE DEPTH: 25'-27'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

22252009 0160

SPECIAL HANDLING AND/OR STORAGE
54°F / 34°F
12°C / 1°C

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C	
TYPE OF CONTAINER	aGs*	aGs*	
NO. OF CONTAINER(S)	5	3	
VOLUME	40mL	40mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B1YT75 GV ppr 4-22-09	SOIL	4-22-09	1000	✓	✓	
SOV9000125 (Lo)						
SOV9000133 (Hi) GV						
Lot #				814110	B907501V3	

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosawe Larry Rosawe	4-22-09/ 1313	TM Collock	4-22-09 1313
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-019	PAGE 2 OF 2
COLLECTOR Rosane, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C6392, I-005	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 59	ACTUAL SAMPLE DEPTH 25'-27'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V09-002-021	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8P	DATA TURNAROUND
Rosanne, Rust	SYDNOR, HA	373-3967	WIDRIG, DL		
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**	**AIR QUALITY** ☐	75 Days / 75 Days
C6392, I-005	WMA C Sampling for CMS		V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
	HNF-N-576-3 pg 59	25'-27'	301483ES10	GOVERNMENT VEHICLE	
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
222-S Lab Operations					

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S2009016 0

SPECIAL HANDLING AND/OR STORAGE
12° C / 54° F

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1YT77	SOIL	4-22-09	1000	✓
S09V000156				
S09V000158				
S09V000157				
LOT #				~~340750 4-22-09~~

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne, Larry Rosanne	4-22-09 1313	TM Collick	4-22-09 1313

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-021	PAGE 2 OF 2
COLLECTOR Rosane, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C6392, I-005	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 59	ACTUAL SAMPLE DEPTH 25'-27'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V09-002-022	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8P	DATA TURNAROUND
Rosawe, Rust	SYDNOR, HA	373-3967	WIDRIG, DL		
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**	**AIR QUALITY** ☐	75 Days / 75 Days
C6392, I-006	WMA C Sampling for CMS		V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
	HNF-2572-3 pg 61	~~HNF 10 57~~ 42-44' SAR 4-30-09	301483ES10	GOVERNMENT VEHICLE	
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
222-S Lab Operations					

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

2226 2009 0160

SPECIAL HANDLING AND/OR STORAGE
-1°C/22°C
30°F/72°F
SPR 9/28/09 ~~2009 0160~~

PRESERVATION			Cool <-7C and >-20C	MEOH/Cool~6 C									
TYPE OF CONTAINER			aGs*	aGs*									
NO. OF CONTAINER(S)			5	3									
VOLUME			40mL	40mL									
SAMPLE ANALYSIS			SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS									
SAMPLE NO.	**MATRIX***	**SAMPLE DATE**	**SAMPLE TIME**										
B1YT78	SOIL	4-30-09	1015	✓	✓								
509V000126	(Li)												
509V000134	(Hi)												

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosawe, Larry Rosawe	4-30-09/ 1510	Todd McGlock/	4/30/09 1510
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-022	PAGE 2 OF 2
COLLECTOR Rosane, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P **AIR QUALITY** ☐	**DATA TURNAROUND** 75 Days / 75 Days
SAMPLING LOCATION C6392, I-006	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-526-3 pg61	**ACTUAL SAMPLE DEPTH** 42'-44'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-024	PAGE 1 OF 2
COLLECTOR Roanne, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C6392, I-006	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg61	ACTUAL SAMPLE DEPTH 42'-44'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

SPECIAL HANDLING AND/OR STORAGE
222S20090160 22°C/72°F

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1YT80	SOIL	4-30-09	1015 ~~1015~~ 4-30-09	✓
S09V000160				
S09V000161				
S09V000162				

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane, Larry Rosane	4-30-09/ 1510	Tim Gollock Tim Gollock	4/30/09 1510
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-024	PAGE 2 OF 2
COLLECTOR Rosine, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P **AIR QUALITY** ☐	**DATA TURNAROUND** 75 Days / 75 Days
SAMPLING LOCATION C6392, I-006	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 pg 61	**ACTUAL SAMPLE DEPTH** 42'-44'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-025	PAGE 1 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C6392, I-007	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 61	ACTUAL SAMPLE DEPTH 56'-58'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

SPECIAL HANDLING AND/OR STORAGE
222S20090160 -1°C/22°C 30°C/72°F

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C	
TYPE OF CONTAINER	aGs*	aGs*	
NO. OF CONTAINER(S)	5	3	
VOLUME	40mL	40mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B1YT81	SOIL	4-30-09	1415	✓	✓	
S09V000127	(L.)					
S09U000135	(H.)					
Lot #				B1F0110	B9075011V13	

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne Larry Rosanne	4-30-09/ 1510	Tim Mock Tim Mock	4/30/09 1510
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-025	PAGE 2 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-007	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg61	ACTUAL SAMPLE DEPTH 56'-58'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-027	PAGE 1 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-007	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-5 pg 61	ACTUAL SAMPLE DEPTH 56-58'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

SPECIAL HANDLING AND/OR STORAGE
222S20090160 22°C/72°F

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1YT83 164	SOIL	4-30-09	1415	✓
S09V000175				
S09V000165				
S09V000166				

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne, Larry Rosanne	4-30-09/1500	Tim Tech Tim Tech	4/30/09 1510
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-027	PAGE 2 OF 2
COLLECTOR Rosane Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-007	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-526-3 p61	ACTUAL SAMPLE DEPTH 56'-58'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-003-009	PAGE 1 OF 1
COLLECTOR Karen White	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 7P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6404, I-005TB	PROJECT DESIGNATION WMA C Sampling for CMS - QC Sampling		SAF NO. V09-003		
ICE CHEST NO.	FIELD LOGBOOK NO. 576-3 HNF-N-576 pg 66	ACTUAL SAMPLE DEPTH N/A	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S2009C345

SPECIAL HANDLING AND/OR STORAGE
13°C/55°F

PRESERVATION	HCl or H2SO4 to pH <2/Cool~4C
TYPE OF CONTAINER	aGs*
NO. OF CONTAINER(S)	3
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1YY23	WATER	5-18-09	07:30	✓
509V000377				

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM Karen White / [illegible] 5-18-09	DATE/TIME 1455	RECEIVED BY/STORED IN TM Gilliland / [illegible] 5-18-09	DATE/TIME 1455
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
(1)VOA - 8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

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

A-6003-618(01/06)

Appendix 5

Data Validation Supporting Documentation

GENERAL CHEMISTRY DATA VALIDATION CHECKLISTS

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: WMA C			DATA PACKAGE: VSR10-013		
VALIDATOR: Carl Schloesslin		LAB: 222-S Laboratory		DATE: 4-28-2010	
			SDG: 20090160		
ANALYSES PERFORMED					
Anions/IC X	TOC	TOX	TPH-418.1	Oil and Grease	Alkalinity
Ammonia X	BOD/COD	Chloride	Chromium-VI	pH X	NO_3/NO_2
Sulfate	TDS	TKN	Phosphate	Total CN X	Sulfide X

SAMPLES/MATRIX

Soil samples B1YT71, B1YT74, B1YT77, B1YT80, B1YT83

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? ..... Yes (No) N/A

Comments: None

2. INSTRUMENT PERFORMANCE AND CALIBRATIONS (Levels D and E)

Initial calibrations performed on all instruments? ..... Yes No (N/A)

Initial calibrations acceptable? ..... Yes No (N/A)

ICV and CCV checks performed on all instruments? ..... Yes No (N/A)

ICV and CCV checks acceptable? ..... Yes No (N/A)

Standards traceable? ..... Yes No (N/A)

Standards expired? ..... Yes No (N/A)

Calculation check acceptable? ..... Yes No (N/A)

Comments:

GENERAL CHEMISTRY DATA VALIDATION CHECKLISTS

3. BLANKS (Levels B, C, D, and E)

ICB and CCB checks performed for all applicable analyses? (Levels D, E) ..... Yes No N/A

ICB and CCB results acceptable? (Levels D, E) ..... Yes No N/A

Laboratory blanks analyzed? ..... Yes No N/A

Laboratory blank results acceptable? ..... Yes No N/A

Field blanks analyzed? (Levels C, D, E) ..... Yes No N/A

Field blank results acceptable? (Levels C, D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments:

Batch 16700 MB Detections: Nitrite 2.00 ug/g, Nitrate 0.27 ug/g

4. ACCURACY (Levels C, D, and E)

Spike samples analyzed? ..... Yes No N/A

Spike recoveries acceptable? ..... Yes No N/A

Sike standards NIST traceable? (Levels D, E) ..... Yes No N/A

Spike standards expired? (Levels D, E) ..... Yes No N/A

LCS/BSS samples analyzed? ..... Yes No N/A

LCS/BSS results acceptable? ..... Yes No N/A

Standards traceable? (Levels D, E) ..... Yes No N/A

Standards expired? (Levels D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Performance audit sample(s) analyzed? ..... Yes No N/A

Performance audit sample results acceptable? ..... Yes No N/A

Comments:

Note: A post spike versus a matrix spike was analyzed for anions analysis. Sample data is not qualified for this since anions sample preparation is minimal.

GENERAL CHEMISTRY DATA VALIDATION CHECKLISTS

5. PRECISION (Levels C, D, and E)

Duplicate RPD values acceptable? ..... Yes No N/A

Duplicate results acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards expired? (Levels D, E) ..... Yes No N/A

Field duplicate RPD values acceptable? ..... Yes No N/A

Field split RPD values acceptable? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: None

6. HOLDING TIMES (all levels)

Samples properly preserved? ..... Yes No N/A

Sample holding times acceptable? ..... Yes No N/A

Comments:

Cyanide Batch 14147: Sample B1YT71 analyzed 15 days after collection (HT - 14 days)
pH Batch 13838: Sample B1YT71 analyzed 7 days after collection (HT - ASAP)
pH Batch 17429: Samples B1YT74 and B1YT77 analyzed 3 days and 2 days, respectively, after collection
pH Batch 14262: Samples B1YT80 and B1YT83 analyzed 17 days after collection

GENERAL CHEMISTRY DATA VALIDATION CHECKLISTS

7. RESULT QUANTITATION AND DETECTION LIMITS (all levels)

Results reported for all requested analyses? ..... Yes No N/A

Results supported in the raw data? (Levels D, E) ..... Yes No N/A

Samples properly prepared? (Levels D, E) ..... Yes No N/A

Detection limits meet RDL? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments:

MDLs > CRDLs [or Target Detection Limits (TDLs) when CRDLs not provided in the SAP]. The following lists associated non-detected sample results only since MDLs > CRDLs/TDLs are not an issue for detected results. All values are in ug/g.

B1YT71 - Cyanide 4.77 (TDL = 0.5)

B1YT74 - Cyanide 4.67 (TDL = 0.5)

B1YT77 - Cyanide 5.01 (TDL = 0.5); Sulfide 5.25 (TDL = 5)

B1YT80 - Cyanide 4.46 (TDL = 0.5)

B1YT83 - Cyanide 5.07 (TDL = 0.5)

Appendix 6

Additional Documentation Requested By Client

LABCORE Completed Batch Report for Batch# 00014147

Analyst: Monteith, Kenneth

Book#: see bench sheet

Instrument: CARY 50-2

Method: CN - EDTA, LA-695-103 Rev/Mod I-0

Specification: C Farm WMA C

Prep Batch:

Batch Comment:

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 LCS	S0905050132		0	0	Cyanide	LIQUID	.1964	2.1257E-01			0.037	ug/mL	108.23	% Recovery	
Sample Sequence 2															
2 ICB	S0905050133		0	0	Cyanide	LIQUID		<3.7000E-02			0.037	ug/mL			
Sample Sequence 3															
3 LLS	S0905050134		0	0	Cyanide	LIQUID	.04	3.7080E-02			0.037	ug/mL	92.7	% Recovery	
Sample Sequence 4															
4 SAMPLE	S09V000171		0	0	Cyanide	SOLID	N/A	<4.7739E+00			4.7739	ug/g			U
Sample Sequence 5															
5 DUP	S0905050135	S09V000171	0	0	Cyanide	SOLID	<4.7739E+00	<4.8245E+00			4.8245	ug/g			
Sample Sequence 6															
6 SPK	S0905050136	S09V000171	0	0	Cyanide	SOLID	12.875	1.3102E+01			4.8511	ug/g	101.76	% Recovery	
Sample Sequence 7															
7 SAMPLE	S09V000172		0	0	Cyanide	SOLID	N/A	<4.6710E+00			4.671	ug/g			U
Sample Sequence 8															
8 SAMPLE	S09V000173		0	0	Cyanide	SOLID	N/A	<5.0054E+00			5.0054	ug/g			U
Sample Sequence 9															
9 CCV	S0905050137		0	0	Cyanide	LIQUID	.1964	1.9593E-01			0.037	ug/mL	99.761	% Recovery	
Sample Sequence 10															
10 CCB	S0905050138		0	0	Cyanide	LIQUID		<3.7000E-02			0.037	ug/mL			

Comments Section:

Comments for sample: S0905050134, test: CN - EDTA

* LLS entered was the lowest calibration point above the DL level. The calculated recovery for the lowest calibration point was 87.7%, but this standard could not be reported because it was <DL so the recovery would not calculate.

Data Flagger Status:
Flagging Completed

* Second more zero cal std.

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014147

Final Page for Batch# 00014147

Roxie R. Ross 6/4/09
Reviewer Signature Date

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014147

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0905050132	LCS				
2	S0905050133	ICB				
3	S0905050134	LLS				
4	S09V000171	SAMPLE		20090160	B1YT71	C Farm WMA C
5	S0905050135	DUP	S09V000171			
6	S0905050136	SPK	S09V000171			
7	S09V000172	SAMPLE		20090160	B1YT74	C Farm WMA C
8	S09V000173	SAMPLE		20090160	B1YT77	C Farm WMA C
9	S0905050137	CCV				
10	S0905050138	CCB				

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

222-S Advanced Technologies and Laboratories

Cyanide-EDTA Data Review Checklist

Worklist/Project Information: 00014147 / C Farm Cyanide

Procedure Used: LA-695-103

Run Date: 4/29/09

Instrument ID: Cary 50 #2

Review Items	Yes	No	N/A	Comments/Samples Affected (give review item letter and number)
A. Standard dilution, Calibration, Instrument Run QC				B3. Samples S09V000171 , 172 and 173 were analyzed on 4/26/09, then again on 4/28/09, but both of these analytical runs were not acceptable. The final analysis was done on 4/29/09 and was acceptable. Samples S09V000172 and 173 were completed within the 7 day holding time, but the 7 day holding time for sample S09V000171 was up on 4/28/09. PM 10-6-09
1. Were the cyanide stock standards diluted as specified in the SOP?	X			
2. Was a calibration done? If a previous calibration was used, was the calibration used done within 90 days of the analysis date?	X			
3. Was the correlation coefficient of the calibration curve ≥ 0.995?	X			
4. Were ICV/CCV analyzed at appropriate frequency and were recoveries within control limits? (85 -115%) ?	X			
5. Was an LLS run and was the recovery within 100±25% ? If a calibration curve is run the lowest calibration point above MDL level serves as the LLS.	X			
6. Were ICB/CCB analyzed at appropriate frequency and were results < EQL?	X			
B. Sample Results				
1. Were all samples concentrations below the concentration of the highest calibration standard ?	X			
2. Are all reported results bracketed by in control QC?	X			
3. Were sample analyses done within holding time?		X		
C. Preparation/Matrix QC				
1. Was the method blank (also called the ICB) results < EQL?	X			
2. Was an LCS done per prep batch and were recoveries within limits? (85-115%)	X			
3. Was an MS run at required frequency and were recoveries within limits? ((75-125%)	X			
4. Was an MSD or DUP run at required frequency and was the % RPD within limits? (<20% if result >5 times MDL)	X			
D. Other				
1. Are all nonconformances documented appropriately?			X	
2. Is current MDL/EQL data on file?	X			
3. Were calculations checked for errors?	X			
4. Were transcriptions and data upload checked for errors?	X			
5. Were all client/project specific requirements met?	X			PM Reviewer DP Ritenour 11/30/09
6. Was the date/time of analysis verified as correct?	X			

1st Level Data Reviewer Roxie R. Ross Date: 6/4/09

2nd Level Data Reviewer: [signature] Date: 6/5/09

5/5/2009 2:24:17PM
IncompleteBatchShort Version 2.7.22
batchreports 2.7.25

LABCORE Data Entry Template for Batch# 00014147

Analyst: Monteith, Kenneth

Standard ID / Book#: See bench sheet

Instrument: CARY 50-2

Method: CN - EDTA, LA-695-103 Rev/Mod I-0

Prep Batch:

Batch Comment:

S	Type	Sample	R	A	Matrix	Group#	Project
1	LCS		0		LIQUID		
	Analytes Requested:	Cyanide					
2	ICB		0		LIQUID		
	Analytes Requested:	Cyanide					
3	LLS		0		LIQUID		
	Analytes Requested:	Cyanide					
4	SAMPLE	S09V000171	0		SOLID	20090160	C Farm WMA C
	Analytes Requested:	Cyanide					
5	DUP	S09V000171	0		SOLID		
	Analytes Requested:	Cyanide					
6	SPK	S09V000171	0		SOLID		
	Analytes Requested:	Cyanide					
7	SAMPLE	S09V000172	0		SOLID	20090160	C Farm WMA C
	Analytes Requested:	Cyanide					
8	SAMPLE	S09V000173	0		SOLID	20090160	C Farm WMA C
	Analytes Requested:	Cyanide					
9	CCV		0		LIQUID		
	Analytes Requested:	Cyanide					
10	CCB		0		LIQUID		
	Analytes Requested:	Cyanide					

Final Page for Batch# 00014147

5/5/09 — Analyst Signature — Date

5/5/09 — Data Entry Signature — Date

Data Entry Comments:

S = Batch Slot Number, R = Retest Number, A = Aliquot Code.

Cyanide Calibration Traveler : EDTA Method

Procedure: LA-695-103 Rev. I-0	**CN Data File:** CN EDTA 090429 A CAL	**Matrix: Liquid** X **Solid**
Batch #: 00014147 (R) 1/14/10	**Analyst:** KR MONTEITH	**Analysis Date:** 4/29/09 **End Time:** 14:00
Instrument Code: (4A) Cary #1 ____ **(4C) Cary #2** ✓		
✓ **Cable OK** ✓ **Lamp OK** ✓ **Glass Sleeve OK**	**Pyridine reag. book #:** 95N17B	**EDTA/en book #** 94N17A
Calibration Stock Std ID #: A2-MEB197149	Diluted 0.25 mL of Cal. stock standard to a final volume of 25 mL.	Working Cal. Std conc. 10.01 ug/mL
LCS Stock Std ID #: B2-MEB254032	Diluted 0.25 mL of LCS stock standard to a final volume of 25 mL.	Working LCS Std conc. 9.82 ug/mL

Vial #	Standard ID	mL Std. used	EDTA/en vol. used	final volume	Comments
1	Calib. Blank	0 mL	3.5 mL	25 mL	
2	Std. 1	0.05		25 mL	
3	Std. 2	0.1		25 mL	
4	Std. 3	0.25		25 mL	
5	Std. 4	0.50		25 mL	
6	Std. 5	0.75		25 mL	
7	Std. 6	1.0	3.5 mL	25 mL	
8	ICV	0.5 mL	3.5	25 mL	ICV serves as LCS when calibration curve is run with samples.
9	ICB	0 mL	3.5	25 mL	ICB serves as Prep. Blk. when calibration curve is run with samples.

Pipettor #s: 0 61799, 1250233, E06073708 visual checks done

Fax sent by : 5093535354 Work of 4445 04-29-09 13:41 Pg. 2/3

Cyanide Sample Traveler : EDTA Method

Procedure: LA-695-103 Rev. I-0	**CN Data File:** CN EDTA 090429A CAL	**Matrix: Liquid** _____ **Solid** X
Worklist #: 00014147 (R3) 1/14/10	**Analyst:** KR MONTEITH	**Analysis Date:** 4/29/09 **EndTime:** 14:00
Instrument Code: (4A) Cary #1 _____ **(4C) Cary #2** X		
✓ **Cable OK** ✓ **Lamp OK** ✓ **Glass Sleeve OK**		**Pyridine reag. book #:** 95N17B **EDTA/en book #** 94N17A

Calibration Stock Std ID #: N/A	Diluted N/A mL of Cal. stock standard to a final volume of N/A mL.	Working Cal. Std conc. N/A ug/mL
LCS Stock Std ID #: B2-MEB254032	Diluted 0.25 mL of LCS stock standard to a final volume of 25 mL.	Working LCS Std conc. 9.82 ug/mL

Vial #	Sample ID	Wt. in g or mL Std.	Dissolution volume	mL Dissolution used	final volume	Comments
1	CCV (LCS)	0.5 mL			25 mL	Not required if calibration curve is done with samples
2	CCB (Prep Blank)	0 mL			25 mL	Not required if calibration curve is done with samples
3	LLS (if needed)	0.15 mL			25 mL	Not required if calibration curve is done with samples
4	S09V000171	0.2768 g	5 mL	3.5	25 mL	
5	DUP	0.2739 g	5 mL	3.5	25 mL	
6	SPK	0.2724 g	5 mL	3.5	25 mL	0.25 mL SPK (LCS)
7	S09V000172	0.2829 g	5 mL	3.5	25 mL	
8	S09V000173	0.2640 g	5 mL	3.5	25 mL	
9			5 mL		25 mL	
10			5 mL		25 mL	
11			5 mL		25 mL	
14	CCV	0.5 mL			25 mL	
15	CCB	0 mL			25 mL	

Pipette #s: D61799, 1250233, E0607370F visual checks done

Fax sent by : 5093737334 COKR BC ZZZS 04-29-09 13:46 Pg: 1/5

LABCORE Completed Batch Report for Batch# 00014213

Analyst: Monteith, Kenneth

Book#: see bench sheets

Instrument: CARY 50-2

Method: CN - EDTA, LA-695-103 Rev/Mod I-0

Specification: C Farm WMA C

Prep Batch:

Batch Comment:

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 LCS	S0905110047		0	0	Cyanide	LIQUID	.1964	2.1144E-01			0.037	ug/mL	107.66	% Recovery	
Sample Sequence 2															
2 ICB	S0905110048		0	0	Cyanide	LIQUID		<3.7000E-02			0.037	ug/mL			
Sample Sequence 3															
3 LLS	S0905110049		0	0	Cyanide	LIQUID	.04004	3.8180E-02			0.037	ug/mL	95.355	% Recovery	
Sample Sequence 4															
4 SAMPLE	S09V000174		0	0	Cyanide	SOLID	N/A	<4.4613E+00			4.4613	ug/g			U
Sample Sequence 5															
5 DUP	S0905110050	S09V000174	0	0	Cyanide	SOLID	<4.4613E+00	<4.5472E+00			4.5472	ug/g			
Sample Sequence 6															
6 SPK	S0905110051	S09V000174	0	0	Cyanide	SOLID	12.22001	1.1529E+01			4.6043	ug/g	94.348	% Recovery	
Sample Sequence 7															
7 SAMPLE	S09V000175		0	0	Cyanide	SOLID	N/A	<5.0688E+00			5.0688	ug/g			U
Sample Sequence 8															
8 CCV	S0905110052		0	0	Cyanide	LIQUID	.1964	1.9371E-01			0.037	ug/mL	98.63	% Recovery	
Sample Sequence 9															
9 CCB	S0905110053		0	0	Cyanide	LIQUID		<3.7000E-02			0.037	ug/mL			

Comments Section:

Comments for sample: S0905110049, test: CN - EDTA

*The LLS entered was the lowest calibration point above the DL level. The calculated recovery for the lowest calibration point was 108.9%, but this standard could not be reported because it was <DL so the recovery would not calculate.

Data Flagger Status:
Flagging Completed

* Second non zero cal std

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014213

Final Page for Batch# 00014213

Rosie R. Ross 6/4/09

Reviewer Signature Date

LABCORE Completed Batch Report for Batch# 00014213

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0905110047	LCS				
2	S0905110048	ICB				
3	S0905110049	LLS				
4	S09V000174	SAMPLE		20090160	B1YT80	C Farm WMA C
5	S0905110050	DUP	S09V000174			
6	S0905110051	SPK	S09V000174			
7	S09V000175	SAMPLE		20090160	B1YT83	C Farm WMA C
8	S0905110052	CCV				
9	S0905110053	CCB				

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

222-S Advanced Technologies and Laboratories

Cyanide-EDTA Data Review Checklist

Worklist/Project Information: 00014213 / C Farm Cyanide

Procedure Used: LA-695-103

Run Date: 5/7/09

Instrument ID: Cary 50 #2

Review Items	Yes	No	N/A	Comments/Samples Affected (give review item letter and number)
A. Standard dilution, Calibration, Instrument Run QC				
1. Were the cyanide stock standards diluted as specified in the SOP?	X			
2. Was a calibration done? If a previous calibration was used, was the calibration used done within 90 days of the analysis date?	X			
3. Was the correlation coefficient of the calibration curve ≥ 0.995?	X			
4. Were ICV/CCV analyzed at appropriate frequency and were recoveries within control limits? (85 -115%) ?	X			
5. Was an LLS run and was the recovery within 100±25% ? If a calibration curve is run the lowest calibration point above MDL level serves as the LLS.	X			
6. Were ICB/CCB analyzed at appropriate frequency and were results < EQL?	X			
B. Sample Results				
1. Were all samples concentrations below the concentration of the highest calibration standard ?	X			
2. Are all reported results bracketed by in control QC?	X			
3. Were sample analyses done within holding time?	X			
C. Preparation/Matrix QC				
1. Was the method blank (also called the ICB) results < EQL?	X			
2. Was an LCS done per prep batch and were recoveries within limits? (85-115%)	X			
3. Was an MS run at required frequency and were recoveries within limits? ((75-125%)	X			
4. Was an MSD or DUP run at required frequency and was the % RPD within limits? (<20% if result >5 times MDL)	X			
D. Other				
1. Are all nonconformances documented appropriately?			X	
2. Is current MDL/EQL data on file?	X			
3. Were calculations checked for errors?	X			
4. Were transcriptions and data upload checked for errors?	X			
5. Were all client/project specific requirements met?	X			PM Reviewer: DORten 11/30/09
6. Was the date/time of analysis verified as correct?	X			

1st Level Data Reviewer Roxie R. Ross Date: 5/27/09 again 6/4/09

2nd Level Data Reviewer: K B Date: 6/5/09

5/11/2009 1:09:28PM
IncompleteBatchShort Version 2.7.22
batchreports 2.7.25

LABCORE Data Entry Template for Batch# 00014213

Analyst: Monteith, Kenneth

Standard ID / Book#: SEE BENCH SHEET

Instrument: CARY 50-2

Method: CN - EDTA, LA-695-103 Rev/Mod I-0

Prep Batch:

Batch Comment:

S	Type	Sample	R	A	Matrix	Group#	Project
1	LCS		0		LIQUID		
	Analytes Requested:	Cyanide					
2	ICB		0		LIQUID		
	Analytes Requested:	Cyanide					
3	LLS		0		LIQUID		
	Analytes Requested:	Cyanide					
4	SAMPLE	S09V000174	0		SOLID	20090160	C Farm WMA C
	Analytes Requested:	Cyanide					
5	DUP	S09V000174	0		SOLID		
	Analytes Requested:	Cyanide					
6	SPK	S09V000174	0		SOLID		
	Analytes Requested:	Cyanide					
7	SAMPLE	S09V000175	0		SOLID	20090160	C Farm WMA C
	Analytes Requested:	Cyanide					
8	CCV		0		LIQUID		
	Analytes Requested:	Cyanide					
9	CCB		0		LIQUID		
	Analytes Requested:	Cyanide					

Final Page for Batch# 00014213

5/11/09 — Analyst Signature — Date

5/11/09 — Data Entry Signature — Date

Data Entry Comments:

S = Batch Slot Number, R = Retest Number, A = Aliquot Code.

Cyanide Calibration Traveler : EDTA Method

FAXED

Procedure: LA-695-103 Rev. I-0	**CN Data File:** CN EDTA 090507A CAL	**Matrix:** Liquid ✓ Solid _____
Batch #: 00014213 (R2) 1/14/10	**Analyst:** KR MONTEITH	**Analysis Date:** 5/7/09 **End Time:** 14:15
Instrument Code: (4A) Cary #1 _____ **(4C) Cary #2** ✓		
✓ **Cable OK** ✓ **Lamp OK** ✓ **Glass Sleeve OK**		**Pyridine reag. book #:** 95N17C **EDTA/en book #** 94N17A

Calibration Stock Std ID #: A2-MEB197149	Diluted 0.25 mL of Cal. stock standard to a final volume of 25 mL.	Working Cal. Std conc. 10.01 ug/mL
LCS Stock Std ID #: B2-MEB254032	Diluted 0.25 mL of LCS stock standard to a final volume of 25 mL.	Working LCS Std conc. 9.82 ug/mL

Vial #	Standard ID	mL Std. used	EDTA/en vol. used	final volume	Comments
1	Calib. Blank	0 mL		25 mL	
2	Std. 1	0.05		25 mL	
3	Std. 2	0.1		25 mL	
4	Std. 3	0.25		25 mL	
5	Std. 4	0.50		25 mL	
6	Std. 5	0.75		25 mL	
7	Std. 6	1.0		25 mL	
8	ICV	0.5 mL		25 mL	ICV serves as LCS when calibration curve is run with samples.
9	ICB	0 mL		25 mL	ICB serves as Prep. Blk. when calibration curve is run with samples.

Pipettor #s: D 61799, 1250233, E0607370F visual checks done

05/07/2009 THU 14:17 [TX/RX NO 5733] 001

Cyanide Sample Traveler : EDTA Method

Procedure: LA-695-103 Rev. I-0	**CN Data File:** CN EDTA 090507A CHL	**Matrix: Liquid** _____ **Solid** ✓
Worklist #: 00014213 (RB) 1/14/10	**Analyst:** KR MONTEITH	**Analysis Date:** 5/7/09 **EndTime:** 14:15
Instrument Code: (4A) Cary #1 _____ **(4C) Cary #2** ✓		
✓ **Cable OK** ✓ **Lamp OK** ✓ **Glass Sleeve OK**	**Pyridine reag. book #:** 95N17C	**EDTA/en book #** 94N17A
Calibration Stock Std ID #: N/A	Diluted N/A mL of Cal. stock standard to a final volume of N/A mL.	Working Cal. Std conc. N/A ug/mL
LCS Stock Std ID #: B2-MEB254032	Diluted 0.25 mL of LCS stock standard to a final volume of 25 mL.	Working LCS Std conc. 9.82 ug/mL

Vial #	Sample ID	Wt. in g or mL Std.	Dissolution volume	mL Dissolution used	final volume	Comments
1	CCV (LCS)	0.5 mL			25 mL	Not required if calibration curve is done with samples
2	CCB (Prep Blank)	0 mL			25 mL	Not required if calibration curve is done with samples
3	LLS (if needed)	0.15 mL			25 mL	Not required if calibration curve is done with samples
4	S09V000174	0.2962g	5 mL	3.5	25 mL	
5	Dup	0.2906g	5 mL	3.5	25 mL	
6	SPK	0.2870g	5 mL	3.5	25 mL	+ 0.25mL LCS
7	S09V000175	0.2607g	5 mL	3.5	25 mL	
8			5 mL	(RB) 5/11/09	25 mL	
9			5 mL		25 mL	
10			5 mL		25 mL	
11			5 mL		25 mL	
14	CCV	0.5 mL			25 mL	
15	CCB	0 mL			25 mL	

Pipette #s: D61799, 125 0233, E0607370F visual checks done

LABCORE Completed Batch Report for Batch# 00013951

Analyst: Monteith, Kenneth

Book#: 131N19C

Instrument: ISE-Meter #2

Method: SULFIDE, LA-361-101 Rev/Mod D-0

Specification: C Farm WMA C

Prep Batch:

Batch Comment: C FARM SULFIDE

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 ICV	S0904260001		0	0	Sulfide	LIQUID	3.4066	3.3700E+00			0.18	ug/mL	98.926	% Recovery	
Sample Sequence 2															
2 ICB	S0904260002		0	0	Sulfide	LIQUID		<1.8000E-01			0.18	ug/mL			
Sample Sequence 3															
3 LLS	S0904260003		0	0	Sulfide	LIQUID	.6813	6.9800E-01			0.18	ug/mL	102.45	% Recovery	
Sample Sequence 4															
4 BLNK-PREP	S0904260004		0	0	Sulfide	LIQUID		<1.8000E-01			0.18	ug/mL			
Sample Sequence 5															
5 LCS	S0904260005		0	0	Sulfide	LIQUID	1.7033	1.8200E+00			0.18	ug/mL	106.85	% Recovery	
Sample Sequence 6															
6 SAMPLE	S09V000171		0	0	Sulfide	SOLID	N/A	3.2178E+01			7.61	ug/g			J
Sample Sequence 7															
7 DUP	S0904260006	S09V000171	0	0	Sulfide	SOLID	3.2178E+01	3.2132E+01			7.72	ug/g	0.14178	% RPD	
Sample Sequence 8															
8 SPK-PREDIG	S0904260007	S09V000171	0	0	Sulfide	SOLID	69.86259	1.1116E+02			0.18	ug/g	113.05	% Recovery	
Sample Sequence 9															
9 CCV	S0904260008		0	0	Sulfide	LIQUID	3.406	3.4900E+00			0.18	ug/mL	102.47	% Recovery	
Sample Sequence 10															
10 CCB	S0904260009		0	0	Sulfide	LIQUID		<1.8000E-01			0.18	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00013951

Final Page for Batch# 00013951

Roxie R. Ross 5/27/09

Reviewer Signature Date

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00013951

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0904260001	ICV				
2	S0904260002	ICB				
3	S0904260003	LLS				
4	S0904260004	BLNK-PREP				
5	S0904260005	LCS				
6	S09V000171	SAMPLE		20090160	B1YT71	C Farm WMA C
7	S0904260006	DUP	S09V000171			
8	S0904260007	SPK-PREDIG	S09V000171			
9	S0904260008	CCV				
10	S0904260009	CCB				

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

222-S Advanced Technologies and Laboratories **Sulfide Data Review Checklist**

Worklist/Project Information: 00013951 / C Farm Procedure Used: LA-361-101

Run Date: 4/20/09 Instrument ID: Sulfide ISE

Review Items	Yes	No	N/A	Comments/Samples Affected (give review item letter and number)
A. Standard standardization, Meter calibration, Instrument Run QC				
1. Was the Sulfide standard standardized according to the SOP?	X			
2. Was the meter calibrated according to the SOP?	X			
3 Was slope of the meter's calibration within expected limits?	X			
4. Were ICV/CCV analyzed at appropriate frequency and were recoveries within control limits? (90 -110%) ?	X			
5. Were ICB/CCB analyzed at appropriate frequency and were results < MDL?	X			
6. Was an LLS run and was the recovery 100 ±30%?	X			
B. Sample Results				
1. Were all samples concentrations below the concentration of the highest calibration standard ?	X			
2. Are all reported results bracketed by in control QC?	X			
3. Were sample analyses done within holding time?	X			
C. Preparation/Matrix QC				
1. Was a method blank done per prep batch and were results < MDL?	X			
2. Was an LCS done per prep batch and were recoveries within limits? (80-120%)	X			
3. Was an MS run at required frequency and were recoveries within limits? ((75-125%)	X			
4. Was an MSD or DUP run at required frequency and was the % RPD within limits? (<20% if result >5 times MDL)	X			
D. Other				
1. Are all nonconformances documented appropriately?			X	
2. Is current MDL/EQL data on file?	X			
3. Were calculations checked for errors?	X			
4. Were transcriptions and data upload checked for errors?	X			
5. Were all client/project specific requirements met?	X			
6. Was the date/time of analysis verified as correct?	X			PM Reviewer: Gerald Peterson 11/30/09

1st Level Data Reviewer Rosie R. Ross Date: 5/27/09

PM Reviewer: Gerald Peterson 10-5-09

2nd Level Data Reviewer: [signature] Date: 6/3/09

LABCORE Completed Batch Report for Batch# 00013952

Analyst: Thorndike, Kathy

Book#: 131N19D

Instrument: ISE-Meter #1

Method: SULFIDE, LA-361-101 Rev/Mod D-0

Specification: C Farm WMA C

Prep Batch:

Batch Comment: C FARM SULFIDE 04/26/09

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 ICV	S0904260010		0	0	Sulfide	LIQUID	2.6	2.6900E+00			0.18	ug/mL	103.46	% Recovery	
Sample Sequence 2															
2 ICB	S0904260011		0	0	Sulfide	LIQUID		<1.8000E-01			0.18	ug/mL			
Sample Sequence 3															
3 LLS	S0904260012		0	0	Sulfide	LIQUID	.516	5.6600E-01			0.18	ug/mL	109.69	% Recovery	
Sample Sequence 4															
4 BLNK-PREP	S0904260013		0	0	Sulfide	LIQUID		<1.8000E-01			0.18	ug/mL			
Sample Sequence 5															
5 LCS	S0904260014		0	0	Sulfide	LIQUID	1.3	1.2100E+00			0.18	ug/mL	93.077	% Recovery	
Sample Sequence 6															
6 SAMPLE	S09V000172		0	0	Sulfide	SOLID	N/A	1.0338E+01			5.24	ug/g			J
Sample Sequence 7															
7 DUP	S0904260015	S09V000172	0	0	Sulfide	SOLID	1.0338E+01	7.9576E+00			0.18	ug/g	26.020	% RPD	
Sample Sequence 8															
8 SPK-PREDIG	S0904260016	S09V000172	0	0	Sulfide	SOLID	38.60458	4.1952E+01			0.18	ug/g	81.891	% Recovery	
Sample Sequence 9															
9 SAMPLE	S09V000173		0	0	Sulfide	SOLID	N/A	<5.2500E+00			5.25	ug/g			U
Sample Sequence 10															
10 CCV	S0904260017		0	0	Sulfide	LIQUID	2.6	2.6500E+00			0.18	ug/mL	101.92	% Recovery	
Sample Sequence 11															
11 CCB	S0904260018		0	0	Sulfide	LIQUID		<1.8000E-01			0.18	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00013952

Final Page for Batch# 00013952

Rorie R. Ross 5/27/09

Reviewer Signature Date

Units shown for OC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00013952

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0904260010	ICV				
2	S0904260011	ICB				
3	S0904260012	LLS				
4	S0904260013	BLNK-PREP				
5	S0904260014	LCS				
6	S09V000172	SAMPLE		20090160	B1YT74	C Farm WMA C
7	S0904260015	DUP	S09V000172			
8	S0904260016	SPK-PREDIG	S09V000172			
9	S09V000173	SAMPLE		20090160	B1YT77	C Farm WMA C
10	S0904260017	CCV				
11	S0904260018	CCB				

222-S Advanced Technologies and Laboratories **Sulfide Data Review Checklist**

Worklist/Project Information: 00013952 / C Farm Procedure Used: LA-361-101

Run Date: 4/26/09 Instrument ID: Sulfide ISE

Review Items	Yes	No	N/A	Comments/Samples Affected (give review item letter and number)
A. Standard standardization, Meter calibration, Instrument Run QC				C4. % RPD was >20%, but sample result was <EQL so limits do not apply.
1. Was the Sulfide standard standardized according to the SOP?	X			
2. Was the meter calibrated according to the SOP?	X			
3 Was slope of the meter's calibration within expected limits?	X			
4. Were ICV/CCV analyzed at appropriate frequency and were recoveries within control limits? (90 -110%) ?	X			
5. Were ICB/CCB analyzed at appropriate frequency and were results < MDL?	X			
6. Was an LLS run and was the recovery 100 ±30%?	X			
B. Sample Results				
1. Were all samples concentrations below the concentration of the highest calibration standard ?	X			
2. Are all reported results bracketed by in control QC?	X			
3. Were sample analyses done within holding time?	X			
C. Preparation/Matrix QC				
1. Was a method blank done per prep batch and were results < MDL?	X			
2. Was an LCS done per prep batch and were recoveries within limits? (80-120%)	X			
3. Was an MS run at required frequency and were recoveries within limits? ((75-125%)	X			
4. Was an MSD or DUP run at required frequency and was the % RPD within limits? (<20% if result >5 times MDL)	X			
D. Other				
1. Are all nonconformances documented appropriately?			X	
2. Is current MDL/EQL data on file?	X			
3. Were calculations checked for errors?	X			
4. Were transcriptions and data upload checked for errors?	X			
5. Were all client/project specific requirements met?	X			
6. Was the date/time of analysis verified as correct?	X			

1st Level Data Reviewer Raine R. Ross Date: 5/27/09 2nd Level Data Reviewer: [signature] Date: 6/3/09

LABCORE Completed Batch Report for Batch# 00014184

Analyst: Thorndike, Kathy

Book#: 131N19E

Instrument: ISE-Meter #2

Method: SULFIDE, LA-361-101 Rev/Mod D-0

Specification: C Farm WMA C

Prep Batch:

Batch Comment:

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 ICV	S0905070006		0	0	Sulfide	LIQUID	4.89	5.1800E+00			0.18	ug/mL	105.93	% Recovery	
Sample Sequence 2															
2 ICB	S0905070007		0	0	Sulfide	LIQUID		<1.8000E-01			0.18	ug/mL			
Sample Sequence 3															
3 LLS	S0905070008		0	0	Sulfide	LIQUID	.9779	1.0700E+00			0.18	ug/mL	109.42	% Recovery	
Sample Sequence 4															
4 BLNK-PREP	S0905070009		0	0	Sulfide	LIQUID		<1.8000E-01			0.18	ug/mL			
Sample Sequence 5															
5 LCS	S0905070010		0	0	Sulfide	LIQUID	2.445	2.4000E+00			0.18	ug/mL	98.16	% Recovery	
Sample Sequence 6															
6 SAMPLE	S09V000174		0	0	Sulfide	SOLID	N/A	1.4552E+01			5.2493	ug/g			J
Sample Sequence 7															
7 DUP	S0905070011	S09V000174	0	0	Sulfide	SOLID	1.4552E+01	1.0147E+01			5.2786	ug/g	35.672	% RPD	
Sample Sequence 8															
8 SPK-PREDIG	S0905070012	S09V000174	0	0	Sulfide	SOLID	74.49726	8.1048E+01			5.4845	ug/g	89.26	% Recovery	
Sample Sequence 9															
9 SAMPLE	S09V000175		0	0	Sulfide	SOLID	N/A	7.4784E+00			5.5624	ug/g			J
Sample Sequence 10															
10 CCV	S0905070013		0	0	Sulfide	LIQUID	4.89	5.1100E+00			0.18	ug/mL	104.5	% Recovery	
Sample Sequence 11															
11 CCB	S0905070014		0	0	Sulfide	LIQUID		<1.8000E-01			0.18	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014184

Final Page for Batch# 00014184

Roxie R. Ross 5/27/09

Reviewer Signature Date

LABCORE Completed Batch Report for Batch# 00014184

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0905070006	ICV				
2	S0905070007	ICB				
3	S0905070008	LLS				
4	S0905070009	BLNK-PREP				
5	S0905070010	LCS				
6	S09V000174	SAMPLE		20090160	B1YT80	C Farm WMA C
7	S0905070011	DUP	S09V000174			
8	S0905070012	SPK-PREDIG	S09V000174			
9	S09V000175	SAMPLE		20090160	B1YT83	C Farm WMA C
10	S0905070013	CCV				
11	S0905070014	CCB				

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

222-S Advanced Technologies and Laboratories **Sulfide Data Review Checklist**

Worklist/Project Information: 00014184 / C Farm Procedure Used: LA-361-101

Run Date: 5/7/09 Instrument ID: Sulfide ISE

Review Items	Yes	No	N/A	Comments/Samples Affected (give review item letter and number)
A. Standard standardization, Meter calibration, Instrument Run QC				
1. Was the Sulfide standard standardized according to the SOP?	X			C4. % RPD was >20%, but sample result was <EQL so limits do not apply.
2. Was the meter calibrated according to the SOP?	X			
3 Was slope of the meter's calibration within expected limits?	X			
4. Were ICV/CCV analyzed at appropriate frequency and were recoveries within control limits? (90 -110%) ?	X			
5. Were ICB/CCB analyzed at appropriate frequency and were results < MDL?	X			
6. Was an LLS run and was the recovery 100 ±30%?	X			
B. Sample Results				
1. Were all samples concentrations below the concentration of the highest calibration standard ?	X			
2. Are all reported results bracketed by in control QC?	X			
3. Were sample analyses done within holding time?	X			
C. Preparation/Matrix QC				
1. Was a method blank done per prep batch and were results < MDL?	X			
2. Was an LCS done per prep batch and were recoveries within limits? (80-120%)	X			
3. Was an MS run at required frequency and were recoveries within limits? ((75-125%)	X			
4. Was an MSD or DUP run at required frequency and was the % RPD within limits? (<20% if result >5 times MDL)	X			
D. Other				
1. Are all nonconformances documented appropriately?			X	
2. Is current MDL/EQL data on file?	X			
3. Were calculations checked for errors?	X			
4. Were transcriptions and data upload checked for errors?	X			
5. Were all client/project specific requirements met?	X			
6. Was the date/time of analysis verified as correct?	X			PM Reviewer: [illegible] 11/30/09

1st Level Data Reviewer Roxie R. Ross Date: 5/27/09 2nd Level Data Reviewer: [illegible] Date: 6/3/09

LABCORE Completed Batch Report for Batch# 00013838

Analyst: Purinton, Tony

Book#: See bench Sheet

Instrument: PH02

Method: PH SOLID, LA-212-105 Rev/Mod G-0

Specification: C Farm WMA C

Prep Batch: NA

Batch Comment: C Farm Soil. bsm

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 ICVPH	S0904210017		0	0	pH	LIQUID	10	9.99				pH			
Sample Sequence 2															
2 SAMPLE	S09V000171		0	0	pH	SOLID	N/A	10.13			0.01	pH			
Sample Sequence 3															
3 DUP	S0904210019	S09V000171	0	0	pH	SOLID	10.13	10.09			0.01	pH	0.39565	% RPD	
Sample Sequence 4															
4 CCVPH	S0904210020		0	0	pH	LIQUID	10	10.03				pH			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00013838

K B 4/22/09
Reviewer Signature Date

2nd Reviewer: Brian Dent 4/22/09

PM Review Dale Peterson 9/29/09

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed Batch Report for Batch# 00013838

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0904210017	ICVPH				
2	S09V000171	SAMPLE		20090160	B1YT71	C Farm WMA C
3	S0904210019	DUP	S09V000171			
4	S0904210020	CCVPH				

Units shown for QC (BLK/BKG) may not reflect the actual units.

4/21/2009 10:53:52AM
IncompleteBatchLong Version 2.7.22
batchreports 2.7.25

LABCORE Data Entry Template for Batch# 00013838

Analyst: B Mull
Instrument: PH02
Method: PH SOLID, LA-212-105 Rev/Mod G0
Prep Batch: N/A
Batch Comment: C Farm Soil. bsm

Standard ID / Book#: See Bench Sheet for Standard Info. BM 04/21/09

GROUP#	PROJECT	S	TYPE	SAMPLE	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	ICVPH		0		pH	LIQUID	10.00	9.99	N/A	pH
20090160	C Farm WM	2	SAMPLE	S09V000171	0		pH	SOLID	N/A	10.13		pH
		3	DUP	S09V000171	0		pH	SOLID	10.13	10.09	N/A	pH
		4	CCVPH		0		pH	LIQUID	10.00	10.03	N/A	pH

Final Page for Batch# 00013838

B Mullen 04/21/09
Analyst Signature Date

B Mullen 04/21/09
Data Entry Signature Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Batch Slot Number, R = Retest Number, A = Aliquot Code.

PROJECT: C Farm / Method Qualification

LA-212-105 pH G-Ø Rev/Mod WORKLIST: 13838 ANALYST: BMull

LIQUID ADDITION START DATE/TIME: 0930 / 04/21/09
ANALYSIS COMPLETION DATE/TIME: 1030 / 04/21/09

Sample Number Type (sam, dup)	pH Measured	/Actual	Comments
Calibration 1	10.00	10.00	SLOPE: 99.2%
Calibration 2	13.00	13.00	
ICV	9.99	10.00	(20.1°C)
S09V000171	10.13		19.4°C
171 Dup	10.09		
Standard 1	9.97		BEM 04/21/09
Standard 2	9.97		19.4°C (pH 10.00, nominal value)
Standard 3	9.97		20.1°C
CCV	10.00	10.03	
			Standards
	CAL 1		pH 10.00, Lot# 4809204 Exp. 03/10
	CAL 2		pH 13.00, Lot# 1901322, Exp. 01/10
	Stds/ICV/CCV		pH 10.00, Lot# 9007, Exp. 12/31/09

worklist #13839

Additional Comments

LABCORE Completed Batch Report for Batch# 00014262

Analyst: Boisoneau, Ryan **Book#:** See bench Sheet

Instrument: PH02

Method: PH SOLID, LA-212-105 Rev/Mod G-0

Specification: C Farm WMA C

Prep Batch: NA

Batch Comment: C-FARMS RJB

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 ICVPH	S0905170013		0	0	pH	SOLID	8	8.05			0.01	pH			
Sample Sequence 2															
2 SAMPLE	S09V000174		0	0	pH	SOLID	N/A	9.02			0.01	pH			
Sample Sequence 3															
3 DUP	S0905170015	S09V000174	0	0	pH	SOLID	9.02	9			0.01	pH	0.22198	% RPD	
Sample Sequence 4															
4 SAMPLE	S09V000175		0	0	pH	SOLID	N/A	9.2			0.01	pH			
Sample Sequence 5															
5 CCVPH	S0905170016		0	0	pH	SOLID	8	8.02			0.01	pH			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00014262

Reviewer Signature 5/19/09 Date

2nd reviewer: 5/20/09

PM Reviewer: 9/30/09

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014262

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0905170013	ICVPH				
2	S09V000174	SAMPLE		20090160	B1YT80	C Farm WMA C
3	S0905170015	DUP	S09V000174			
4	S09V000175	SAMPLE		20090160	B1YT83	C Farm WMA C
5	S0905170016	CCVPH				

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

05/17/2009 SUN 14:58 [TX/RX NO 5755] 004

LABCORE Data Entry Template for Batch# 00014262

Analyst:

Standard ID / Book#: SL002392

Instrument:

Method: PH SOLID, LA 212-105 Rev/Mod G-05

Prep Batch:

Batch Comment: C-FARMS RJB

CACN: 200389

GROUP#	PROJECT	S	TYPE	SAMPLE	R	A	TEST	MATRIX	ACTUAL	FOUND	DL	UNIT
		1	ICVPH		0		pH	SOLID	8.00	8.05	N/A	pH
20090160	C Farm WM	2	SAMPLE	S09V000174	0		pH	SOLID	N/A	9.02		pH
		3	DUP	S09V000174	0		pH	SOLID		9.00	N/A	pH
20090160	C Farm WM	4	SAMPLE	S09V000175	0		pH	SOLID	N/A	9.20		pH
		5	CCVPH		0		pH	SOLID	8.00	8.02	N/A	pH

Final Page for Batch# 00014262

Ryan Bai 5-17-09

Analyst Signature — Date

Ryan Bai 5-17-09

Data Entry Signature — Date

Data Entry Comments:

Units shown for QC (SPK & STD) may not reflect the actual units. DL = Detection Limit, S = Batch Slot Number, R = Retest Number, A = Aliquot Code.

Fax sent by : 5093737334 COMM BC 2225 05-17-09 14:49 Pg: 4/5

05/17/2009 SUN 14:58 [TX/RX NO 5755] 005

pH Determination of Aqueous Samples

Client/Project: Cfarms **Procedure/Method#:** LA-212-106 **Rev/Mod#:** 6-0

Batch #: 14262 **Analyst:** R.B

Prep Start; Date: 5/17/09 **Time:** 9:00am **Prep Completion; Date:** 5/17/09 **Time:** 9:55am

List Pipettes used and visually verified:

Standards:

Cal 1: SL005707
Cal 2: SL005865
ICV/CCV: ~~8.05~~ / SL002392
R.B 5/17/09

CAL SLOPE: ***(100% ± 5%) *Temp restrictions to cal standards/K. Brown****

Sample Number/Type (Sam, Dup)	pH Slope 100.9		Sample Temp (°C)
	Measured	Actual	
Calibration 1	7.01	7.00	21.0°C
Calibration 2	10.02	10.00	20.9°C
ICV	8.05	8.00	21.0°C
509V000174	9.02		21.0°C
509V000174 Dup	9.00		21.0°C
509V000175	9.20		20.2°C
CCV	8.02	8.00	21.2°C

Comments:

Fax sent by : 5093737334 COMM DC 2223 05-17-09 14:49 Pg: 5/5

LABCORE Completed Batch Report for Batch# 00017429

Analyst: Monteith, Kenneth

Book#: See bench sheet

Instrument: PH02

Method: PH SOLID, LA-212-105 Rev/Mod G-0

Specification: C Farm WMA C

Prep Batch: NA

Batch Comment: pH SOLID FOR C FARM

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 ICVPH	S1001140099		0	0	pH	LIQUID	10	10.01			0.01	pH			
Sample Sequence 2															
2 BLNK-PREP	S1001140100		0	0	pH	LIQUID		7.99			0.01	pH			
Sample Sequence 3															
3 SAMPLE	S09V000172		0	0	pH	SOLID	N/A	10.31			0.01	pH			
Sample Sequence 4															
4 DUP	S1001140101	S09V000172	0	0	pH	SOLID	10.31	10.28			0.01	pH	0.29140	% RPD	
Sample Sequence 5															
5 SAMPLE	S09V000173		0	0	pH	SOLID	N/A	10.12			0.01	pH			
Sample Sequence 6															
6 CCVPH	S1001140102		0	0	pH	LIQUID	10	10.02			0.01	pH			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00017429

Reviewer Signature — Date: 1/19/10

2nd reviewer: [signature] 1/19/10

PM Reviewer: [signature] 01-24-10

LABCORE Completed Batch Report for Batch# 00017429

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1001140099	ICVPH				
2	S1001140100	BLNK-PREP				
3	S09V000172	SAMPLE		20090160	B1YT74	C Farm WMA C
4	S1001140101	DUP	S09V000172			
5	S09V000173	SAMPLE		20090160	B1YT77	C Farm WMA C
6	S1001140102	CCVPH				

1/14/2010 4:06:03PM
IncompleteBatchShort Version 2.7.26
batchreports 2.7.26

LABCORE Data Entry Template for Batch# 00017429

Analyst: Monteith, Kenneth

Standard ID / Book#:

Instrument: PH02

Method: PH SOLID, LA-212-105 Rev/Mod G-0

Prep Batch:

Batch Comment: pH SOLID FOR C FARM

CACN:26B

S	Type	Sample	R	A	Matrix	Group#	Project
1	**ICVPH**		0		LIQUID		
	Analytes Requested:	pH					
2	**BLNK-PREP**		0		LIQUID		
	Analytes Requested:	pH					
3	**SAMPLE**	S09V000172	0		SOLID	20090160	C Farm WMA C
	Analytes Requested:	pH					
4	**DUP**	S09V000172	0		SOLID		
	Analytes Requested:	pH					
5	**SAMPLE**	S09V000173	0		SOLID	20090160	C Farm WMA C
	Analytes Requested:	pH					
6	**CCVPH**		0		LIQUID		
	Analytes Requested:	pH					

Final Page for Batch# 00017429

1/15/10

Analyst Signature **Date**

Ken Monteith unavailable

KJ Thomdike 1-14-10

Data Entry Signature **Date**

Data Entry Comments:

S = Batch Slot Number, R = Retest Number, A = Aliquot Code.

01/14/2010 THU 10:09 [TX/RX NO 6756] 001

LABCORE Data Entry Template for Batch# 00013942

Analyst: TJH/ Ken M
Standard ID / Book#: 9007 Dec 2009
1901322 Jan 2010
Instrument: PH02
Method: PH SOLID, LA 212-105 Rev/Mod G-0
Prep Batch:
Batch Comment: ph solid c-farm tjhy
CACN:200389

FAXED 5/21/09 TJH

S	Type	Sample	R	A	Matrix	Group#	Project
1	ICVPH		0		SOLID		
	Analytes Requested:	pH					
2	SAMPLE	S09V000172	0		SOLID	20090160	C Farm WMA C
	Analytes Requested:	pH					
3	DUP	S09V000172	0		SOLID		
	Analytes Requested:	pH					
4	SAMPLE	S09V000173	0		SOLID	20090160	C Farm WMA C
	Analytes Requested:	pH					
5	CCVPH		0		SOLID		
	Analytes Requested:	pH					

Final Page for Batch# 00013942

Analyst Signature — Date 5/21/09

Data Entry Signature — Date 5/21/09

Data Entry Comments:

S = Batch Slot Number, R = Retest Number, A = Aliquot Code.

Fax sent by : 5093721143 S LHB COMM BC 01-14-10 10:01 Pg. 1/3

01/14/2010 THU 10:09 [TX/RX NO 6756] 003

PROJECT: C-FARM WMAC

LA-212-105 pH G/0 (Rev/Mod) WORKLIST: 19929 ANALYST: TJH

LIQUID ADDITION START DATE/TIME: 9:45 / 4/24/09
ANALYSIS COMPLETION DATE/TIME: 11:30 / 4/24/09

Sample Number Type (sam, dup)	pH Measured	/Actual	Comments	
Calibration 1	10.00	10	SLOPE: 100.3	Temp 19.9
Calibration 2	13.03	13		19.8
ICV	1/10 10.01	10		19.8
~~BLNK~~ TJH	~~7.99~~	~~8~~ TJH		
Spl 000172	10.31			20.1
Dup 000172	10.28			20.1
Smpl 000173	10.12			20.0
CCV	1/10 10.02	10		19.9

Additional Comments Cal #1 Lot 9007 Exp Dec 09
Cal #2 Lot 1901322 Jan 2010
ICV & CCV Lot 9007 Exp Dec 09

LABCORE Completed Batch Report for Batch# 00014073

Analyst: Edwards, Cheryl **Book#:** 119N28B

Instrument: IC-5 (IC-NH4)

Method: IC - NH4, LA-533-101 Rev/Mod O-0

Specification: C Farm WMA C

Prep Batch: 00013855

Batch Comment: Ammonia Distillation Instrument Run

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 ICV	S0905030051		0 0		Ammonium	SOLID	2.970297	3.0135E+00			0.012	ug/mL	101.45	% Recovery	
Sample Sequence 2															
2 ICB	S0905030052		0 0		Ammonium	SOLID		<1.2000E-02			0.012	ug/mL			
Sample Sequence 3															
3 LLS	S0905030053		0 0		Ammonium	SOLID	.11764707	1.0680E-01			0.012	ug/mL	90.78	% Recovery	
Sample Sequence 4															
4 LCS	S0904210060		0 0	S	Ammonium	LIQUID	300	2.9717E+02			0.6	ug/mL	99.058	% Recovery	
Sample Sequence 5															
5 BLNK-PREP	S0904210061		0 0	S	Ammonium	LIQUID		<1.2000E-02			0.012	ug/mL			
Sample Sequence 6															
6 SAMPLE	S09V000219		0 0	S	Ammonium	SOLID	N/A	4.0335E+00			0.47809	ug/g			J
Sample Sequence 7															
7 DUP	S0904210062	S09V000219	0 0	S	Ammonium	SOLID	4.0335E+00	4.5402E+00			0.47809	ug/g	11.820	% RPD	
Sample Sequence 8															
8 SPK-PREDIG	S0904210063	S09V000219	0 0	S	Ammonium	SOLID	119.01	1.1795E+02			0.47619	ug/g	95.72	% Recovery	
Sample Sequence 9															
9 SAMPLE	S09V000220		0 0	S	Ammonium	SOLID	N/A	<4.7809E-01			0.47809	ug/g			U
Sample Sequence 10															
10 SAMPLE	S09V000221		0 0	S	Ammonium	SOLID	N/A	<4.7619E-01			0.47619	ug/g			U
Sample Sequence 11															
11 CCV	S0905030057		0 0		Ammonium	SOLID	2.970297	3.0354E+00			0.012	ug/mL	102.19	% Recovery	
Sample Sequence 12															
12 CCB	S0905030058		0 0		Ammonium	SOLID		<1.2000E-02			0.012	ug/mL			

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed Batch Report for Batch# 00014073

Comments Section:

Comments for sample: S0905030051, test: IC - NH4
m:\PKNTTR~1\090428~1\09042800_A003.DXD

Comments for sample: S09V000221, test: IC - NH4
m:\PKNTTR~1\090428~1\09042800_A013.DXD

Comments for sample: S0905030057, test: IC - NH4
m:\PKNTTR~1\090428~1\09042800_014.DXD

Comments for sample: S0905030058, test: IC - NH4
m:\PKNTTR~1\090428~1\09042800_015.DXD

Comments for sample: S0905030052, test: IC - NH4
m:\PKNTTR~1\090428~1\09042800_A004.DXD

Comments for sample: S0905030053, test: IC - NH4
m:\PKNTTR~1\090428~1\09042800_A005.DXD

Comments for sample: S0904210060, test: IC - NH4
m:\PKNTTR~1\090428~1\09042800_A007.DXD

Comments for sample: S0904210061, test: IC - NH4
m:\PKNTTR~1\090428~1\09042800_A006.DXD

Comments for sample: S09V000219, test: IC - NH4
m:\PKNTTR~1\090428~1\09042800_A008.DXD

Comments for sample: S0904210062, test: IC - NH4
m:\PKNTTR~1\090428~1\09042800_A009.DXD

Comments for sample: S0904210063, test: IC - NH4
m:\PKNTTR~1\090428~1\09042800_A010.DXD

Comments for sample: S09V000220, test: IC - NH4
m:\PKNTTR~1\090428~1\09042800_A012.DXD

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00014073

Reviewer Signature — Date: 5/7/09

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed Batch Report for Batch# 00014073

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0905030051	ICV				
2	S0905030052	ICB				
3	S0905030053	LLS				
4	S0904210060	LCS				
5	S0904210061	BLNK-PREP				
6	S09V000219	SAMPLE		20090160	B1YT71	C Farm WMA C
7	S0904210062	DUP	S09V000219			
8	S0904210063	SPK-PREDIG	S09V000219			
9	S09V000220	SAMPLE		20090160	B1YT74	C Farm WMA C
10	S09V000221	SAMPLE		20090160	B1YT77	C Farm WMA C
11	S0905030057	CCV				
12	S0905030058	CCB				

Units shown for QC (BLK/BKG) may not reflect the actual units.

5/3/2009 11:34:05AM
IncompleteBatchShort Version 2.7.22
batchreports 2.7.25

LABCORE Data Entry Template for Batch# 00014073

Analyst: Cheryl Edwards **Standard ID / Book#:** 119N28B
Instrument: IC-5
Method: IC - NH4, LA-533-101 Rev/Mod 0-0
Prep Batch: 00013855
Batch Comment: Ammonia Distillation Instrument Run

S	Type	Sample	R	A	Matrix	Group#	Project
1	ICV		0		SOLID		
	Analytes Requested:	Ammonium					
2	ICB		0		SOLID		
	Analytes Requested:	Ammonium					
3	LLS		0		SOLID		
	Analytes Requested:	Ammonium					
4	LCS		0	S	LIQUID		
	Analytes Requested:	Ammonium					
5	BLNK-PREP		0	S	LIQUID		
	Analytes Requested:	Ammonium					
6	SAMPLE	S09V000219	0	S	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Ammonium					
7	DUP	S09V000219	0	S	SOLID		
	Analytes Requested:	Ammonium					
8	SPK-PREDIG	S09V000219	0	S	SOLID		
	Analytes Requested:	Ammonium					
9	SAMPLE	S09V000220	0	S	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Ammonium					
10	SAMPLE	S09V000221	0	S	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Ammonium					
11	CCV		0		SOLID		
	Analytes Requested:	Ammonium					
12	CCB		0		SOLID		
	Analytes Requested:	Ammonium					

Final Page for Batch# 00014073

Cheryl Edwards 5/3/09
Analyst Signature Date

Cheryl Edwards 5/3/09
Data Entry Signature Date

Data Entry Comments:

S = Batch Slot Number, R = Retest Number, A = Aliquot Code.

222-S Advanced Technologies and Laboratories | **ION CHROMATOGRAPHY DATA REVIEW CHECKLIST**

Worklist/Project Information: 14073 / C Farm LMAC 20090160 Check Procedure Used: ☒ LA-533-101 (Cat) ☐ LA-533-107 (846 Anions) ☐ LA-533-115 (IC6 Anions)

Run Date: 4/28/09 Instrument ID: IC-5 Prep Batches Analyzed (Worklist #): 13955 Prep Method: LA-544-112

Review Items	Yes	No	N/A	Comments/Samples Affected
A. Calibration/Instrument Run QC				
1. Instrument calibrated per procedure and at specified levels?	✓			
2. Were any calibration points dropped? If yes, has management approved? (Comment required)		✓		
3. Calibration curve correlation coefficient ≥0.995 linear or ≥0.999 quadratic?	✓			
4. ICV/CCV analyzed at appropriate frequency and within control limits (Recovery: 90-110%)?	✓			
5. ICB/CCB analyzed at required frequency and < EQL (or RL) or <5% of the lowest sample result with client consent. N/A if all samples are ND.	✓			
6. LLS run and within control limits (Recovery: 75-125%)? For IH, recovery is mandatory to verify RL.	✓			
B. Sample Results				
1. Were samples with concentrations > linear range for any analyte diluted and reanalyzed?		✓		
2. Are all reported results bracketed by in-control QC?	✓			
3. Are there 10 or fewer samples run between bracketed, in-control QC?	✓			
C. Preparation/Matrix QC				
1. LCS/Prep Std prepared per prep batch and within control limits? Recovery: ☒ 80-120% or ☐ Statistical _____	✓			
2. LCS Dup (Prep Std Dup) prepared per prep batch, if required, and within control limits? Recovery: ☐ 80-120% or ☐ Statistical _____ RPD: ☐ ≤20% or ☐ Statistical _____			✓	
3. IH RLS run (when required) and within mandatory control limits (Recovery: 75-125%)?			✓	
4. Method/Media Blank prepared per prep batch and < EQL (or RL) or <5% of the lowest sample result?	✓			
5. Duplicate or MS Duplicate run at required frequency and within control limits? %RPD: ☒ ≤20% or ☐ Client-specified _____	✓			
6. MS run at required frequency and within control limit? Recovery: ☒ 75-125% or ☐ Client-specified _____	✓			
D. Other				
1. Are all problems and nonconformance issues documented appropriately?	✓			
2. Are current IDL / MDL / EQL / RL data on file?	✓			
3. Calculations/transcriptions checked for errors?	✓			
4. Are all raw data complete and verified in OmniLIMS?	✓			
5. All client/project specific requirements met (e.g., MDL, holding times, etc.)?	✓			
6. Date/time of analysis verified as correct?	✓			
7. Prep/Breakdown Batch Benchsheet/Worklist properly completed and included, as required?	✓			
8. IH Only: Media Blank subtracted from Sample results?			✓	PM Review: DP Peterson 9/30/09

1st Data Reviewer: [signature] Date: 5/8/09 2nd Data Reviewer: [signature] Date: 05/08/09

A-6004-349 (REV 0)

LABCORE Completed Batch Report for Batch# 00014226

Analyst: Edwards, Cheryl **Book#:** 119N28C

Instrument: IC-5 (IC-NH4)

Method: IC - NH4, LA-533-101 Rev/Mod O-0

Specification: C Farm WMA C

Prep Batch: 00014225

Batch Comment: C-Farm Ammonia Distillation Instrument Run

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 ICV	S0905110098		0 0		Ammonium	LIQUID	2.970297	3.0086E+00			0.012	ug/mL	101.29	% Recovery	
Sample Sequence 2															
2 ICB	S0905110099		0 0		Ammonium	LIQUID		<1.2000E-02			0.012	ug/mL			
Sample Sequence 3															
3 LLS	S0905110100		0 0		Ammonium	LIQUID	.1176471	1.0201E-01			0.012	ug/mL	86.708	% Recovery	
Sample Sequence 4															
4 LCS	S0905110093		0 0	S	Ammonium	SOLID	6	6.0298E+00			0.012	ug/g	100.5	% Recovery	
Sample Sequence 5															
5 BLNK-PREP	S0905110094		0 0	S	Ammonium	SOLID		<1.2000E-02			0.012	ug/g			
Sample Sequence 6															
6 SAMPLE	S09V000222		0 0	S	Ammonium	SOLID	N/A	1.1346E+00			0.48819	ug/g			U
Sample Sequence 7															
7 DUP	S0905110095	S09V000222	0 0	S	Ammonium	SOLID	1.1346E+00	1.1488E+00			0.48002	ug/g	1.2477	% RPD	
Sample Sequence 8															
8 SPK-PREDIG	S0905110096	S09V000222	0 0	S	Ammonium	SOLID	119.1	1.1644E+02			0.476	ug/g	96.811	% Recovery	
Sample Sequence 9															
9 SAMPLE	S09V000223		0 0	S	Ammonium	SOLID	N/A	1.4533E+00			0.48002	ug/g			J
Sample Sequence 10															
10 CCV	S0905110104		0 0		Ammonium	LIQUID	2.970297	3.0055E+00			0.012	ug/mL	101.19	% Recovery	
Sample Sequence 11															
11 CCB	S0905110105		0 0		Ammonium	LIQUID		<1.2000E-02			0.012	ug/mL			

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00014226

Comments Section:

Comments for sample: S0905110098, test: IC - NH4
z:\PKNTTR~1\090506-IC5\09050600_003.DXD

Comments for sample: S0905110104, test: IC - NH4
z:\PKNTTR~1\090506-IC5\09050600_012.DXD

Comments for sample: S0905110105, test: IC - NH4
z:\PKNTTR~1\090506-IC5\09050600_013.DXD

Comments for sample: S0905110099, test: IC - NH4
z:\PKNTTR~1\090506-IC5\09050600_004.DXD

Comments for sample: S0905110100, test: IC - NH4
z:\PKNTTR~1\090506-IC5\09050600_005.DXD

Comments for sample: S0905110093, test: IC - NH4
z:\PKNTTR~1\090506-IC5\09050600_007.DXD

Comments for sample: S0905110094, test: IC - NH4
z:\PKNTTR~1\090506-IC5\09050600_006.DXD

Comments for sample: S09V000222, test: IC - NH4
z:\PKNTTR~1\090506-IC5\09050600_008.DXD

Comments for sample: S0905110095, test: IC - NH4
z:\PKNTTR~1\090506-IC5\09050600_009.DXD

Comments for sample: S0905110096, test: IC - NH4
z:\PKNTTR~1\090506-IC5\09050600_010.DXD

Comments for sample: S09V000223, test: IC - NH4
z:\PKNTTR~1\090506-IC5\09050600_011.DXD

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00014226

5/11/09

Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed Batch Report for Batch# 00014226

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0905110098	ICV				
2	S0905110099	ICB				
3	S0905110100	LLS				
4	S0905110093	LCS				
5	S0905110094	BLNK-PREP				
6	S09V000222	SAMPLE		20090160	B1YT80	C Farm WMA C
7	S0905110095	DUP	S09V000222			
8	S0905110096	SPK-PREDIG	S09V000222			
9	S09V000223	SAMPLE		20090160	B1YT83	C Farm WMA C
10	S0905110104	CCV				
11	S0905110105	CCB				

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

222-S Advanced Technologies and Laboratories | **ION CHROMATOGRAPHY DATA REVIEW CHECKLIST**

Worklist/Project Information: 14226/CFarm Check Procedure Used: ☒ LA-533-101 (Cat) ☐ LA-533-107 (846 Anions) ☐ LA-533-115 (IC6 Anions)

Run Date: 5/6/09 Instrument ID: IC-5 Prep Batches Analyzed (Worklist #): 14225 Prep Method: LA-~~534~~ 544-112

Review Items	Yes	No	N/A	Comments/Samples Affected cm 5/12/09
A. Calibration/Instrument Run QC				
1. Instrument calibrated per procedure and at specified levels?	✓			
2. Were any calibration points dropped? If yes, has management approved? (Comment required)	✓	✓		
3. Calibration curve correlation coefficient ≥0.995 linear or ≥0.999 quadratic?	✓			
4. ICV/CCV analyzed at appropriate frequency and within control limits (Recovery: 90-110%)?	✓			
5. ICB/CCB analyzed at required frequency and < EQL (or RL) or <5% of the lowest sample result with client consent. N/A if all samples are ND.	✓			
6. LLS run and within control limits (Recovery: 75-125%)? For IH, recovery is mandatory to verify RL.	✓			
B. Sample Results				
1. Were samples with concentrations > linear range for any analyte diluted and reanalyzed? cm 5/14/09		✗	✓	
2. Are all reported results bracketed by in-control QC?	✓			
3. Are there 10 or fewer samples run between bracketed, in-control QC?	✓			
C. Preparation/Matrix QC				
1. LCS/Prep Std prepared per prep batch and within control limits? Recovery: ☒ 80-120% or ☐ Statistical	✓			
2. LCS Dup (Prep Std Dup) prepared per prep batch, if required, and within control limits? Recovery: ☐ 80-120% or ☐ Statistical; RPD: ☐ ≤20% or ☐ Statistical			✓	
3. IH RLS run (when required) and within mandatory control limits (Recovery: 75-125%)?			✓	
4. Method/Media Blank prepared per prep batch and < EQL (or RL) or <5% of the lowest sample result?	✓			
5. Duplicate or MS Duplicate run at required frequency and within control limits? %RPD: ☑ ≤20% or ☐ Client-specified	✓			
6. MS run at required frequency and within control limit? Recovery: ☑ 75-125% or ☐ Client-specified	✓			
D. Other				
1. Are all problems and nonconformance issues documented appropriately?	✓			
2. Are current IDL / MDL / EQL / RL data on file?	✓			
3. Calculations/transcriptions checked for errors?	✓			
4. Are all raw data complete and verified in OmniLIMS?	✓			
5. All client/project specific requirements met (e.g., MDL, holding times, etc.)?	✓			
6. Date/time of analysis verified as correct?	✓			
7. Prep/Breakdown Batch Benchsheet/Worklist properly completed and included, as required?	✓			
8. IH Only: Media Blank subtracted from Sample results?			✓	PM Reviewer: DP Ritterman 9/29/09

1st Data Reviewer: [signature] Date: 5/11/09 2nd Data Reviewer: [signature] Date: 05/14/09

A-6004-349 (REV 0)

LABCORE Completed Batch Report for Batch# 00016700

Analyst: Thorndike, Kathy **Book#:** 142N28B

Instrument: IC-6 (SMALL ORG ACIDS)

Method: IC - ANIONS/SMALL ORG. ACIDS, LA-533-115 Rev/Mod J-0

Specification: C Farm WMA C

Prep Batch: 00016699

Batch Comment: IC 6 C FARM WATER DIGESTION SAMPLES

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 CCV	S0911060026		0	0	Fluoride	LIQUID	.4713984	4.5787E-01			1.61E-03	ug/mL	97.13	% Recovery	
1 CCV	S0911060026		0	0	Glycolate	LIQUID	3.190272	3.1849E+00			9.37E-03	ug/mL	99.831	% Recovery	
1 CCV	S0911060026		0	0	Acetate	LIQUID	3.65056	3.7445E+00			6.04E-03	ug/mL	102.57	% Recovery	
1 CCV	S0911060026		0	0	Formate	LIQUID	3.72992	3.7722E+00			4.67E-03	ug/mL	101.13	% Recovery	
1 CCV	S0911060026		0	0	Chloride	LIQUID	.6634496	6.4392E-01			9.98E-03	ug/mL	97.056	% Recovery	
1 CCV	S0911060026		0	0	Nitrite	LIQUID	4.3648	4.4381E+00			0.0192	ug/mL	101.68	% Recovery	
1 CCV	S0911060026		0	0	Sulfate	LIQUID	4.967936	4.9535E+00			0.0187	ug/mL	99.709	% Recovery	
1 CCV	S0911060026		0	0	Oxalate	LIQUID	4.1664	4.1184E+00			0.0231	ug/mL	98.849	% Recovery	
1 CCV	S0911060026		0	0	Bromide	LIQUID	4.452096	4.2718E+00			0.058	ug/mL	95.951	% Recovery	
1 CCV	S0911060026		0	0	Nitrate	LIQUID	4.182272	4.0584E+00			0.0208	ug/mL	97.038	% Recovery	
1 CCV	S0911060026		0	0	Phosphate	LIQUID	4.420352	4.3165E+00			0.0167	ug/mL	97.65	% Recovery	
Sample Sequence 2															
2 CCB	S0911060027		0	0	Fluoride	LIQUID		<1.6100E-03			1.61E-03	ug/mL			
2 CCB	S0911060027		0	0	Glycolate	LIQUID		<9.3700E-03			9.37E-03	ug/mL			
2 CCB	S0911060027		0	0	Acetate	LIQUID		<6.0400E-03			6.04E-03	ug/mL			
2 CCB	S0911060027		0	0	Formate	LIQUID		<4.6700E-03			4.67E-03	ug/mL			
2 CCB	S0911060027		0	0	Chloride	LIQUID		<9.9800E-03			9.98E-03	ug/mL			
2 CCB	S0911060027		0	0	Nitrite	LIQUID		<1.9200E-02			0.0192	ug/mL			
2 CCB	S0911060027		0	0	Sulfate	LIQUID		<1.8700E-02			0.0187	ug/mL			
2 CCB	S0911060027		0	0	Oxalate	LIQUID		<2.3100E-02			0.0231	ug/mL			
2 CCB	S0911060027		0	0	Bromide	LIQUID		<5.8000E-02			0.058	ug/mL			
2 CCB	S0911060027		0	0	Nitrate	LIQUID		<2.0800E-02			0.0208	ug/mL			
2 CCB	S0911060027		0	0	Phosphate	LIQUID		<1.6700E-02			0.0167	ug/mL			
Sample Sequence 3															
3 LLS	S0911060028		0	0	Fluoride	LIQUID	.0295515	2.3240E-02			1.61E-03	ug/mL	78.642	% Recovery	
3 LLS	S0911060028		0	0	Glycolate	LIQUID	.199995	1.6285E-01			9.37E-03	ug/mL	81.427	% Recovery	
3 LLS	S0911060028		0	0	Acetate	LIQUID	.22885	1.8996E-01			6.04E-03	ug/mL	83.006	% Recovery	
3 LLS	S0911060028		0	0	Formate	LIQUID	.233825	2.2374E-01			4.67E-03	ug/mL	95.687	% Recovery	
3 LLS	S0911060028		0	0	Chloride	LIQUID	.041591	3.6230E-02			9.98E-03	ug/mL	87.11	% Recovery	
3 LLS	S0911060028		0	0	Nitrite	LIQUID	.273625	2.5804E-01			0.0192	ug/mL	94.304	% Recovery	

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016700

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
3	LLS	S0911060028		0 0		Sulfate	LIQUID	.311435	2.8544E-01			0.0187	ug/mL	91.653	% Recovery	
3	LLS	S0911060028		0 0		Oxalate	LIQUID	.2611875	2.3434E-01			0.0231	ug/mL	89.721	% Recovery	
3	LLS	S0911060028		0 0		Bromide	LIQUID	.2790975	2.2149E-01			0.058	ug/mL	79.359	% Recovery	
3	LLS	S0911060028		0 0		Nitrate	LIQUID	.2621825	2.2394E-01			0.0208	ug/mL	85.414	% Recovery	
3	LLS	S0911060028		0 0		Phosphate	LIQUID	.2771075	2.3340E-01			0.0167	ug/mL	84.227	% Recovery	
Sample Sequence 4																
4	BLNK-PREP	S0911060024		0 0	W	Fluoride	LIQUID		<1.6100E-03			1.61E-03	ug/mL			
4	BLNK-PREP	S0911060024		0 0	W	Glycolate	LIQUID		<9.3700E-03			9.37E-03	ug/mL			
4	BLNK-PREP	S0911060024		0 0	W	Acetate	LIQUID		<6.0400E-03			6.04E-03	ug/mL			
4	BLNK-PREP	S0911060024		0 0	W	Formate	LIQUID		<4.6700E-03			4.67E-03	ug/mL			
4	BLNK-PREP	S0911060024		0 0	W	Chloride	LIQUID		<9.9800E-03			9.98E-03	ug/mL			
4	BLNK-PREP	S0911060024		0 0	W	Nitrite	LIQUID		1.5993E-01			0.0192	ug/mL			
4	BLNK-PREP	S0911060024		0 0	W	Sulfate	LIQUID		<1.8700E-02			0.0187	ug/mL			
4	BLNK-PREP	S0911060024		0 0	W	Oxalate	LIQUID		<2.3100E-02			0.0231	ug/mL			
4	BLNK-PREP	S0911060024		0 0	W	Bromide	LIQUID		<5.8000E-02			0.058	ug/mL			
4	BLNK-PREP	S0911060024		0 0	W	Nitrate	LIQUID		2.1870E-02			0.0208	ug/mL			
4	BLNK-PREP	S0911060024		0 0	W	Phosphate	LIQUID		<1.6700E-02			0.0167	ug/mL			
Sample Sequence 5																
5	SAMPLE	S09V001330		0 0	W	Fluoride	SOLID	N/A	4.7607E+00			0.019863	ug/g			Bc
5	SAMPLE	S09V001330		0 0	W	Glycolate	SOLID	N/A	<1.1560E-01			0.1156	ug/g			U
5	SAMPLE	S09V001330		0 0	W	Acetate	SOLID	N/A	3.1921E+00			0.074518	ug/g			c
5	SAMPLE	S09V001330		0 0	W	Formate	SOLID	N/A	1.7275E+00			0.057616	ug/g			J
5	SAMPLE	S09V001330		0 0	W	Chloride	SOLID	N/A	1.3391E+00			0.12313	ug/g			
5	SAMPLE	S09V001330		0 0	W	Nitrite	SOLID	N/A	1.2357E+00			0.23688	ug/g			BJ
5	SAMPLE	S09V001330		0 0	W	Sulfate	SOLID	N/A	1.7268E+01			0.23071	ug/g			c
5	SAMPLE	S09V001330		0 0	W	Oxalate	SOLID	N/A	2.5798E+00			0.285	ug/g			J
5	SAMPLE	S09V001330		0 0	W	Bromide	SOLID	N/A	<7.1557E-01			0.71557	ug/g			U
5	SAMPLE	S09V001330		0 0	W	Nitrate	SOLID	N/A	1.3583E+01			0.25662	ug/g			c
5	SAMPLE	S09V001330		0 0	W	Phosphate	SOLID	N/A	1.1586E+01			0.20604	ug/g			c
Sample Sequence 6																
6	DUP	S0911060025	S09V001330	0 0	W	Fluoride	SOLID	4.7607E+00	3.1460E+00			0.019997	ug/g	40.843	% RPD	
6	DUP	S0911060025	S09V001330	0 0	W	Glycolate	SOLID	<1.1560E-01	<1.1638E-01			0.11638	ug/g			
6	DUP	S0911060025	S09V001330	0 0	W	Acetate	SOLID	3.1921E+00	2.0695E+00			0.075018	ug/g	42.671	% RPD	
6	DUP	S0911060025	S09V001330	0 0	W	Formate	SOLID	1.7275E+00	7.4086E-01			0.058002	ug/g	79.942	% RPD	
6	DUP	S0911060025	S09V001330	0 0	W	Chloride	SOLID	1.3391E+00	1.0039E+00			0.12395	ug/g	28.613	% RPD	
6	DUP	S0911060025	S09V001330	0 0	W	Nitrite	SOLID	1.2357E+00	1.1769E+00			0.23847	ug/g	4.8760	% RPD	
6	DUP	S0911060025	S09V001330	0 0	W	Sulfate	SOLID	1.7268E+01	1.2662E+01			0.23226	ug/g	30.776	% RPD	
6	DUP	S0911060025	S09V001330	0 0	W	Oxalate	SOLID	2.5798E+00	1.4734E+00			0.28691	ug/g	54.593	% RPD	
6	DUP	S0911060025	S09V001330	0 0	W	Bromide	SOLID	<7.1557E-01	<7.2037E-01			0.72037	ug/g			
6	DUP	S0911060025	S09V001330	0 0	W	Nitrate	SOLID	1.3583E+01	9.7985E+00			0.25834	ug/g	32.370	% RPD	
6	DUP	S0911060025	S09V001330	0 0	W	Phosphate	SOLID	1.1586E+01	7.7620E+00			0.20742	ug/g	39.528	% RPD	

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016700

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 7															
7 SPK-IC	S0911060029	S09V001330	0 0		Fluoride	SOLID	59.4	9.8291E-01			1.61E-03	ug/g	100.51	% Recovery	
7 SPK-IC	S0911060029	S09V001330	0 0		Glycolate	SOLID	402	4.0974E+00			9.37E-03	ug/g	101.93	% Recovery	
7 SPK-IC	S0911060029	S09V001330	0 0		Acetate	SOLID	460	5.0952E+00			6.04E-03	ug/g	105.14	% Recovery	
7 SPK-IC	S0911060029	S09V001330	0 0		Formate	SOLID	470	4.9606E+00			4.67E-03	ug/g	102.56	% Recovery	
7 SPK-IC	S0911060029	S09V001330	0 0		Chloride	SOLID	83.6	9.3446E-01			9.98E-03	ug/g	98.794	% Recovery	
7 SPK-IC	S0911060029	S09V001330	0 0		Nitrite	SOLID	550	5.8075E+00			0.0192	ug/g	103.77	% Recovery	
7 SPK-IC	S0911060029	S09V001330	0 0		Sulfate	SOLID	626	7.6880E+00			0.0187	ug/g	100.45	% Recovery	
7 SPK-IC	S0911060029	S09V001330	0 0		Oxalate	SOLID	525	5.4222E+00			0.0231	ug/g	99.297	% Recovery	
7 SPK-IC	S0911060029	S09V001330	0 0		Bromide	SOLID	561	5.5741E+00			0.058	ug/g	99.361	% Recovery	
7 SPK-IC	S0911060029	S09V001330	0 0		Nitrate	SOLID	527	6.4075E+00			0.0208	ug/g	100.69	% Recovery	
7 SPK-IC	S0911060029	S09V001330	0 0		Phosphate	SOLID	557	6.5130E+00			0.0167	ug/g	100.07	% Recovery	
Sample Sequence 8															
8 SAMPLE	S09V001331		0 0	W	Fluoride	SOLID	N/A	2.6284E+00			0.019785	ug/g			c
8 SAMPLE	S09V001331		0 0	W	Glycolate	SOLID	N/A	<1.1514E-01			0.11514	ug/g			U
8 SAMPLE	S09V001331		0 0	W	Acetate	SOLID	N/A	2.1885E+00			0.074223	ug/g			Jc
8 SAMPLE	S09V001331		0 0	W	Formate	SOLID	N/A	6.9591E-01			0.057388	ug/g			J
8 SAMPLE	S09V001331		0 0	W	Chloride	SOLID	N/A	7.3093E-01			0.12264	ug/g			
8 SAMPLE	S09V001331		0 0	W	Nitrite	SOLID	N/A	7.8463E-01			0.23594	ug/g			BJ
8 SAMPLE	S09V001331		0 0	W	Sulfate	SOLID	N/A	9.3541E+00			0.2298	ug/g			c
8 SAMPLE	S09V001331		0 0	W	Oxalate	SOLID	N/A	8.6807E-01			0.28387	ug/g			J
8 SAMPLE	S09V001331		0 0	W	Bromide	SOLID	N/A	<7.1274E-01			0.71274	ug/g			U
8 SAMPLE	S09V001331		0 0	W	Nitrate	SOLID	N/A	7.8247E+00			0.2556	ug/g			c
8 SAMPLE	S09V001331		0 0	W	Phosphate	SOLID	N/A	6.9866E+00			0.20522	ug/g			c
Sample Sequence 9															
9 SAMPLE	S09V001332		0 0	W	Fluoride	SOLID	N/A	1.8745E+00			0.019923	ug/g			c
9 SAMPLE	S09V001332		0 0	W	Glycolate	SOLID	N/A	<1.1595E-01			0.11595	ug/g			U
9 SAMPLE	S09V001332		0 0	W	Acetate	SOLID	N/A	3.8274E-01			0.074741	ug/g			Jc
9 SAMPLE	S09V001332		0 0	W	Formate	SOLID	N/A	5.3358E-01			0.057788	ug/g			J
9 SAMPLE	S09V001332		0 0	W	Chloride	SOLID	N/A	5.4277E+00			0.1235	ug/g			
9 SAMPLE	S09V001332		0 0	W	Nitrite	SOLID	N/A	1.8143E+00			0.23759	ug/g			BJ
9 SAMPLE	S09V001332		0 0	W	Sulfate	SOLID	N/A	5.7569E+01			0.2314	ug/g			c
9 SAMPLE	S09V001332		0 0	W	Oxalate	SOLID	N/A	4.3075E-01			0.28585	ug/g			J
9 SAMPLE	S09V001332		0 0	W	Bromide	SOLID	N/A	<7.1772E-01			0.71772	ug/g			U
9 SAMPLE	S09V001332		0 0	W	Nitrate	SOLID	N/A	1.9406E+01			0.25739	ug/g			c
9 SAMPLE	S09V001332		0 0	W	Phosphate	SOLID	N/A	1.1866E+00			0.20665	ug/g			Jc
Sample Sequence 10															
10 SAMPLE	S09V001333		0 0	W	Fluoride	SOLID	N/A	7.5950E-01			0.020092	ug/g			c
10 SAMPLE	S09V001333		0 0	W	Glycolate	SOLID	N/A	<1.1693E-01			0.11693	ug/g			U
10 SAMPLE	S09V001333		0 0	W	Acetate	SOLID	N/A	2.6332E-01			0.075376	ug/g			Jc
10 SAMPLE	S09V001333		0 0	W	Formate	SOLID	N/A	3.8037E-01			0.058279	ug/g			J

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016700

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
10	SAMPLE	S09V001333		0 0	W	Chloride	SOLID	N/A	2.3803E+00			0.12454	ug/g			
10	SAMPLE	S09V001333		0 0	W	Nitrite	SOLID	N/A	1.1526E+00			0.2396	ug/g			BJ
10	SAMPLE	S09V001333		0 0	W	Sulfate	SOLID	N/A	2.1815E+01			0.23336	ug/g			c
10	SAMPLE	S09V001333		0 0	W	Oxalate	SOLID	N/A	5.6993E-01			0.28827	ug/g			J
10	SAMPLE	S09V001333		0 0	W	Bromide	SOLID	N/A	<7.2381E-01			0.72381	ug/g			U
10	SAMPLE	S09V001333		0 0	W	Nitrate	SOLID	N/A	4.3995E+00			0.25957	ug/g			Bc
10	SAMPLE	S09V001333		0 0	W	Phosphate	SOLID	N/A	6.3370E-01			0.20841	ug/g			Jc
Sample Sequence 11																
11	SAMPLE	S09V001334		0 0	W	Fluoride	SOLID	N/A	1.0850E+00			0.019831	ug/g			c
11	SAMPLE	S09V001334		0 0	W	Glycolate	SOLID	N/A	<1.1541E-01			0.11541	ug/g			U
11	SAMPLE	S09V001334		0 0	W	Acetate	SOLID	N/A	2.4634E-01			0.074395	ug/g			Jc
11	SAMPLE	S09V001334		0 0	W	Formate	SOLID	N/A	4.8209E-01			0.057521	ug/g			J
11	SAMPLE	S09V001334		0 0	W	Chloride	SOLID	N/A	4.2994E+00			0.12292	ug/g			
11	SAMPLE	S09V001334		0 0	W	Nitrite	SOLID	N/A	3.7949E+00			0.23649	ug/g			B
11	SAMPLE	S09V001334		0 0	W	Sulfate	SOLID	N/A	4.5009E+01			0.23033	ug/g			c
11	SAMPLE	S09V001334		0 0	W	Oxalate	SOLID	N/A	1.6420E+00			0.28452	ug/g			J
11	SAMPLE	S09V001334		0 0	W	Bromide	SOLID	N/A	<7.1439E-01			0.71439	ug/g			U
11	SAMPLE	S09V001334		0 0	W	Nitrate	SOLID	N/A	7.7058E+00			0.2562	ug/g			c
11	SAMPLE	S09V001334		0 0	W	Phosphate	SOLID	N/A	4.7581E-01			0.2057	ug/g			Jc
Sample Sequence 12																
12	CCV	S0911060030		0 0		Fluoride	LIQUID	.4713984	4.6513E-01			1.61E-03	ug/mL	98.67	% Recovery	
12	CCV	S0911060030		0 0		Glycolate	LIQUID	3.190272	3.2432E+00			9.37E-03	ug/mL	101.66	% Recovery	
12	CCV	S0911060030		0 0		Acetate	LIQUID	3.65056	3.8168E+00			6.04E-03	ug/mL	104.55	% Recovery	
12	CCV	S0911060030		0 0		Formate	LIQUID	3.72992	3.8231E+00			4.67E-03	ug/mL	102.5	% Recovery	
12	CCV	S0911060030		0 0		Chloride	LIQUID	.6634496	6.5401E-01			9.98E-03	ug/mL	98.577	% Recovery	
12	CCV	S0911060030		0 0		Nitrite	LIQUID	4.3648	4.4776E+00			0.0192	ug/mL	102.58	% Recovery	
12	CCV	S0911060030		0 0		Sulfate	LIQUID	4.967936	5.0296E+00			0.0187	ug/mL	101.24	% Recovery	
12	CCV	S0911060030		0 0		Oxalate	LIQUID	4.1664	4.1949E+00			0.0231	ug/mL	100.68	% Recovery	
12	CCV	S0911060030		0 0		Bromide	LIQUID	4.452096	4.3136E+00			0.058	ug/mL	96.889	% Recovery	
12	CCV	S0911060030		0 0		Nitrate	LIQUID	4.182272	4.1393E+00			0.0208	ug/mL	98.973	% Recovery	
12	CCV	S0911060030		0 0		Phosphate	LIQUID	4.420352	4.3928E+00			0.0167	ug/mL	99.377	% Recovery	
Sample Sequence 13																
13	CCB	S0911060031		0 0		Fluoride	LIQUID		<1.6100E-03			1.61E-03	ug/mL			
13	CCB	S0911060031		0 0		Glycolate	LIQUID		<9.3700E-03			9.37E-03	ug/mL			
13	CCB	S0911060031		0 0		Acetate	LIQUID		<6.0400E-03			6.04E-03	ug/mL			
13	CCB	S0911060031		0 0		Formate	LIQUID		<4.6700E-03			4.67E-03	ug/mL			
13	CCB	S0911060031		0 0		Chloride	LIQUID		<9.9800E-03			9.98E-03	ug/mL			
13	CCB	S0911060031		0 0		Nitrite	LIQUID		<1.9200E-02			0.0192	ug/mL			
13	CCB	S0911060031		0 0		Sulfate	LIQUID		<1.8700E-02			0.0187	ug/mL			
13	CCB	S0911060031		0 0		Oxalate	LIQUID		<2.3100E-02			0.0231	ug/mL			
13	CCB	S0911060031		0 0		Bromide	LIQUID		<5.8000E-02			0.058	ug/mL			

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016700

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
13	CCB	S0911060031		0	0	Nitrate	LIQUID		<2.0800E-02			0.0208	ug/mL			
13	CCB	S0911060031		0	0	Phosphate	LIQUID		<1.6700E-02			0.0167	ug/mL			

Comments Section:

Comments for sample: S09V001333, test: IC - ANIONS/SMALL ORG. ACIDS, constituent: Fluoride

Rpd failed due to inconsistent sample homogeneity. Re-digest will not guarantee more Homogenous results.

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00016700

Reviewer Signature 1/28/10 Date

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016700

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0911060026	CCV				
2	S0911060027	CCB				
3	S0911060028	LLS				
4	S0911060024	BLNK-PREP				
5	S09V001330	SAMPLE		20090160	B1YT71	C Farm WMA C
6	S0911060025	DUP	S09V001330			
7	S0911060029	SPK-IC	S09V001330			
8	S09V001331	SAMPLE		20090160	B1YT74	C Farm WMA C
9	S09V001332	SAMPLE		20090160	B1YT77	C Farm WMA C
10	S09V001333	SAMPLE		20090160	B1YT80	C Farm WMA C
11	S09V001334	SAMPLE		20090160	B1YT83	C Farm WMA C
12	S0911060030	CCV				
13	S0911060031	CCB				

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

11/6/2009 2:47:11PM
IncompleteBatchShort Version 2.7.26
batchreports 2.7.26

LABCORE Data Entry Template for Batch# 00016700

Analyst: Thorndike, Kathy **Standard ID / Book#:** 142N28B

Instrument: IC-6 (SMALL ORG ACIDS)

Method: IC - ANIONS/SMALL ORG. ACIDS, LA-533-115 Rev/Mod J-0

Prep Batch: 00016699

Batch Comment: IC 6 C FARM WATER DIGESTION SAMPLES

CACN:200389

S	Type	Sample	R	A	Matrix	Group#	Project
1	CCV		0		LIQUID		
	Analytes Requested:	Acetate, Bromide, Chloride, Fluoride, Formate, Glycolate, Nitrate, Nitrite, Oxalate, Phosphate, Sulfate					
2	CCB		0		LIQUID		
	Analytes Requested:	Acetate, Bromide, Chloride, Fluoride, Formate, Glycolate, Nitrate, Nitrite, Oxalate, Phosphate, Sulfate					
3	LLS		0		LIQUID		
	Analytes Requested:	Acetate, Bromide, Chloride, Fluoride, Formate, Glycolate, Nitrate, Nitrite, Oxalate, Phosphate, Sulfate					
4	BLNK-PREP		0	W	LIQUID		
	Analytes Requested:	Acetate, Bromide, Chloride, Fluoride, Formate, Glycolate, Nitrate, Nitrite, Oxalate, Phosphate, Sulfate					
5	SAMPLE	S09V001330	0	W	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Acetate, Bromide, Chloride, Fluoride, Formate, Glycolate, Nitrate, Nitrite, Oxalate, Phosphate, Sulfate					
6	DUP	S09V001330	0	W	SOLID		
	Analytes Requested:	Acetate, Bromide, Chloride, Fluoride, Formate, Glycolate, Nitrate, Nitrite, Oxalate, Phosphate, Sulfate					
7	SPK-IC	S09V001330	0		SOLID		
	Analytes Requested:	Acetate, Bromide, Chloride, Fluoride, Formate, Glycolate, Nitrate, Nitrite, Oxalate, Phosphate, Sulfate					
8	SAMPLE	S09V001331	0	W	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Acetate, Bromide, Chloride, Fluoride, Formate, Glycolate, Nitrate, Nitrite, Oxalate, Phosphate, Sulfate					
9	SAMPLE	S09V001332	0	W	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Acetate, Bromide, Chloride, Fluoride, Formate, Glycolate, Nitrate, Nitrite, Oxalate, Phosphate, Sulfate					
10	SAMPLE	S09V001333	0	W	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Acetate, Bromide, Chloride, Fluoride, Formate, Glycolate, Nitrate, Nitrite, Oxalate, Phosphate, Sulfate					
11	SAMPLE	S09V001334	0	W	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Acetate, Bromide, Chloride, Fluoride, Formate, Glycolate, Nitrate, Nitrite, Oxalate, Phosphate, Sulfate					
12	CCV		0		LIQUID		
	Analytes Requested:	Acetate, Bromide, Chloride, Fluoride, Formate, Glycolate, Nitrate, Nitrite, Oxalate, Phosphate, Sulfate					
13	CCB		0		LIQUID		
	Analytes Requested:	Acetate, Bromide, Chloride, Fluoride, Formate, Glycolate, Nitrate, Nitrite, Oxalate, Phosphate, Sulfate					

Final Page for Batch# 00016700

Kathy Thorndike 11-6-09 Kathy Thorndike 11-6-09

Analyst Signature **Date** **Data Entry Signature** **Date**

Data Entry Comments:

S = Batch Slot Number, R = Retest Number, A = Aliquot Code.

222-S Advanced Technologies and Laboratories

ION CHROMATOGRAPHY DATA REVIEW CHECKLIST

Worklist/Project Information: 16700 / C FARM WNA C Check Procedure Used: ☐ LA-533-101 (Cat) ☐ LA-533-107 (846 Anions) ☒ LA-533-115 (IC6 Anions)

Run Date: 11/4/09 Instrument ID: IC-6 Prep Batches Analyzed (Worklist #): 16699 Prep Method: LA-504-101

Review Items	Yes	No	N/A	Comments/Samples Affected
A. Calibration/Instrument Run QC				
1. Instrument calibrated per procedure and at specified levels?	✓			
2. Were any calibration points dropped? If yes, has management approved? (Comment required)		✓		
3. Calibration curve correlation coefficient ≥0.995 linear or ≥0.999 quadratic?	✓			
4. ICV/CCV analyzed at appropriate frequency and within control limits (Recovery: 90-110%)?	✓			
5. ICB/CCB analyzed at required frequency and < EQL (or RL) or <5% of the lowest sample result with client consent. N/A if all samples are ND.	✓			
6. LLS run and within control limits (Recovery: 75-125%)? For IH, recovery is mandatory to verify RL.	✓			
B. Sample Results				
1. Were samples with concentrations > linear range for any analyte diluted and reanalyzed?			✓	
2. Are all reported results bracketed by in-control QC?		✓		
3. Are there 10 or fewer samples run between bracketed, in-control QC?	✓			
C. Preparation/Matrix QC				
1. LCS/Prep Std prepared per prep batch and within control limits? Recovery: ☐ 80-120% or ☐ Statistical			✓	C.4 Cl, NO_2, NO_3 detected in blank. Concentrations < EQL. Flagged appropriately. Cl<DL
2. LCS Dup (Prep Std Dup) prepared per prep batch, if required, and within control limits? Recovery: ☐ 80-120% or ☐ Statistical RPD: ☐ ≤20% or ☐ Statistical			✓	
3. IH RLS run (when required) and within mandatory control limits (Recovery: 75-125%)?			✓	C.5 RPD failures
4. Method/Media Blank prepared per prep batch and < EQL (or RL) or <5% of the lowest sample result?		✓		
5. Duplicate or MS Duplicate run at required frequency and within control limits? %RPD: ☒ ≤20% or ☐ Client-specified		✓		
6. MS run at required frequency and within control limit? Recovery: ☒ 75-125% or ☐ Client-specified	✓			
D. Other				
1. Are all problems and nonconformance issues documented appropriately?	✓			
2. Are current IDL / MDL / EQL / RL data on file?	✓			
3. Calculations/transcriptions checked for errors?	✓			
4. Are all raw data complete and verified in OmniLIMS?	✓			
5. All client/project specific requirements met (e.g., MDL, holding times, etc.)?	✓			PM
6. Date/time of analysis verified as correct?	✓			Reviewed. Derek Peterson 11-10-09
7. Prep/Breakdown Batch Benchsheet/Worklist properly completed and included, as required?			✓	
8. IH Only: Media Blank subtracted from Sample results?			✓	

1st Data Reviewer: [signature] Date: 11/9/09 2nd Data Reviewer: [signature] Date: 11-10-09

A-6004-349 (REV 0)

Date: 28 April 2010
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: WMA C
Subject: Radiochemical - Sample Data Group (SDG) 20090160

INTRODUCTION

This memorandum presents the results of data validation for SDG 20090160 prepared by 222-S Laboratory. A list of samples validated along with the analytical methods is provided in the following table.

Sample ID	Sample Date	Media	Validation Level	Analytical Methods
B1YT71	4/14/2009	Soil	C	See note 1
B1YT74	4/21/2009	Soil	C	See note 1
B1YT77	4/22/2009	Soil	C	See note 1
B1YT80	4/30/2009	Soil	C	See note 1
B1YT83	4/30/2009	Soil	C	See note 1

1 – Gamma spectrometry, Sr-89/90, Tritium, Se-79, C-14, Ni-63, I-129, Isotopic-Am/Cm, Isotopic-Pu

Data validation was conducted in accordance with the CHPRC validation statement of work and the Field Sampling and Analysis Plan for Sites P and L at Waste Management Area C, RPP-PLAN-40564, Rev. 0 (SAP). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Documentation Requested By Client

DATA QUALITY OBJECTIVES

- **Holding Times and Sample Preservation**

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for radiochemical analysis is 180 days, or five half-lives, whichever is shorter. There are no specific preservation requirements for radiochemical soil analysis.

The samples were analyzed within the prescribed holding times.

- **Blanks**

The blank data results are reviewed to assess the extent of contamination introduced through sampling, sample preparation, and analysis.

Laboratory Blanks

All laboratory blank results were acceptable.

Trip Blanks

No trip blanks were submitted for analysis.

Field Blanks

No field blanks were submitted for analysis.

Equipment Blanks

No equipment blanks were submitted for analysis.

- **Accuracy**

Accuracy is evaluated by reviewing matrix spike sample results and laboratory control sample results. According to the SAP, the laboratory control sample accuracy limits are 80% to 120%, and the matrix spike sample accuracy limits are 75% to 125%. The limits for reported analytes not listed in the SAP are specified by the DV procedure.

Matrix Spike (MS) Samples

All MS recoveries were acceptable.

Laboratory Control Samples (LCSs)

All LCS recoveries were acceptable with the following exception.

LCS analysis was not performed for Se-79. The Se-79 result for sample B1YT74 was a non-detect and should be qualified as an estimate and flagged "UJ." The Se-79 results for samples B1YT71, B1YT77, B1YT80 and B1YT83 were detects and should be qualified as estimates and flagged "J."

Carrier/Tracer Recovery Factors

All carrier/tracer recovery factors were acceptable with the following exception. The nickel carrier recovery for sample B1YT71 was >105%. The Ni-63 result for sample B1YT71 was a non-detect and should not be qualified.

- **Precision**

Precision is evaluated by reviewing laboratory duplicate, field duplicate, and field split sample results. These QC results provide information on the laboratory reproducibility and whether sampling activities are adequate to acquire consistent sample results. According to the SAP, the relative percent difference (RPD) limits are ±30%. The RPD limits for reported analytes not listed in the SAP are specified by the DV procedure. When duplicate RPDs exceed the limits and have associated results <5X the SAP required detection limits (or <5X the laboratory required detection limits for analytes not listed in the SAP) with differences <2X the required detection limits no precision infraction occurred. When no required detection limits are provided and the sample and duplicate results are statistically equal (Duplicate Error Ratio <3) no precision infraction occurred.

Laboratory Duplicate Samples

All laboratory duplicate results were acceptable.

Field Duplicate Samples

No field duplicates were submitted for analysis.

Field Split Samples

No field splits were submitted for analysis.

- **Detection Limits**

Reported MDCs are compared against the contractually required detection limits (CRDLs) to ensure that laboratory detection limits meet the required criteria.

All reported sample MDCs were below the CRDLs (or Target Detection Limits when CRDLs were not provided in the SAP).

- **Completeness**

SDG 20090160 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Minor deficiencies leading to qualification of sample results as estimates were due lack of LCS analysis for Se-79. See the table in Appendix 2 for a listing of all affected sample results.

REFERENCES

HNF-20434, Rev. 0, *Data Validation Procedure for Radiochemical Analyses*, June 2004.

RPP-PLAN-40564, Rev. 0, *Field Sampling and Analysis Plan for Sites P and L at Waste Management Area C*, March 2009.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers that may be applied by data validators in compliance with the CHPRC statement of work are as follows:

- **U** — The constituent was analyzed for and was not detected. The data should be considered usable for decision-making purposes.

- **UJ** — The constituent was analyzed for and was not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the MDC. The data should be considered usable for decision-making purposes.

- **J** — Indicates the constituent was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **UR** — Indicates the constituent was analyzed for and not detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

- **R** — Indicates the constituent was analyzed for and detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

Appendix 2

Summary of Data Qualification

Radiochemical Data Qualification Summary			
SDG: 20090160	Reviewer: AQA	Project: WMA C	Page 1 of 1
Analyte(s)	**Qualifier**	**Samples Affected**	**Reason**
Se-79	UJ	B1YT74	Lack of LCS data
Se-79	J	B1YT71, B1YT77, B1YT80, B1YT83	Lack of LCS data

Comments: None

Appendix 3

Annotated Laboratory Reports

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT71
Sample Depth: 14-15

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S09V000171~~			~~%WATERA~~	~~%WATER-APD~~	~~%~~	~~n/a~~	~~n/a~~	~~9.120~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	
~~S09V000171~~			~~57-12-5~~	~~Cyanide~~	~~ug/g~~	~~108~~	~~<0.0976~~	~~<4.77~~	~~<4.82~~	~~n/a~~	~~n/a~~	~~102~~	~~4.77~~	~~n/a~~	~~U~~
S09V000171			10198-40-0	Cobalt-60	uCi/g	103	<2.35E-07	8.33E-07	n/a	n/a	n/a	n/a	2.40E-07	15.31	
S09V000171			14234-35-6	Antimony-125	uCi/g	n/a	<6.05E-07	1.12E-06	n/a	n/a	n/a	n/a	8.63E-07	40.05	J
S09V000171			10045-97-3	Cesium-137	uCi/g	108	<2.89E-07	7.31E-05	n/a	n/a	n/a	n/a	2.89E-07	6.25	
S09V000171			14683-23-9	Europium-152	uCi/g	n/a	<1.20E-06	<1.28E-06	n/a	n/a	n/a	n/a	1.28E-06	n/a	U
S09V000171			15585-10-1	Europium-154	uCi/g	n/a	<7.88E-07	<8.85E-07	n/a	n/a	n/a	n/a	8.85E-07	n/a	U
S09V000171			14391-16-3	Europium-155	uCi/g	n/a	<4.64E-07	<7.81E-07	n/a	n/a	n/a	n/a	7.81E-07	n/a	U
~~S09V000171~~			~~7439-97-6~~	~~Mercury~~	~~ug/g~~	~~100~~	~~<1.00E-04~~	~~<0.0175~~	~~<0.0204~~	~~n/a~~	~~n/a~~	~~97.3~~	~~0.0175~~	~~n/a~~	~~U~~
S09V000171			15046-84-1	Iodine-129	uCi/g	91.4	<2.74E-07	<2.38E-07	n/a	n/a	n/a	n/a	2.38E-07	n/a	U
~~S09V000171~~			~~PH~~	~~pH~~	~~unitless~~	~~n/a~~	~~n/a~~	~~10.1~~	~~10.1~~	~~10.1~~	~~0.396~~	~~n/a~~	~~0.0100~~	~~n/a~~	
S09V000171			18496-25-8	Sulfide	ug/g	107	<0.180	32.2	32.1	32.15	0.142	113	7.61	n/a	J
S09V000179		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	72.4	<774	<72.9	n/a	n/a	n/a	n/a	72.9	n/a	U
S09V000179		O	95-50-1	1,2-Dichlorobenzene	ug/kg	n/a	<1.01E+03	<94.8	n/a	n/a	n/a	n/a	94.8	n/a	U
S09V000179		O	106-46-7	1,4-Dichlorobenzene	ug/kg	68.5	<1.13E+03	<107	n/a	n/a	n/a	n/a	107	n/a	U
S09V000179		O	121-14-2	2,4-Dinitrotoluene	ug/kg	80.0	<381	<35.9	n/a	n/a	n/a	n/a	35.9	n/a	U
S09V000179		O	95-95-4	2,4,5-Trichlorophenol	ug/kg	n/a	<440	<41.4	n/a	n/a	n/a	n/a	41.4	n/a	U
S09V000179		O	88-06-2	2,4,6-Trichlorophenol	ug/kg	n/a	<495	<46.6	n/a	n/a	n/a	n/a	46.6	n/a	U
S09V000179		O	95-48-7	2-Methylphenol	ug/kg	n/a	<575	<54.1	n/a	n/a	n/a	n/a	54.1	n/a	U
S09V000179		O	88-75-5	2-Nitrophenol	ug/kg	n/a	<537	<50.6	n/a	n/a	n/a	n/a	50.6	n/a	U
S09V000179		O	108-39-4M	Cresol (m & p)	ug/kg	n/a	<514	<48.4	n/a	n/a	n/a	n/a	48.4	n/a	U
S09V000179		O	83-32-9	Acenaphthene	ug/kg	76.9	<176	<16.6	n/a	n/a	n/a	n/a	16.6	n/a	U
S09V000179		O	56-55-3	Benzo(a)anthracene	ug/kg	n/a	<378	<35.6	n/a	n/a	n/a	n/a	35.6	n/a	U
S09V000179		O	205-99-2	Benzo(b)fluoranthene	ug/kg	n/a	<489	<46.0	n/a	n/a	n/a	n/a	46.0	n/a	U
S09V000179		O	50-32-8	Benzo(a)pyrene	ug/kg	n/a	<412	<38.8	n/a	n/a	n/a	n/a	38.8	n/a	U
S09V000179		O	117-81-7	Bis(2-ethylhexyl) phthalate	ug/kg	n/a	<5.90E+03	<556	n/a	n/a	n/a	n/a	556	n/a	U
S09V000179		O	207-08-9	Benzo(k)fluoranthene	ug/kg	n/a	<391	<36.8	n/a	n/a	n/a	n/a	36.8	n/a	U
~~S09V000179~~		~~O~~	~~85-68-7~~	~~Butylbenzylphthalate~~	~~ug/kg~~	~~n/a~~	~~<500~~	~~<47.1~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~47.1~~	~~n/a~~	~~U~~

NA = Not Analyzed, ND = Not Detected

J - Estimated
B - Found in Blank
X - Comment
U - Less Than Detection Limit
a - LCS Outside Range
Y - Comment
c - RPD Outside Range
b - MS/MSD Outside Range
e - SERDIL Outside Range

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT71
Sample Depth: 14-15

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S09V000179~~		~~O~~	~~59-50-7~~	~~4-Chloro-3-methylphenol~~	~~ug/kg~~	~~72.4~~	~~<432~~	~~<40.7~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~40.7~~	~~n/a~~	~~U~~
S09V000179		O	95-57-8	2-Chlorophenol	ug/kg	66.9	<665	<62.6	n/a	n/a	n/a	n/a	62.6	n/a	U
S09V000179		O	218-01-9	Chrysene	ug/kg	n/a	<814	<76.6	n/a	n/a	n/a	n/a	76.6	n/a	U
S09V000179		O	53-70-3	Dibenz[a,h]anthracene	ug/kg	n/a	<511	<48.1	n/a	n/a	n/a	n/a	48.1	n/a	U
S09V000179		O	84-74-2	Di-n-butylphthalate	ug/kg	n/a	<5.62E+03	<529	n/a	n/a	n/a	n/a	529	n/a	U
S09V000179		O	117-84-0	Di-n-octylphthalate	ug/kg	n/a	<477	<44.9	n/a	n/a	n/a	n/a	44.9	n/a	U
S09V000179		O	621-64-7	N-Nitroso-di-n-dipropylamine	ug/kg	65.7	<581	<54.7	n/a	n/a	n/a	n/a	54.7	n/a	U
S09V000179		O	206-44-0	Fluoranthene	ug/kg	n/a	<354	<33.3	n/a	n/a	n/a	n/a	33.3	n/a	U
S09V000179		O	87-68-3	Hexachlorobutadiene	ug/kg	n/a	<697	<65.6	n/a	n/a	n/a	n/a	65.6	n/a	U
S09V000179		O	67-72-1	Hexachloroethane	ug/kg	n/a	<1.12E+03	<105	n/a	n/a	n/a	n/a	105	n/a	U
S09V000179		O	193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	n/a	<510	<48.0	n/a	n/a	n/a	n/a	48.0	n/a	U
S09V000179		O	108-95-2	Phenol	ug/kg	69.2	<594	<55.9	n/a	n/a	n/a	n/a	55.9	n/a	U
S09V000179		O	91-20-3	Naphthalene	ug/kg	n/a	<626	<58.9	n/a	n/a	n/a	n/a	58.9	n/a	U
S09V000179		O	98-95-3	Nitrobenzene	ug/kg	n/a	<646	<60.8	n/a	n/a	n/a	n/a	60.8	n/a	U
S09V000179		O	100-02-7	4-Nitrophenol	ug/kg	79.8	<526	<49.5	n/a	n/a	n/a	n/a	49.5	n/a	U
S09V000179		O	87-86-5	Pentachlorophenol	ug/kg	76.3	<375	<35.3	n/a	n/a	n/a	n/a	35.3	n/a	U
S09V000179		O	129-00-0	Pyrene	ug/kg	80.4	<629	<59.2	n/a	n/a	n/a	n/a	59.2	n/a	U
S09V000179		O	110-86-1	Pyridine	ug/kg	n/a	<650	<61.2	n/a	n/a	n/a	n/a	61.2	n/a	U
S09V000179		O	126-73-8	Tributyl phosphate	ug/kg	n/a	<1.08E+03	<102	n/a	n/a	n/a	n/a	102	n/a	U
S09V000179		O	128-37-0	BHT	ug/kg	n/a	<2.36E+03	<222	n/a	n/a	n/a	n/a	222	n/a	U
S09V000179		O	110-80-5	2-Ethoxyethanol	ug/kg	n/a	<1.82E+03	<172	n/a	n/a	n/a	n/a	172	n/a	U
S09V000179		O	1319-77-3	Total Methylphenols	ug/kg	n/a	<1.07E+03	<100	n/a	n/a	n/a	n/a	100	n/a	U
S09V000179		O	108-94-1	Cyclohexanone	ug/kg	n/a	<5.59E+03	<526	n/a	n/a	n/a	n/a	526	n/a	U
S09V000179		O	59-89-2	N-Nitrosomorpholine	ug/kg	n/a	<1.91E+03	<180	n/a	n/a	n/a	n/a	180	n/a	U
~~S09V000179~~		~~O~~	~~78-83-1~~	~~Isobutanol~~	~~ug/kg~~	~~n/a~~	~~<4.60E+03~~	~~<433~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~433~~	~~n/a~~	~~U~~
S09V000187		W	14762-75-5	Carbon-14	uCi/g	98.6	<3.65E-07	<5.45E-05	<8.56E-05	n/a	n/a	98.3	5.45E-05	n/a	U
S09V000187		W	10028-17-8	Tritium	uCi/g	92.2	<3.28E-04	<4.15E-04	<3.07E-04	n/a	n/a	93.4	4.15E-04	n/a	U
~~S09V000195~~		~~A~~	~~7429-90-5~~	~~Aluminum~~	~~ug/g~~	~~93.0~~	~~<0.0300~~	~~7.80E+03~~	~~7.49E+03~~	~~7645~~	~~4.07~~	~~233~~	~~30.3~~	~~n/a~~	

NA = Not Analyzed, ND = Not Detected

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a - LCS Outside Range
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b - MS/MSD Outside Range
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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT71
Sample Depth: 14-15

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000195		A	13982-70-2	Uranium-236		ug/g	n/a	<2.00E-07	6.06E-04	7.03E-04	.0006545	14.9	n/a	4.04E-05	n/a	
S09V000195		A	13994-20-2	Neptunium-237		ug/g	112	<2.65E-06	2.07E-03	1.28E-03	.001675	47.5	109	5.35E-04	n/a	BJ
S09V000195		A	U-238	Uranium-238		ug/g	102	<2.75E-05	1.46	1.84	1.65	23.3	104	5.56E-03	n/a	
S09V000195		A	7440-22-4	Silver		ug/g	107	2.07E-04	0.137	0.134	.1355	2.17	107	0.0323	n/a	BJ
S09V000195		A	7440-38-2	Arsenic		ug/g	114	<8.40E-04	5.62	5.70	5.66	1.44	113	0.170	n/a	
S09V000195		A	7440-48-4	Cobalt		ug/g	110	<4.00E-04	8.96	9.66	9.31	7.47	109	0.808	n/a	
S09V000195		A	7440-43-9	Cadmium		ug/g	106	7.01E-05	0.125	0.120	.1225	3.53	106	0.0121	n/a	B
S09V000195		A	7440-47-3	Chromium		ug/g	110	<2.80E-03	8.23	8.12	8.175	1.29	109	0.566	n/a	
S09V000195		A	7439-92-1	Lead		ug/g	116	<6.20E-04	7.74	7.75	7.745	0.162	110	0.125	n/a	
S09V000195		A	7440-36-0	Antimony		ug/g	110	<8.80E-04	0.184	0.187	.1855	1.38	103	0.178	n/a	J
S09V000195		A	7782-49-2	Selenium		ug/g	112	<1.22E-03	<0.246	<0.246	n/a	n/a	110	0.246	n/a	U
S09V000195		A	7440-28-0	Thallium		ug/g	111	6.92E-05	0.0941	0.100	.09705	6.40	109	0.0121	n/a	BJ
S09V000195		A	7440-62-2	Vanadium		ug/g	113	<4.80E-04	60.2	61.1	60.65	1.46	109	0.970	n/a	
S09V000195		A	7440-02-0	Nickel		ug/g	109	3.20E-04	12.3	10.2	11.25	18.7	106	0.485	n/a	
S09V000203		E	CM-243/244	Curium-243/244		uCi/g	n/a	<4.01E-07	<4.60E-07	n/a	n/a	n/a	n/a	4.60E-07	n/a	U
S09V000203		E	14596-10-2	Americium-241		uCi/g	102	<1.00E-06	2.20E-06	n/a	n/a	n/a	n/a	1.15E-06	12.87	
S09V000203		E	15510-73-3	Curium-242		uCi/g	n/a	<4.01E-07	<4.60E-07	n/a	n/a	n/a	n/a	4.60E-07	n/a	U
S09V000203		E	13981-37-8	Nickel-63		uCi/g	85.5	<6.14E-05	<6.85E-05	n/a	n/a	n/a	n/a	6.85E-05	n/a	U
S09V000203		E	PU-239/240	Plutonium-239/240		uCi/g	96.1	<7.24E-07	1.07E-05	n/a	n/a	n/a	n/a	1.10E-06	6.9	
S09V000203		E	13981-16-3	Plutonium-238		uCi/g	n/a	<7.24E-07	<1.10E-06	n/a	n/a	n/a	n/a	1.10E-06	n/a	U
S09V000203		E	15758-45-9	Selenium-79	J	uCi/g	n/a	<3.20E-06	2.50E-06	n/a	n/a	n/a	n/a	1.50E-06	4309.52	J
S09V000203		E	SR-89/90	Strontium-89/90		uCi/g	99.9	<1.56E-06	1.20E-04	n/a	n/a	n/a	n/a	2.98E-06	8.5	
S09V000211		A	14133-76-7	Technetium-99		ug/g	104	<8.88E-06	1.40E-03	<1.22E-03	n/a	n/a	106	1.21E-03	n/a	J
S09V000211		A	SN-117	Tin-117		ug/g	142	9.07E-04	<0.0445	<0.0447	n/a	n/a	86.7	0.0445	n/a	Ua
S09V000211		A	15832-50-5	Tin-126		ug/g	n/a	<4.00E-06	<8.09E-04	<8.13E-04	n/a	n/a	n/a	8.09E-04	n/a	U
S09V000219		S	14798-03-9	Ammonium		ug/g	99.1	<0.0120	4.03	4.54	4.285	11.8	95.7	0.478	n/a	J
S09V001330		W	16984-48-8	Fluoride		ug/g	97.1	<1.61E-03	4.76	3.15	3.955	40.8	101	0.0199	n/a	Bc
S09V001330		W	666-14-8	Glycolate		ug/g	99.8	<9.97E-03	<0.116	<0.116	n/a	n/a	102	0.116	n/a	U

NA = Not Analyzed, ND = Not Detected

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B - Found in Blank
X - Comment
U - Less Than Detection Limit
a - LCS Outside Range
Y - Comment
c - RPD Outside Range
b - MS/MSD Outside Range
e - SERDIL Outside Range

C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT74
Sample Depth: 19.5-21.5

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S09V000172~~			~~%WATERA~~	~~%WATER-APD~~	~~%~~	~~n/a~~	~~n/a~~	~~6.600~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	
~~S09V000172~~			~~57-12-5~~	~~Cyanide~~	~~ug/g~~	~~108~~	~~<0.0370~~	~~<4.67~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~4.67~~	~~n/a~~	~~U~~
S09V000172			10198-40-0	Cobalt-60	uCi/g	103	<2.35E-07	6.26E-07	n/a	n/a	n/a	n/a	2.05E-07	18.79	
S09V000172			14234-35-6	Antimony-125	uCi/g	n/a	<6.05E-07	<6.99E-07	n/a	n/a	n/a	n/a	6.99E-07	n/a	U
S09V000172			10045-97-3	Cesium-137	uCi/g	108	<2.89E-07	6.31E-06	n/a	n/a	n/a	n/a	3.26E-07	7.66	
S09V000172			14683-23-9	Europium-152	uCi/g	n/a	<1.20E-06	<1.19E-06	n/a	n/a	n/a	n/a	1.19E-06	n/a	U
S09V000172			15585-10-1	Europium-154	uCi/g	n/a	<7.88E-07	2.28E-06	n/a	n/a	n/a	n/a	8.08E-07	8.41	
S09V000172			14391-16-3	Europium-155	uCi/g	n/a	<4.64E-07	8.10E-07	n/a	n/a	n/a	n/a	4.95E-07	39.17	J
~~S09V000172~~			~~7439-97-6~~	~~Mercury~~	~~ug/g~~	~~100~~	~~<1.00E-04~~	~~<0.0205~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.0205~~	~~n/a~~	~~U~~
S09V000172			15046-84-1	Iodine-129	uCi/g	91.4	<2.74E-07	<2.02E-07	n/a	n/a	n/a	n/a	2.02E-07	n/a	U
~~S09V000172~~			~~PH~~	~~pH~~	~~unitless~~	~~n/a~~	~~7.99~~	~~10.3~~	~~10.3~~	~~10.3~~	~~0.291~~	~~n/a~~	~~0.0100~~	~~n/a~~	
S09V000172			18496-25-8	Sulfide	ug/g	93.1	<0.180	10.3	7.96	9.13	26.0	81.9	5.24	n/a	J
S09V000180		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	72.4	<774	<77.5	n/a	n/a	n/a	65.5	77.5	n/a	U
S09V000180		O	95-50-1	1,2-Dichlorobenzene	ug/kg	n/a	<1.01E+03	<101	n/a	n/a	n/a	n/a	101	n/a	U
S09V000180		O	106-46-7	1,4-Dichlorobenzene	ug/kg	68.5	<1.13E+03	<113	n/a	n/a	n/a	61.3	113	n/a	U
S09V000180		O	121-14-2	2,4-Dinitrotoluene	ug/kg	80.0	<381	<38.2	n/a	n/a	n/a	76.9	38.2	n/a	U
S09V000180		O	95-95-4	2,4,5-Trichlorophenol	ug/kg	n/a	<440	<44.1	n/a	n/a	n/a	n/a	44.1	n/a	U
S09V000180		O	88-06-2	2,4,6-Trichlorophenol	ug/kg	n/a	<495	<49.6	n/a	n/a	n/a	n/a	49.6	n/a	U
S09V000180		O	95-48-7	2-Methylphenol	ug/kg	n/a	<575	<57.6	n/a	n/a	n/a	n/a	57.6	n/a	U
S09V000180		O	88-75-5	2-Nitrophenol	ug/kg	n/a	<537	<53.8	n/a	n/a	n/a	n/a	53.8	n/a	U
S09V000180		O	108-39-4M	Cresol (m & p)	ug/kg	n/a	<514	<51.5	n/a	n/a	n/a	n/a	51.5	n/a	U
S09V000180		O	83-32-9	Acenaphthene	ug/kg	76.9	<176	<17.6	n/a	n/a	n/a	70.9	17.6	n/a	U
S09V000180		O	56-55-3	Benzo(a)anthracene	ug/kg	n/a	<378	<37.9	n/a	n/a	n/a	n/a	37.9	n/a	U
S09V000180		O	205-99-2	Benzo(b)fluoranthene	ug/kg	n/a	<489	<49.0	n/a	n/a	n/a	n/a	49.0	n/a	U
S09V000180		O	50-32-8	Benzo(a)pyrene	ug/kg	n/a	<412	<41.3	n/a	n/a	n/a	n/a	41.3	n/a	U
S09V000180		O	117-81-7	Bis(2-ethylhexyl) phthalate	ug/kg	n/a	<5.90E+03	<591	n/a	n/a	n/a	n/a	591	n/a	U
S09V000180		O	207-08-9	Benzo(k)fluoranthene	ug/kg	n/a	<391	<39.2	n/a	n/a	n/a	n/a	39.2	n/a	U
S09V000180		O	85-68-7	Butylbenzylphthalate	ug/kg	n/a	<500	<50.1	n/a	n/a	n/a	n/a	50.1	n/a	U

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT74
Sample Depth: 19.5-21.5

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000180		O	59-50-7	4-Chloro-3-methylphenol	ug/kg	72.4	<432	<43.3	n/a	n/a	n/a	72.3	43.3	n/a	U
S09V000180		O	95-57-8	2-Chlorophenol	ug/kg	66.9	<665	<66.6	n/a	n/a	n/a	61.3	66.6	n/a	U
S09V000180		O	218-01-9	Chrysene	ug/kg	n/a	<814	<81.5	n/a	n/a	n/a	n/a	81.5	n/a	U
S09V000180		O	53-70-3	Dibenz[a,h]anthracene	ug/kg	n/a	<511	<51.2	n/a	n/a	n/a	n/a	51.2	n/a	U
S09V000180		O	84-74-2	Di-n-butylphthalate	ug/kg	n/a	<5.62E+03	<563	n/a	n/a	n/a	n/a	563	n/a	U
S09V000180		O	117-84-0	Di-n-octylphthalate	ug/kg	n/a	<477	<47.8	n/a	n/a	n/a	n/a	47.8	n/a	U
S09V000180		O	621-64-7	N-Nitroso-di-n-dipropylamine	ug/kg	65.7	<581	<58.2	n/a	n/a	n/a	59.7	58.2	n/a	U
S09V000180		O	206-44-0	Fluoranthene	ug/kg	n/a	<354	<35.4	n/a	n/a	n/a	n/a	35.4	n/a	U
S09V000180		O	87-68-3	Hexachlorobutadiene	ug/kg	n/a	<697	<69.8	n/a	n/a	n/a	n/a	69.8	n/a	U
S09V000180		O	67-72-1	Hexachloroethane	ug/kg	n/a	<1.12E+03	<112	n/a	n/a	n/a	n/a	112	n/a	U
S09V000180		O	193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	n/a	<510	<51.1	n/a	n/a	n/a	n/a	51.1	n/a	U
S09V000180		O	108-95-2	Phenol	ug/kg	69.2	<594	<59.5	n/a	n/a	n/a	64.3	59.5	n/a	U
S09V000180		O	91-20-3	Naphthalene	ug/kg	n/a	<626	<62.7	n/a	n/a	n/a	n/a	62.7	n/a	U
S09V000180		O	98-95-3	Nitrobenzene	ug/kg	n/a	<646	<64.7	n/a	n/a	n/a	n/a	64.7	n/a	U
S09V000180		O	100-02-7	4-Nitrophenol	ug/kg	79.8	<526	<52.7	n/a	n/a	n/a	78.9	52.7	n/a	U
S09V000180		O	87-86-5	Pentachlorophenol	ug/kg	76.3	<375	<37.6	n/a	n/a	n/a	78.3	37.6	n/a	U
S09V000180		O	129-00-0	Pyrene	ug/kg	80.4	<629	<63.0	n/a	n/a	n/a	79.8	63.0	n/a	U
S09V000180		O	110-86-1	Pyridine	ug/kg	n/a	<650	<65.1	n/a	n/a	n/a	n/a	65.1	n/a	U
S09V000180		O	126-73-8	Tributyl phosphate	ug/kg	n/a	<1.08E+03	<108	n/a	n/a	n/a	n/a	108	n/a	U
S09V000180		O	128-37-0	BHT	ug/kg	n/a	<2.36E+03	<236	n/a	n/a	n/a	n/a	236	n/a	U
S09V000180		O	110-80-5	2-Ethoxyethanol	ug/kg	n/a	<1.82E+03	<183	n/a	n/a	n/a	n/a	183	n/a	U
S09V000180		O	1319-77-3	Total Methylphenols	ug/kg	n/a	<1.07E+03	<107	n/a	n/a	n/a	n/a	107	n/a	U
S09V000180		O	108-94-1	Cyclohexanone	ug/kg	n/a	<5.59E+03	<560	n/a	n/a	n/a	n/a	560	n/a	U
S09V000180		O	59-89-2	N-Nitrosomorpholine	ug/kg	n/a	<1.91E+03	<192	n/a	n/a	n/a	n/a	192	n/a	U
S09V000180		O	78-83-1	Isobutanol	ug/kg	n/a	<4.60E+03	<461	n/a	n/a	n/a	n/a	461	n/a	U
S09V000188		W	14762-75-5	Carbon-14	uCi/g	98.6	<3.65E-07	<6.45E-05	n/a	n/a	n/a	n/a	6.45E-05	n/a	U
S09V000188		W	10028-17-8	Tritium	uCi/g	92.2	<3.28E-04	<4.36E-04	n/a	n/a	n/a	n/a	4.36E-04	n/a	U
S09V000196		A	7429-90-5	Aluminum	ug/g	93.0	<0.0300	4.90E+03	n/a	n/a	n/a	n/a	6.04	n/a	

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT74
Sample Depth: 19.5-21.5

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S09V000196~~		~~A~~	~~13966-29-5~~	~~Uranium-234~~	~~ug/g~~	~~n/a~~	~~<2.50E-07~~	~~6.80E-05~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~5.03E-05~~	~~n/a~~	~~J~~
S09V000196		A	15117-96-1	Uranium-235	ug/g	101	<5.50E-07	0.0107	n/a	n/a	n/a	n/a	1.11E-04	n/a	
S09V000196		A	13982-70-2	Uranium-236	ug/g	n/a	<2.00E-07	3.84E-04	n/a	n/a	n/a	n/a	4.03E-05	n/a	J
S09V000196		A	13994-20-2	Neptunium-237	ug/g	112	<2.65E-06	5.59E-04	n/a	n/a	n/a	n/a	5.33E-04	n/a	BJ
S09V000196		A	U-238	Uranium-238	ug/g	102	<2.75E-05	1.38	n/a	n/a	n/a	n/a	5.54E-03	n/a	
S09V000196		A	7440-22-4	Silver	ug/g	107	2.07E-04	0.118	n/a	n/a	n/a	n/a	0.0322	n/a	BJ
S09V000196		A	7440-38-2	Arsenic	ug/g	114	<8.40E-04	3.06	n/a	n/a	n/a	n/a	0.169	n/a	
S09V000196		A	7440-48-4	Cobalt	ug/g	110	<4.00E-04	7.15	n/a	n/a	n/a	n/a	0.805	n/a	J
S09V000196		A	7440-43-9	Cadmium	ug/g	106	7.01E-05	0.0671	n/a	n/a	n/a	n/a	0.0121	n/a	BJ
S09V000196		A	7440-47-3	Chromium	ug/g	110	<2.80E-03	9.34	n/a	n/a	n/a	n/a	0.564	n/a	
S09V000196		A	7439-92-1	Lead	ug/g	116	<6.20E-04	4.26	n/a	n/a	n/a	n/a	0.125	n/a	
S09V000196		A	7440-36-0	Antimony	ug/g	110	<8.80E-04	<0.177	n/a	n/a	n/a	n/a	0.177	n/a	U
S09V000196		A	7782-49-2	Selenium	ug/g	112	<1.22E-03	<0.246	n/a	n/a	n/a	n/a	0.246	n/a	U
S09V000196		A	7440-28-0	Thallium	ug/g	111	6.92E-05	0.0727	n/a	n/a	n/a	n/a	0.0121	n/a	BJ
S09V000196		A	7440-62-2	Vanadium	ug/g	113	<4.80E-04	55.8	n/a	n/a	n/a	n/a	0.966	n/a	
~~S09V000196~~		~~A~~	~~7440-02-0~~	~~Nickel~~	~~ug/g~~	~~109~~	~~3.20E-04~~	~~3.58~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.483~~	~~n/a~~	
S09V000204		E	CM-243/244	Curium-243/244	uCi/g	n/a	<4.01E-07	<3.90E-07	n/a	n/a	n/a	n/a	3.90E-07	n/a	U
S09V000204		E	14596-10-2	Americium-241	uCi/g	102	<1.00E-06	1.39E-06	n/a	n/a	n/a	n/a	9.75E-07	16.21	
S09V000204		E	15510-73-3	Curium-242	uCi/g	n/a	<4.01E-07	<3.90E-07	n/a	n/a	n/a	n/a	3.90E-07	n/a	U
S09V000204		E	13981-37-8	Nickel-63	uCi/g	85.5	<6.14E-05	<6.91E-05	n/a	n/a	n/a	n/a	6.91E-05	n/a	U
S09V000204		E	PU-239/240	Plutonium-239/240	uCi/g	96.1	<7.24E-07	<6.77E-07	n/a	n/a	n/a	n/a	6.77E-07	n/a	U
S09V000204		E	13981-16-3	Plutonium-238	uCi/g	n/a	<7.24E-07	<6.77E-07	n/a	n/a	n/a	n/a	6.77E-07	n/a	U
S09V000204		E	15758-45-9	Selenium-79 UJ	uCi/g	n/a	<3.20E-06	<3.10E-06	n/a	n/a	n/a	n/a	3.10E-06	n/a	U
S09V000204		E	SR-89/90	Strontium-89/90	uCi/g	99.9	<1.56E-06	2.37E-05	n/a	n/a	n/a	n/a	2.32E-06	20.89	
~~S09V000212~~		~~A~~	~~14133-76-7~~	~~Technetium-99~~	~~ug/g~~	~~104~~	~~<8.00E-06~~	~~2.88E-03~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~1.20E-03~~	~~n/a~~	~~J~~
S09V000212		A	SN-117	Tin-117	ug/g	142	9.07E-04	<0.0439	n/a	n/a	n/a	n/a	0.0439	n/a	Ua
S09V000212		A	15832-50-5	Tin-126	ug/g	n/a	<4.00E-06	<7.97E-04	n/a	n/a	n/a	n/a	7.97E-04	n/a	U
~~S09V000220~~		~~S~~	~~14798-03-9~~	~~Ammonium~~	~~ug/g~~	~~99.1~~	~~<0.0126~~	~~<0.476~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.476~~	~~n/a~~	~~U~~

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT77
Sample Depth: 25-27

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S09V000173~~			~~%WATERA~~	~~%WATER-APD~~	~~%~~	~~n/a~~	~~n/a~~	~~9.138~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	
~~S09V000173~~			~~57-12-5~~	~~Cyanide~~	~~ug/g~~	~~108~~	~~<0.0370~~	~~<5.01~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~5.01~~	~~n/a~~	~~U~~
S09V000173			10198-40-0	Cobalt-60	uCi/g	103	<2.35E-07	<2.60E-07	<2.47E-07	n/a	n/a	n/a	2.60E-07	n/a	U
S09V000173			14234-35-6	Antimony-125	uCi/g	n/a	<6.05E-07	<6.87E-07	<6.36E-07	n/a	n/a	n/a	6.87E-07	n/a	U
S09V000173			10045-97-3	Cesium-137	uCi/g	108	<2.89E-07	1.31E-06	1.37E-06	.00000134	4.69	n/a	4.03E-07	20.88	
S09V000173			14683-23-9	Europium-152	uCi/g	n/a	<1.20E-06	<1.25E-06	<1.24E-06	n/a	n/a	n/a	1.25E-06	n/a	U
S09V000173			15585-10-1	Europium-154	uCi/g	n/a	<7.88E-07	<8.67E-07	<7.97E-07	n/a	n/a	n/a	8.67E-07	n/a	U
S09V000173			14391-16-3	Europium-155	uCi/g	n/a	<4.64E-07	<5.11E-07	<4.86E-07	n/a	n/a	n/a	5.11E-07	n/a	U
~~S09V000173~~			~~7439-97-6~~	~~Mercury~~	~~ug/g~~	~~100~~	~~<1.00E-04~~	~~<0.0221~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.0221~~	~~n/a~~	~~U~~
S09V000173			15046-84-1	Iodine-129	uCi/g	91.4	<2.74E-07	<1.92E-07	<2.13E-07	n/a	n/a	n/a	1.92E-07	n/a	U
~~S09V000173~~			~~PH~~	~~pH~~	~~unitless~~	~~n/a~~	~~7.99~~	~~10.1~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.0100~~	~~n/a~~	
S09V000173			18496-25-8	Sulfide	ug/g	93.1	<0.180	<5.25	n/a	n/a	n/a	n/a	5.25	n/a	U
S09V000181		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	69.4	<774	<97.7	n/a	n/a	n/a	59.7	97.7	n/a	U
S09V000181		O	95-50-1	1,2-Dichlorobenzene	ug/kg	n/a	<1.01E+03	<127	n/a	n/a	n/a	n/a	127	n/a	U
S09V000181		O	106-46-7	1,4-Dichlorobenzene	ug/kg	67.5	<1.13E+03	<143	n/a	n/a	n/a	57.0	143	n/a	U
S09V000181		O	121-14-2	2,4-Dinitrotoluene	ug/kg	70.1	<381	<48.1	n/a	n/a	n/a	72.2	48.1	n/a	U
S09V000181		O	95-95-4	2,4,5-Trichlorophenol	ug/kg	n/a	<440	<55.5	n/a	n/a	n/a	n/a	55.5	n/a	U
S09V000181		O	88-06-2	2,4,6-Trichlorophenol	ug/kg	n/a	<495	<62.5	n/a	n/a	n/a	n/a	62.5	n/a	U
S09V000181		O	95-48-7	2-Methylphenol	ug/kg	n/a	<575	<72.5	n/a	n/a	n/a	n/a	72.5	n/a	U
S09V000181		O	88-75-5	2-Nitrophenol	ug/kg	n/a	<537	<67.8	n/a	n/a	n/a	n/a	67.8	n/a	U
S09V000181		O	108-39-4M	Cresol (m & p)	ug/kg	n/a	<514	<64.8	n/a	n/a	n/a	n/a	64.8	n/a	U
S09V000181		O	83-32-9	Acenaphthene	ug/kg	69.7	<176	<22.2	n/a	n/a	n/a	63.5	22.2	n/a	U
S09V000181		O	56-55-3	Benzo(a)anthracene	ug/kg	n/a	<378	<47.7	n/a	n/a	n/a	n/a	47.7	n/a	U
S09V000181		O	205-99-2	Benzo(b)fluoranthene	ug/kg	n/a	<489	<61.7	n/a	n/a	n/a	n/a	61.7	n/a	U
S09V000181		O	50-32-8	Benzo(a)pyrene	ug/kg	n/a	<412	<52.0	n/a	n/a	n/a	n/a	52.0	n/a	U
S09V000181		O	117-81-7	Bis(2-ethylhexyl) phthalate	ug/kg	n/a	<5.90E+03	<745	n/a	n/a	n/a	n/a	745	n/a	U
S09V000181		O	207-08-9	Benzo(k)fluoranthene	ug/kg	n/a	<391	<49.3	n/a	n/a	n/a	n/a	49.3	n/a	U
~~S09V000181~~		~~O~~	~~85-68-7~~	~~Butylbenzylphthalate~~	~~ug/kg~~	~~n/a~~	~~<500~~	~~<63.1~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~63.1~~	~~n/a~~	~~U~~

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT77
Sample Depth: 25-27

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000181		O	59-50-7	4-Chloro-3-methylphenol	ug/kg	66.8	<432	<54.5	n/a	n/a	n/a	67.3	54.5	n/a	U
S09V000181		O	95-57-8	2-Chlorophenol	ug/kg	65.0	<665	<83.9	n/a	n/a	n/a	56.8	83.9	n/a	U
S09V000181		O	218-01-9	Chrysene	ug/kg	n/a	<814	<103	n/a	n/a	n/a	n/a	103	n/a	U
S09V000181		O	53-70-3	Dibenz[a,h]anthracene	ug/kg	n/a	<511	<64.5	n/a	n/a	n/a	n/a	64.5	n/a	U
S09V000181		O	84-74-2	Di-n-butylphthalate	ug/kg	n/a	<5.62E+03	<709	n/a	n/a	n/a	n/a	709	n/a	U
S09V000181		O	117-84-0	Di-n-octylphthalate	ug/kg	n/a	<477	<60.2	n/a	n/a	n/a	n/a	60.2	n/a	U
S09V000181		O	621-64-7	N-Nitroso-di-n-dipropylamine	ug/kg	60.9	<581	<73.3	n/a	n/a	n/a	54.6	73.3	n/a	U
S09V000181		O	206-44-0	Fluoranthene	ug/kg	n/a	<354	<44.7	n/a	n/a	n/a	n/a	44.7	n/a	U
S09V000181		O	87-68-3	Hexachlorobutadiene	ug/kg	n/a	<697	<87.9	n/a	n/a	n/a	n/a	87.9	n/a	U
S09V000181		O	67-72-1	Hexachloroethane	ug/kg	n/a	<1.12E+03	<141	n/a	n/a	n/a	n/a	141	n/a	U
S09V000181		O	193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	n/a	<510	<64.3	n/a	n/a	n/a	n/a	64.3	n/a	U
S09V000181		O	108-95-2	Phenol	ug/kg	67.3	<594	<74.9	n/a	n/a	n/a	59.7	74.9	n/a	U
S09V000181		O	91-20-3	Naphthalene	ug/kg	n/a	<626	<79.0	n/a	n/a	n/a	n/a	79.0	n/a	U
S09V000181		O	98-95-3	Nitrobenzene	ug/kg	n/a	<646	<81.5	n/a	n/a	n/a	n/a	81.5	n/a	U
S09V000181		O	100-02-7	4-Nitrophenol	ug/kg	70.4	<526	<66.4	n/a	n/a	n/a	75.9	66.4	n/a	U
S09V000181		O	87-86-5	Pentachlorophenol	ug/kg	61.2	<375	<47.3	n/a	n/a	n/a	70.6	47.3	n/a	U
S09V000181		O	129-00-0	Pyrene	ug/kg	70.4	<629	<79.4	n/a	n/a	n/a	72.8	79.4	n/a	U
S09V000181		O	110-86-1	Pyridine	ug/kg	n/a	<650	<82.0	n/a	n/a	n/a	n/a	82.0	n/a	U
S09V000181		O	126-73-8	Tributyl phosphate	ug/kg	n/a	<1.08E+03	<136	n/a	n/a	n/a	n/a	136	n/a	U
S09V000181		O	128-37-0	BHT	ug/kg	n/a	<2.36E+03	<297	n/a	n/a	n/a	n/a	297	n/a	U
S09V000181		O	110-80-5	2-Ethoxyethanol	ug/kg	n/a	<1.82E+03	<230	n/a	n/a	n/a	n/a	230	n/a	U
S09V000181		O	1319-77-3	Total Methylphenols	ug/kg	n/a	<1.07E+03	<134	n/a	n/a	n/a	n/a	134	n/a	U
S09V000181		O	108-94-1	Cyclohexanone	ug/kg	n/a	<5.59E+03	<705	n/a	n/a	n/a	n/a	705	n/a	U
S09V000181		O	59-89-2	N-Nitrosomorpholine	ug/kg	n/a	<1.91E+03	<241	n/a	n/a	n/a	n/a	241	n/a	U
S09V000181		O	78-83-1	Isobutanol	ug/kg	n/a	<4.60E+03	<581	n/a	n/a	n/a	n/a	581	n/a	U
S09V000189		W	14762-75-5	Carbon-14	uCi/g	98.6	<3.65E-07	<5.67E-05	n/a	n/a	n/a	n/a	5.67E-05	n/a	U
S09V000189		W	10028-17-8	Tritium	uCi/g	92.2	<3.28E-04	<3.14E-04	n/a	n/a	n/a	n/a	3.14E-04	n/a	U
S09V000197		A	7429-90-5	Aluminum	ug/g	99.8	<8.0000	6.85E+03	n/a	n/a	n/a	n/a	6.02	n/a	

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X - Comment
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a - LCS Outside Range
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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT77
Sample Depth: 25-27

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S09V000197~~		~~A~~	~~15117-96-1~~	~~Uranium-235~~	~~ug/g~~	~~101~~	~~<5.50E-07~~	~~3.56E-03~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~1.10E-04~~	~~n/a~~	
S09V000197		A	13982-70-2	Uranium-236	ug/g	n/a	<2.00E-07	5.50E-05	n/a	n/a	n/a	n/a	4.01E-05	n/a	J
S09V000197		A	13994-20-2	Neptunium-237	ug/g	112	<2.65E-06	<5.32E-04	n/a	n/a	n/a	n/a	5.32E-04	n/a	U
S09V000197		A	U-238	Uranium-238	ug/g	102	<2.75E-05	0.495	n/a	n/a	n/a	n/a	5.52E-03	n/a	
S09V000197		A	7440-22-4	Silver	ug/g	107	2.07E-04	0.0903	n/a	n/a	n/a	n/a	0.0321	n/a	BJ
S09V000197		A	7440-38-2	Arsenic	ug/g	114	<8.40E-04	2.22	n/a	n/a	n/a	n/a	0.169	n/a	
S09V000197		A	7440-48-4	Cobalt	ug/g	110	<4.00E-04	6.35	n/a	n/a	n/a	n/a	0.803	n/a	J
S09V000197		A	7440-43-9	Cadmium	ug/g	106	7.01E-05	0.0618	n/a	n/a	n/a	n/a	0.0120	n/a	BJ
S09V000197		A	7440-47-3	Chromium	ug/g	110	<2.80E-03	15.1	n/a	n/a	n/a	n/a	0.562	n/a	
S09V000197		A	7439-92-1	Lead	ug/g	116	<6.20E-04	3.62	n/a	n/a	n/a	n/a	0.124	n/a	
S09V000197		A	7440-36-0	Antimony	ug/g	110	<8.80E-04	<0.177	n/a	n/a	n/a	n/a	0.177	n/a	U
S09V000197		A	7782-49-2	Selenium	ug/g	112	<1.22E-03	<0.245	n/a	n/a	n/a	n/a	0.245	n/a	U
S09V000197		A	7440-28-0	Thallium	ug/g	111	6.92E-05	0.0797	n/a	n/a	n/a	n/a	0.0120	n/a	BJ
S09V000197		A	7440-62-2	Vanadium	ug/g	113	<4.80E-04	37.7	n/a	n/a	n/a	n/a	0.963	n/a	
~~S09V000197~~		~~A~~	~~7440-02-0~~	~~Nickel~~	~~ug/g~~	~~109~~	~~3.20E-04~~	~~38.6~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.482~~	~~n/a~~	
S09V000205		E	CM-243/244	Curium-243/244	uCi/g	n/a	<4.01E-07	<3.95E-07	<3.97E-07	n/a	n/a	n/a	3.95E-07	n/a	U
S09V000205		E	14596-10-2	Americium-241	uCi/g	102	<1.00E-06	<9.88E-07	<9.92E-07	n/a	n/a	n/a	9.88E-07	n/a	U
S09V000205		E	15510-73-3	Curium-242	uCi/g	n/a	<4.01E-07	<3.95E-07	<3.97E-07	n/a	n/a	n/a	3.95E-07	n/a	U
S09V000205		E	13981-37-8	Nickel-63	uCi/g	85.5	<6.14E-05	<5.48E-05	<6.76E-05	n/a	n/a	n/a	5.48E-05	n/a	U
S09V000205		E	PU-239/240	Plutonium-239/240	uCi/g	96.1	<7.24E-07	<6.15E-07	<5.49E-07	n/a	n/a	n/a	6.15E-07	n/a	U
S09V000205		E	13981-16-3	Plutonium-238	uCi/g	n/a	<7.24E-07	<6.15E-07	<5.49E-07	n/a	n/a	n/a	6.15E-07	n/a	U
S09V000205		E	15758-45-9	Selenium-79 J	uCi/g	n/a	<3.20E-06	1.97E-06	<1.57E-06	n/a	n/a	n/a	1.72E-06	-378.63	J
S09V000205		E	SR-89/90	Strontium-89/90	uCi/g	99.9	<1.56E-06	3.88E-06	3.49E-06	.000003685	10.4	n/a	3.05E-06	122.25	J
~~S09V000213~~		~~A~~	~~14133-76-7~~	~~Technetium-99~~	~~ug/g~~	~~104~~	~~<6.00E-06~~	~~<1.21E-03~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~1.21E-03~~	~~n/a~~	~~U~~
S09V000213		A	SN-117	Tin-117	ug/g	142	9.07E-04	<0.0445	n/a	n/a	n/a	n/a	0.0445	n/a	Ua
S09V000213		A	15832-50-5	Tin-126	ug/g	n/a	<4.00E-06	<8.09E-04	n/a	n/a	n/a	n/a	8.09E-04	n/a	U
S09V000221		S	14798-03-9	Ammonium	ug/g	99.1	<0.0120	<0.476	n/a	n/a	n/a	n/a	0.476	n/a	U
~~S09V001332~~		~~W~~	~~16984-48-8~~	~~Fluoride~~	~~ug/g~~	~~97.1~~	~~<1.61E-03~~	~~1.87~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.0199~~	~~n/a~~	~~c~~

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT80
Sample Depth: 42-44

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S09V000174~~			~~%WATERA~~	~~%WATER-APD~~	~~%~~	~~n/a~~	~~n/a~~	~~5.453~~	~~5.652~~	~~5.5525~~	~~3.584~~	~~n/a~~	~~n/a~~	~~n/a~~	
~~S09V000174~~			~~57-12-5~~	~~Cyanide~~	~~ug/g~~	~~108~~	~~<0.0370~~	~~<4.46~~	~~<4.55~~	~~n/a~~	~~n/a~~	~~94.3~~	~~4.46~~	~~n/a~~	~~U~~
S09V000174			10198-40-0	Cobalt-60	uCi/g	99.1	<3.66E-07	<4.38E-07	n/a	n/a	n/a	n/a	4.38E-07	n/a	U
S09V000174			14234-35-6	Antimony-125	uCi/g	n/a	<8.57E-07	<1.09E-06	n/a	n/a	n/a	n/a	1.09E-06	n/a	U
S09V000174			10045-97-3	Cesium-137	uCi/g	104	<5.59E-07	1.64E-06	n/a	n/a	n/a	n/a	6.47E-07	27.15	
S09V000174			14683-23-9	Europium-152	uCi/g	n/a	<1.70E-06	<2.07E-06	n/a	n/a	n/a	n/a	2.07E-06	n/a	U
S09V000174			15585-10-1	Europium-154	uCi/g	n/a	<1.19E-06	<1.38E-06	n/a	n/a	n/a	n/a	1.38E-06	n/a	U
S09V000174			14391-16-3	Europium-155	uCi/g	n/a	<9.66E-07	<1.04E-06	n/a	n/a	n/a	n/a	1.04E-06	n/a	U
~~S09V000174~~			~~7439-97-6~~	~~Mercury~~	~~ug/g~~	~~108~~	~~<1.00E-04~~	~~<0.0100~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.0100~~	~~n/a~~	~~U~~
S09V000174			15046-84-1	Iodine-129	uCi/g	91.4	<2.74E-07	<1.95E-07	n/a	n/a	n/a	n/a	1.95E-07	n/a	U
~~S09V000174~~			~~PH~~	~~pH~~	~~unitless~~	~~n/a~~	~~n/a~~	~~9.02~~	~~9.00~~	~~9.01~~	~~0.222~~	~~n/a~~	~~0.0100~~	~~n/a~~	
S09V000174			18496-25-8	Sulfide	ug/g	98.2	<0.180	14.6	10.1	12.35	35.7	89.3	5.25	n/a	J
S09V000182		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	87.1	<77.4	<76.5	n/a	n/a	n/a	n/a	76.5	n/a	U
S09V000182		O	95-50-1	1,2-Dichlorobenzene	ug/kg	n/a	<101	<99.5	n/a	n/a	n/a	n/a	99.5	n/a	U
S09V000182		O	106-46-7	1,4-Dichlorobenzene	ug/kg	85.1	<113	<112	n/a	n/a	n/a	n/a	112	n/a	U
S09V000182		O	121-14-2	2,4-Dinitrotoluene	ug/kg	90.9	<38.1	<37.7	n/a	n/a	n/a	n/a	37.7	n/a	U
S09V000182		O	95-95-4	2,4,5-Trichlorophenol	ug/kg	n/a	<44.0	<43.5	n/a	n/a	n/a	n/a	43.5	n/a	U
S09V000182		O	88-06-2	2,4,6-Trichlorophenol	ug/kg	n/a	<49.5	<48.9	n/a	n/a	n/a	n/a	48.9	n/a	U
S09V000182		O	95-48-7	2-Methylphenol	ug/kg	n/a	<57.5	<56.8	n/a	n/a	n/a	n/a	56.8	n/a	U
S09V000182		O	88-75-5	2-Nitrophenol	ug/kg	n/a	<53.7	<53.1	n/a	n/a	n/a	n/a	53.1	n/a	U
S09V000182		O	108-39-4M	Cresol (m & p)	ug/kg	n/a	<51.4	<50.8	n/a	n/a	n/a	n/a	50.8	n/a	U
S09V000182		O	83-32-9	Acenaphthene	ug/kg	97.0	<17.6	<17.4	n/a	n/a	n/a	n/a	17.4	n/a	U
S09V000182		O	56-55-3	Benzo(a)anthracene	ug/kg	n/a	<37.8	<37.4	n/a	n/a	n/a	n/a	37.4	n/a	U
S09V000182		O	205-99-2	Benzo(b)fluoranthene	ug/kg	n/a	<48.9	<48.3	n/a	n/a	n/a	n/a	48.3	n/a	U
S09V000182		O	50-32-8	Benzo(a)pyrene	ug/kg	n/a	<41.2	<40.7	n/a	n/a	n/a	n/a	40.7	n/a	U
S09V000182		O	117-81-7	Bis(2-ethylhexyl) phthalate	ug/kg	n/a	<590	5.05E+03	n/a	n/a	n/a	n/a	583	n/a	J
S09V000182		O	207-08-9	Benzo(k)fluoranthene	ug/kg	n/a	<39.1	<38.7	n/a	n/a	n/a	n/a	38.7	n/a	U
~~S09V000182~~		~~O~~	~~85-68-7~~	~~Butylbenzylphthalate~~	~~ug/kg~~	~~n/a~~	~~<50.0~~	~~<49.4~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~49.4~~	~~n/a~~	~~U~~

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT80
Sample Depth: 42-44

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S09V000182		O	59-50-7	4-Chloro-3-methylphenol	ug/kg	85.1	<43.2	<42.7	n/a	n/a	n/a	n/a	42.7	n/a	U
S09V000182		O	95-57-8	2-Chlorophenol	ug/kg	85.5	<66.5	<65.7	n/a	n/a	n/a	n/a	65.7	n/a	U
S09V000182		O	218-01-9	Chrysene	ug/kg	n/a	<81.4	<80.5	n/a	n/a	n/a	n/a	80.5	n/a	U
S09V000182		O	53-70-3	Dibenz[a,h]anthracene	ug/kg	n/a	<51.1	<50.5	n/a	n/a	n/a	n/a	50.5	n/a	U
S09V000182		O	84-74-2	Di-n-butylphthalate	ug/kg	n/a	<562	<556	n/a	n/a	n/a	n/a	556	n/a	U
S09V000182		O	117-84-0	Di-n-octylphthalate	ug/kg	n/a	<47.7	<47.2	n/a	n/a	n/a	n/a	47.2	n/a	U
S09V000182		O	621-64-7	N-Nitroso-di-n-dipropylamine	ug/kg	77.9	<58.1	<57.4	n/a	n/a	n/a	n/a	57.4	n/a	U
S09V000182		O	206-44-0	Fluoranthene	ug/kg	n/a	<35.4	<35.0	n/a	n/a	n/a	n/a	35.0	n/a	U
S09V000182		O	87-68-3	Hexachlorobutadiene	ug/kg	n/a	<69.7	<68.9	n/a	n/a	n/a	n/a	68.9	n/a	U
S09V000182		O	67-72-1	Hexachloroethane	ug/kg	n/a	<112	<111	n/a	n/a	n/a	n/a	111	n/a	U
S09V000182		O	193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	n/a	<51.0	<50.4	n/a	n/a	n/a	n/a	50.4	n/a	U
S09V000182		O	108-95-2	Phenol	ug/kg	86.4	<59.4	<58.7	n/a	n/a	n/a	n/a	58.7	n/a	U
S09V000182		O	91-20-3	Naphthalene	ug/kg	n/a	<62.6	<61.9	n/a	n/a	n/a	n/a	61.9	n/a	U
S09V000182		O	98-95-3	Nitrobenzene	ug/kg	n/a	<64.6	<63.9	n/a	n/a	n/a	n/a	63.9	n/a	U
S09V000182		O	100-02-7	4-Nitrophenol	ug/kg	89.8	<52.6	<52.0	n/a	n/a	n/a	n/a	52.0	n/a	U
S09V000182		O	87-86-5	Pentachlorophenol	ug/kg	88.8	<37.5	<37.1	n/a	n/a	n/a	n/a	37.1	n/a	U
S09V000182		O	129-00-0	Pyrene	ug/kg	93.3	<62.9	<62.2	n/a	n/a	n/a	n/a	62.2	n/a	U
S09V000182		O	110-86-1	Pyridine	ug/kg	n/a	<65.0	<64.3	n/a	n/a	n/a	n/a	64.3	n/a	U
S09V000182		O	126-73-8	Tributyl phosphate	ug/kg	n/a	<108	<107	n/a	n/a	n/a	n/a	107	n/a	U
S09V000182		O	128-37-0	BHT	ug/kg	n/a	<236	<233	n/a	n/a	n/a	n/a	233	n/a	U
S09V000182		O	110-80-5	2-Ethoxyethanol	ug/kg	n/a	<182	<180	n/a	n/a	n/a	n/a	180	n/a	U
S09V000182		O	1319-77-3	Total Methylphenols	ug/kg	n/a	<107	<105	n/a	n/a	n/a	n/a	105	n/a	U
S09V000182		O	108-94-1	Cyclohexanone	ug/kg	n/a	<559	<553	n/a	n/a	n/a	n/a	553	n/a	U
S09V000182		O	59-89-2	N-Nitrosomorpholine	ug/kg	n/a	<191	<189	n/a	n/a	n/a	n/a	189	n/a	U
S09V000182		O	78-83-1	Isobutanol	ug/kg	n/a	<460	<455	n/a	n/a	n/a	n/a	455	n/a	U
S09V000190		W	14762-75-5	Carbon-14	uCi/g	98.6	<3.65E-07	<6.93E-05	n/a	n/a	n/a	n/a	6.93E-05	n/a	U
S09V000190		W	10028-17-8	Tritium	uCi/g	92.2	<3.28E-04	<4.11E-04	n/a	n/a	n/a	n/a	4.11E-04	n/a	U
S09V000190		A	7429-90-5	Aluminum	ug/g	93.0	<0.0300	3.79E+03	n/a	n/a	n/a	n/a	6.04	n/a	

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT80
Sample Depth: 42-44

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S09V000198~~		~~A~~	~~13982-70-2~~	~~Uranium-236~~	~~ug/g~~	~~n/a~~	~~<2.00E-07~~	~~<1.03E-05~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~4.03E-05~~	~~n/a~~	~~U~~
S09V000198		A	13994-20-2	Neptunium-237	ug/g	112	<2.65E-06	<5.34E-04	n/a	n/a	n/a	n/a	5.34E-04	n/a	U
S09V000198		A	U-238	Uranium-238	ug/g	102	<2.75E-05	0.446	n/a	n/a	n/a	n/a	5.54E-03	n/a	
S09V000198		A	7440-22-4	Silver	ug/g	107	2.07E-04	0.0812	n/a	n/a	n/a	n/a	0.0322	n/a	BJ
S09V000198		A	7440-38-2	Arsenic	ug/g	114	<8.40E-04	2.73	n/a	n/a	n/a	n/a	0.169	n/a	
S09V000198		A	7440-48-4	Cobalt	ug/g	110	<4.00E-04	4.62	n/a	n/a	n/a	n/a	0.805	n/a	J
S09V000198		A	7440-43-9	Cadmium	ug/g	106	7.01E-05	0.0402	n/a	n/a	n/a	n/a	0.0121	n/a	BJ
S09V000198		A	7440-47-3	Chromium	ug/g	110	<2.80E-03	12.6	n/a	n/a	n/a	n/a	0.564	n/a	
S09V000198		A	7439-92-1	Lead	ug/g	116	<6.20E-04	2.72	n/a	n/a	n/a	n/a	0.125	n/a	
S09V000198		A	7440-36-0	Antimony	ug/g	110	<8.80E-04	<0.177	n/a	n/a	n/a	n/a	0.177	n/a	U
S09V000198		A	7782-49-2	Selenium	ug/g	112	<1.22E-03	<0.246	n/a	n/a	n/a	n/a	0.246	n/a	U
S09V000198		A	7440-28-0	Thallium	ug/g	111	6.92E-05	0.0532	n/a	n/a	n/a	n/a	0.0121	n/a	BJ
S09V000198		A	7440-62-2	Vanadium	ug/g	113	<4.80E-04	33.9	n/a	n/a	n/a	n/a	0.967	n/a	
~~S09V000198~~		~~A~~	~~7440-02-0~~	~~Nickel~~	~~ug/g~~	~~109~~	~~3.20E-04~~	~~3.35~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.483~~	~~n/a~~	
S09V000206		E	CM-243/244	Curium-243/244	uCi/g	n/a	<4.01E-07	<4.00E-07	n/a	n/a	n/a	n/a	4.00E-07	n/a	U
S09V000206		E	14596-10-2	Americium-241	uCi/g	102	<1.00E-06	<1.00E-06	n/a	n/a	n/a	n/a	1.00E-06	n/a	U
S09V000206		E	15510-73-3	Curium-242	uCi/g	n/a	<4.01E-07	<4.00E-07	n/a	n/a	n/a	n/a	4.00E-07	n/a	U
S09V000206		E	13981-37-8	Nickel-63	uCi/g	85.5	<6.14E-05	<5.99E-05	n/a	n/a	n/a	n/a	5.99E-05	n/a	U
S09V000206		E	PU-239/240	Plutonium-239/240	uCi/g	96.1	<7.24E-07	<5.82E-07	n/a	n/a	n/a	n/a	5.82E-07	n/a	U
S09V000206		E	13981-16-3	Plutonium-238	uCi/g	n/a	<7.24E-07	<5.82E-07	n/a	n/a	n/a	n/a	5.82E-07	n/a	U
S09V000206		E	15758-45-9	Selenium-79	uCi/g	n/a	<3.20E-06	4.14E-06	n/a	n/a	n/a	n/a	1.66E-06	161.04	J
S09V000206		E	SR-89/90	Strontium-89/90	uCi/g	99.9	<1.56E-06	6.68E-06	n/a	n/a	n/a	n/a	1.72E-06	44.96	J
~~S09V000214~~		~~A~~	~~14133-76-7~~	~~Technetium-99~~	~~ug/g~~	~~104~~	~~<6.88E-06~~	~~<1.19E-03~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~1.19E-03~~	~~n/a~~	~~U~~
S09V000214		A	SN-117	Tin-117	ug/g	142	9.07E-04	<0.0435	n/a	n/a	n/a	n/a	0.0435	n/a	Ua
S09V000214		A	15832-50-5	Tin-126	ug/g	n/a	<4.00E-06	<7.91E-04	n/a	n/a	n/a	n/a	7.91E-04	n/a	U
S09V000222		S	14798-03-9	Ammonium	ug/g	100	<0.0120	1.13	1.15	1.14	1.25	96.8	0.488	n/a	U
S09V001333		W	16984-48-8	Fluoride	ug/g	97.1	<1.61E-03	0.760	n/a	n/a	n/a	n/a	0.0201	n/a	c
~~S09V001333~~		~~W~~	~~666-14-8~~	~~Glycolate~~	~~ug/g~~	~~99.8~~	~~<9.37E-03~~	~~<0.117~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.117~~	~~n/a~~	~~U~~

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT83
Sample Depth: 56-58

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S09V000175~~			~~%WATERA~~	~~%WATER-APD~~	~~%~~	~~n/a~~	~~n/a~~	~~3.836~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	
~~S09V000175~~			~~CN-12-S~~	~~Cyanide~~	~~ug/g~~	~~100~~	~~<0.0370~~	~~<5.07~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~5.07~~	~~n/a~~	~~U~~
S09V000175			13966-00-2	Potassium-40	uCi/g	n/a	n/a	1.94E-05	n/a	n/a	n/a	n/a	8.01E-06	28.59	
S09V000175			10198-40-0	Cobalt-60	uCi/g	99.1	<3.66E-07	<3.96E-07	n/a	n/a	n/a	n/a	3.96E-07	n/a	U
S09V000175			14234-35-6	Antimony-125	uCi/g	n/a	<8.57E-07	<1.13E-06	n/a	n/a	n/a	n/a	1.13E-06	n/a	U
S09V000175			10045-97-3	Cesium-137	uCi/g	104	<5.59E-07	<5.47E-07	n/a	n/a	n/a	n/a	5.47E-07	n/a	U
S09V000175			14683-23-9	Europium-152	uCi/g	n/a	<1.70E-06	<1.97E-06	n/a	n/a	n/a	n/a	1.97E-06	n/a	U
S09V000175			15585-10-1	Europium-154	uCi/g	n/a	<1.19E-06	<1.44E-06	n/a	n/a	n/a	n/a	1.44E-06	n/a	U
S09V000175			14391-16-3	Europium-155	uCi/g	n/a	<9.66E-07	<1.05E-06	n/a	n/a	n/a	n/a	1.05E-06	n/a	U
~~S09V000175~~			~~7439-97-6~~	~~Mercury~~	~~ug/g~~	~~100~~	~~<1.00E-04~~	~~<0.0110~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.0110~~	~~n/a~~	~~U~~
S09V000175			15046-84-1	Iodine-129	uCi/g	91.4	<2.74E-07	<2.42E-07	n/a	n/a	n/a	n/a	2.42E-07	n/a	U
~~S09V000175~~			~~PH~~	~~pH~~	~~unitless~~	~~n/a~~	~~n/a~~	~~9.20~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.0100~~	~~n/a~~	
S09V000175			18496-25-8	Sulfide	ug/g	98.2	<0.180	7.48	n/a	n/a	n/a	n/a	5.56	n/a	J
S09V000183		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	87.1	<77.4	<78.8	n/a	n/a	n/a	75.4	78.8	n/a	U
S09V000183		O	95-50-1	1,2-Dichlorobenzene	ug/kg	n/a	<101	<102	n/a	n/a	n/a	n/a	102	n/a	U
S09V000183		O	106-46-7	1,4-Dichlorobenzene	ug/kg	85.1	<113	<115	n/a	n/a	n/a	71.3	115	n/a	U
S09V000183		O	121-14-2	2,4-Dinitrotoluene	ug/kg	90.9	<38.1	<38.8	n/a	n/a	n/a	91.1	38.8	n/a	U
S09V000183		O	95-95-4	2,4,5-Trichlorophenol	ug/kg	n/a	<44.0	<44.8	n/a	n/a	n/a	n/a	44.8	n/a	U
S09V000183		O	88-06-2	2,4,6-Trichlorophenol	ug/kg	n/a	<49.5	<50.4	n/a	n/a	n/a	n/a	50.4	n/a	U
S09V000183		O	95-48-7	2-Methylphenol	ug/kg	n/a	<57.5	<58.5	n/a	n/a	n/a	n/a	58.5	n/a	U
S09V000183		O	88-75-5	2-Nitrophenol	ug/kg	n/a	<53.7	<54.7	n/a	n/a	n/a	n/a	54.7	n/a	U
S09V000183		O	108-39-4M	Cresol (m & p)	ug/kg	n/a	<51.4	<52.3	n/a	n/a	n/a	n/a	52.3	n/a	U
S09V000183		O	83-32-9	Acenaphthene	ug/kg	97.0	<17.6	<17.9	n/a	n/a	n/a	88.4	17.9	n/a	U
S09V000183		O	56-55-3	Benzo(a)anthracene	ug/kg	n/a	<37.8	<38.5	n/a	n/a	n/a	n/a	38.5	n/a	U
S09V000183		O	205-99-2	Benzo(b)fluoranthene	ug/kg	n/a	<48.9	<49.8	n/a	n/a	n/a	n/a	49.8	n/a	U
S09V000183		O	50-32-8	Benzo(a)pyrene	ug/kg	n/a	<41.2	<41.9	n/a	n/a	n/a	n/a	41.9	n/a	U
S09V000183		O	117-81-7	Bis(2-ethylhexyl) phthalate	ug/kg	n/a	<590	<601	n/a	n/a	n/a	n/a	601	n/a	U
~~S09V000183~~		~~O~~	~~207-08-9~~	~~Benzo(k)fluoranthene~~	~~ug/kg~~	~~n/a~~	~~<39.1~~	~~<39.8~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~39.8~~	~~n/a~~	~~U~~

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT83
Sample Depth: 56-58

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S09V000183~~		~~O~~	~~85-68-7~~	~~Butylbenzylphthalate~~	~~ug/kg~~	~~n/a~~	~~<50.0~~	~~<50.9~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~50.9~~	~~n/a~~	~~U~~
S09V000183		O	59-50-7	4-Chloro-3-methylphenol	ug/kg	85.1	<43.2	<44.0	n/a	n/a	n/a	84.9	44.0	n/a	U
S09V000183		O	95-57-8	2-Chlorophenol	ug/kg	85.5	<66.5	<67.7	n/a	n/a	n/a	73.9	67.7	n/a	U
S09V000183		O	218-01-9	Chrysene	ug/kg	n/a	<81.4	<82.8	n/a	n/a	n/a	n/a	82.8	n/a	U
S09V000183		O	53-70-3	Dibenz[a,h]anthracene	ug/kg	n/a	<51.1	<52.0	n/a	n/a	n/a	n/a	52.0	n/a	U
S09V000183		O	84-74-2	Di-n-butylphthalate	ug/kg	n/a	<562	<572	n/a	n/a	n/a	n/a	572	n/a	U
S09V000183		O	117-84-0	Di-n-octylphthalate	ug/kg	n/a	<47.7	<48.6	n/a	n/a	n/a	n/a	48.6	n/a	U
S09V000183		O	621-64-7	N-Nitroso-di-n-dipropylamine	ug/kg	77.9	<58.1	<59.1	n/a	n/a	n/a	69.3	59.1	n/a	U
S09V000183		O	206-44-0	Fluoranthene	ug/kg	n/a	<35.4	<36.0	n/a	n/a	n/a	n/a	36.0	n/a	U
S09V000183		O	87-68-3	Hexachlorobutadiene	ug/kg	n/a	<69.7	<70.9	n/a	n/a	n/a	n/a	70.9	n/a	U
S09V000183		O	67-72-1	Hexachloroethane	ug/kg	n/a	<112	<114	n/a	n/a	n/a	n/a	114	n/a	U
S09V000183		O	193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	n/a	<51.0	<51.9	n/a	n/a	n/a	n/a	51.9	n/a	U
S09V000183		O	108-95-2	Phenol	ug/kg	86.4	<59.4	<60.5	n/a	n/a	n/a	75.6	60.5	n/a	U
S09V000183		O	91-20-3	Naphthalene	ug/kg	n/a	<62.6	<63.7	n/a	n/a	n/a	n/a	63.7	n/a	U
S09V000183		O	98-95-3	Nitrobenzene	ug/kg	n/a	<64.6	<65.8	n/a	n/a	n/a	n/a	65.8	n/a	U
S09V000183		O	100-02-7	4-Nitrophenol	ug/kg	89.8	<52.6	<53.5	n/a	n/a	n/a	94.8	53.5	n/a	U
S09V000183		O	87-86-5	Pentachlorophenol	ug/kg	88.8	<37.5	<38.2	n/a	n/a	n/a	96.8	38.2	n/a	U
S09V000183		O	129-00-0	Pyrene	ug/kg	93.3	<62.9	<64.0	n/a	n/a	n/a	88.4	64.0	n/a	U
S09V000183		O	110-86-1	Pyridine	ug/kg	n/a	<65.0	<66.2	n/a	n/a	n/a	n/a	66.2	n/a	U
S09V000183		O	126-73-8	Tributyl phosphate	ug/kg	n/a	<108	<110	n/a	n/a	n/a	n/a	110	n/a	U
S09V000183		O	128-37-0	BHT	ug/kg	n/a	<236	<240	n/a	n/a	n/a	n/a	240	n/a	U
S09V000183		O	110-80-5	2-Ethoxyethanol	ug/kg	n/a	<182	<186	n/a	n/a	n/a	n/a	186	n/a	U
S09V000183		O	1319-77-3	Total Methylphenols	ug/kg	n/a	<107	<108	n/a	n/a	n/a	n/a	108	n/a	U
S09V000183		O	108-94-1	Cyclohexanone	ug/kg	n/a	<559	<569	n/a	n/a	n/a	n/a	569	n/a	U
S09V000183		O	59-89-2	N-Nitrosomorpholine	ug/kg	n/a	<191	<195	n/a	n/a	n/a	n/a	195	n/a	U
~~S09V000183~~		~~O~~	~~78-83-1~~	~~Isobutanol~~	~~ug/kg~~	~~n/a~~	~~<460~~	~~<468~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~468~~	~~n/a~~	~~U~~
S09V000191		W	14762-75-5	Carbon-14	uCi/g	96.5	<6.77E-05	6.11E-05	n/a	n/a	n/a	n/a	5.00E-05	87.5	J
S09V000191		W	10028-17-8	Tritium	uCi/g	90.5	<3.05E-04	<3.04E-04	n/a	n/a	n/a	n/a	3.04E-04	n/a	U

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C Farm WMA C
Data Summary Report

Sample Group: 20090160
Core Number: C6392
Customer Sample ID: B1YT83
Sample Depth: 56-58

LS
4-28-2010

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S09V000199~~		~~A~~	~~13968-55-3~~	~~Uranium-233~~	~~ug/g~~	~~n/a~~	~~<2.00E-07~~	~~1.24E-04~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~3.75E-05~~	~~n/a~~	~~J~~
S09V000199		A	13966-29-5	Uranium-234	ug/g	n/a	<1.00E-07	<1.87E-05	n/a	n/a	n/a	n/a	1.87E-05	n/a	U
S09V000199		A	15117-96-1	Uranium-235	ug/g	96.5	5.35E-07	3.03E-03	n/a	n/a	n/a	n/a	4.12E-05	n/a	
S09V000199		A	13982-70-2	Uranium-236	ug/g	n/a	<8.00E-08	<1.50E-05	n/a	n/a	n/a	n/a	1.50E-05	n/a	U
S09V000199		A	13994-20-2	Neptunium-237	ug/g	107	<1.06E-06	7.19E-04	n/a	n/a	n/a	n/a	1.99E-04	n/a	J
S09V000199		A	U-238	Uranium-238	ug/g	102	1.34E-04	0.433	n/a	n/a	n/a	n/a	2.06E-03	n/a	B
S09V000199		A	7440-22-4	Silver	ug/g	99.6	<8.00E-04	<0.150	n/a	n/a	n/a	n/a	0.150	n/a	U
S09V000199		A	7440-38-2	Arsenic	ug/g	103	<8.40E-04	2.65	n/a	n/a	n/a	n/a	0.157	n/a	
S09V000199		A	7440-48-4	Cobalt	ug/g	104	<4.00E-04	4.05	n/a	n/a	n/a	n/a	0.0750	n/a	
S09V000199		A	7440-43-9	Cadmium	ug/g	103	<6.00E-05	0.0637	n/a	n/a	n/a	n/a	0.0112	n/a	J
S09V000199		A	7439-92-1	Lead	ug/g	102	<6.20E-04	4.03	n/a	n/a	n/a	n/a	0.116	n/a	
S09V000199		A	7440-36-0	Antimony	ug/g	109	<8.80E-04	<0.165	n/a	n/a	n/a	n/a	0.165	n/a	U
S09V000199		A	7782-49-2	Selenium	ug/g	107	2.00E-03	<0.229	n/a	n/a	n/a	n/a	0.229	n/a	U
S09V000199		A	7440-28-0	Thallium	ug/g	118	5.12E-04	0.0899	n/a	n/a	n/a	n/a	0.0112	n/a	BJ
S09V000199		A	7440-62-2	Vanadium	ug/g	95.2	<4.80E-04	31.5	n/a	n/a	n/a	n/a	0.900	n/a	
~~S09V000199~~		~~A~~	~~7440-02-0~~	~~Nickel~~	~~ug/g~~	~~98.2~~	~~<1.20E-03~~	~~12.6~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.225~~	~~n/a~~	
S09V000207		E	CM-243/244	Curium-243/244	uCi/g	n/a	<4.01E-07	<4.39E-07	n/a	n/a	n/a	n/a	4.39E-07	n/a	U
S09V000207		E	14596-10-2	Americium-241	uCi/g	102	<1.00E-06	<1.10E-06	n/a	n/a	n/a	n/a	1.10E-06	n/a	U
S09V000207		E	15510-73-3	Curium-242	uCi/g	n/a	<4.01E-07	<4.39E-07	n/a	n/a	n/a	n/a	4.39E-07	n/a	U
S09V000207		E	13981-37-8	Nickel-63	uCi/g	85.5	<6.14E-05	<8.50E-05	n/a	n/a	n/a	n/a	8.50E-05	n/a	U
S09V000207		E	PU-239/240	Plutonium-239/240	uCi/g	96.1	<7.24E-07	<6.99E-07	n/a	n/a	n/a	n/a	6.99E-07	n/a	U
S09V000207		E	13981-16-3	Plutonium-238	uCi/g	n/a	<7.24E-07	<6.99E-07	n/a	n/a	n/a	n/a	6.99E-07	n/a	U
S09V000207		E	15758-45-9	Selenium-79 J	uCi/g	n/a	<3.20E-06	2.11E-06	n/a	n/a	n/a	n/a	2.11E-06	-716.52	J
S09V000207		E	SR-89/90	Strontium-89/90	uCi/g	99.9	<1.56E-06	4.92E-06	n/a	n/a	n/a	n/a	2.06E-06	68.59	J
~~S09V000223~~		~~S~~	~~14798-03-9~~	~~Ammonium~~	~~ug/g~~	~~100~~	~~<0.0120~~	~~1.45~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.480~~	~~n/a~~	~~J~~
S09V001334		W	16984-48-8	Fluoride	ug/g	97.1	<1.61E-03	1.08	n/a	n/a	n/a	n/a	0.0198	n/a	c
S09V001334		W	666-14-8	Glycolate	ug/g	99.8	<9.37E-03	<0.115	n/a	n/a	n/a	n/a	0.115	n/a	U
~~S09V001334~~		~~W~~	~~71-50-1~~	~~Acetate~~	~~ug/g~~	~~103~~	~~<6.04E-03~~	~~0.246~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.0744~~	~~n/a~~	~~Ic~~

NA = Not Analyzed, ND = Not Detected

J - Estimated
B - Found in Blank
X - Comment
U - Less Than Detection Limit
a - LCS Outside Range
Y - Comment
c - RPD Outside Range
b - MS/MSD Outside Range
e - SERDIL Outside Range

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

222-S LABORATORY

FINAL ANALYTICAL REPORT FOR SAMPLES FROM WASTE MANAGEMENT AREA C FOR CORE HOLES: C6392, C6400, C6402 C6404, AND C6406 IN SUPPORT OF RCRA SOIL CHARATERICZATION

1.0 INTRODUCTION

This final report presents the results for the samples taken from Waste Management Area C between March 11th and June 15th, 2009. The samples were analyzed in accordance with RPP-PLAN-40564, *Field Sampling and Analysis Plan for Sites P and L at Waste Management Area C,* (FSAP); RPP-PLAN 3877, *Sampling and Analysis Plan for Phase 2 Characterization of Vadose Zone Soil in Waste Management Area C* (SAP); ATL-MP-1011, *ATL Quality Assurance Project Plan for 222-S Laboratory* (QAPP); *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* (SW-846); and the additional guidance given by the client's point of contact.

Because the 222-S Laboratory Facility was designed to analyze hazardous and complex tank waste samples, most SW-846 test methods performed at the 222-S Laboratory contain deviations that are listed in an appendix in the analytical procedures. All known deviations or variances from SW-846 are documented in this narrative. The following attachments are included in this report.

Attachment 1	Data Summary Report
Attachment 2	Sample Breakdown Diagrams
Attachment 3	Holding Time Report
Attachment 4	Tentatively Identified Compounds (TIC) for Organic Analyses
Attachment 5	Correspondence
Attachment 6	Receipt Paperwork

This report also contains the following appendices.

Appendix A	Geologic Report
Appendix B	Analytical Raw Data

2.0 SAMPLE RECEIPT AND BREAKDOWN

2.1.1 Sample Receipt

A total of 25 core intervals from five core holes along with two equipment blanks and three trip blanks were received by 222-S beginning March 11th and ending June 15th, 2009. The samples were delivered in a cooler with ice or, in the case of the volatile organic samples, in a freezer. The temperature of a randomly selected sample from each cooler or freezer was measured and recorded on the chain of custody. Laboratory sample receipt personnel failed to record the receipt temperature for four core intervals:

- C6404 - 6 ft. to 8 ft
- C6404 - 10 ft. to 12 ft.
- C6406 - 54.5 ft. to 56.5 ft.
- C6406 - 59 ft. to 61 ft.

This was caused partially by the confusion from the delivery of multiple core projects at the same time and failure of laboratory personnel to follow the sample receipt procedure. These issues have been addressed and corrective measures have been taken. Many of the samples received were outside the required temperature ranges. This was due to the fact that these samples had not been in the cooler or freezer long enough to reach equilibrium. This can be verified, in most cases, by comparing the receipt time with the sampling time. The cooler and freezer walls were sometimes measured and were within the required temperature range. This temperature was not generally recorded since this measurement is not called out in the procedure. For future projects, the temperature of a temperature blank or the side of the cooler or freezer will be measured and recorded as described in SW-846.

2.1.2 Sample Breakdown

The laboratory received each core interval as a set of volatile organic analysis (VOA) samples and three liner samples, when complete core recovery was obtained. Nine core intervals had less than full recovery (see Attachment 2 and Attachment 6). The liner samples from each core interval were extruded, described, and composited by the Washington River Protection Solutions, Inc. (WRPS) geologist. The geologist's report is included in Appendix A. Provided sufficient samples existed, the composite for each core interval was analyzed as described in the SAP and FSAP. WRPS shipped a subsample of each composite to an offsite laboratory, when sufficient sample was available. The results of these analyses are not discussed in this report.

The 10-ft. to 12-ft. interval from core hole C6404 consisted of only VOA vial samples. No core liners were received for this interval. A limited suite for radiochemical analyses was performed using the methanol-preserved VOA sample. No other analyses were performed.

3.0 ANALYTICAL RESULTS SUMMARY

The Data Summary Report (Attachment 1) presents the final analytical results for those analytes requested in the SAP and FSAP. Secondary analytes are only reported if detected. The TIC from gas chromatography-mass spectrometry (GC/MS) analysis of semivolatile organic compounds (SVOC) is presented in Attachment 4. In addition to the required isotopes, all isotopes with positive gamma energy analysis (GEA) results were reported.

The "Det Limit" column in Attachment 1 contains the method detection limit (MDL) for non-radionuclide analyses, or the minimum detectable activity for radionuclides.

In Attachment 1 the column labeled "A#" indicates the aliquot class or the method used for sample preparation before analysis. For solid samples, the aliquot classes are defined as follows:

"A" indicates samples that were prepared by SW846-3050B.

"E" indicates samples that were prepared by a strong acid digest.

"O" indicates samples that were extracted for organic analysis.

"S" indicates samples that were prepared by a distillation.

"W" indicates samples that were prepared by a water digest.

Samples without a letter identifier in the "A#" column were analyzed directly with no separate preparation or with sample preparation performed as a part of the procedure steps.

The "Qual Flags" column in Attachment 1 contains data qualifier flags that are defined as follows:

"B" is used to indicate that the analyte was detected in the method or preparation blank and in the sample, and the result for the blank was greater than 5% of the reported sample result.

"J" indicates that the reported result should be considered an estimate because it is below the quantitation limit. The "J" flag is applied to sample concentrations that are greater than the MDL but less than the quantitation limit or sample activity with a counting uncertainty greater than 30%.

"N" indicates a TIC which has been named.

"Q" indicates that the result is qualitative only.

"T" indicated a TIC.

"U" indicates that the reported result is less than the calculated detection limit.

"Y" indicates that the percent difference (%D) for the continuing calibration verification standard (CCV) was greater than -20%.

"X" indicates that the initial calibration verification (ICV) standard was outside the range specified in the QAPP.

"a" indicates that the laboratory control sample (LCS) was outside of the specified range in the QAPP or SAP.

"b" indicates that the matrix spike (MS) was outside of the specified range in the QAPP or SAP.

"c" indicates that the relative percent difference (RPD) between the sample and the duplicate is greater than 30%.

"e" indicates that the %D between the sample result and the serial dilution exceeded 10%.

"f" indicates that the MS failed and the serial dilution passed.

Manual calculations using rounded results from the Data Summary Report or result calculation forms may differ slightly from the actual results derived from the raw data.

3.1 SAMPLE DIGESTIONS

3.1.1 Radiochemistry Strong Acid Digestion

Strong acid digestions with a hot plate for the heat source were performed using a mixture of concentrated nitric and hydrochloric acids. For each digest, approximately 10 grams of sample were digested, filtered, and diluted to a final volume of 100 or 125 mL. This digestion was used for all radiochemical analyses except tritium, ^{14}C, and ^{129}I. This digestion is a leach of the acid soluble species only.

3.1.2 SW846-3050B - Acid Digestion-Heating Block

This acid digestion follows SW846-3050B using a heating block and nitric and hydrochloric acids. Approximately 0.25 g of sample was digested. All heating-block digestions were filtered and diluted to a final volume of 50 mL. In soil, this digestion is a leach of the acid soluble species only. This digestion was used for all inductively coupled plasma/mass spectrometry (ICP/MS) and inductively coupled plasma/atomic emission spectroscopy (ICP/AES) analyses except for ^{99}Tc and isotopic tin (^{117}Sn and ^{126}Sn) analysis. The digestion is modified for the ^{99}Tc analysis by using only nitric acid. This is done to eliminate the possibility of the formation a zinc-chlorine ion pair of mass 99. The laboratory believes this ion, when present, is responsible for low level false positives.

3.1.3 Water Digestion

A water digestion or leach was prepared for the anions by ion chromatography, ^{14}C, and tritium analyses using approximately 0.25 to 4 g of sample diluted to 25 mL. Sonification was used, and the leachate was then filtered. In soil, this digestion is a leach of the water soluble species only.

3.2 INORGANIC ANALYSES

3.2.1 Cyanide

The cyanide analysis was performed on direct subsamples of the liner composite samples. All analyses met the SW846 holding time of 14 days except for sample B1YT71 (S09V000171). The holding time was missed due to the need for reanalysis, which was caused by quality control (QC) failures during the first analysis. The sample was initially analyzed within the holding time, but the final analysis, which passed all QC requirements, was 1 day past the holding. The sample result was the same for both analyses. The laboratory believes there was no effect on the final result from this missed holding time. There was no required reporting limit in the SAP for cyanide. The target detection limit was 0.5 µg/g, which is at least an order of magnitude lower than the current laboratory method (lachet micro-distillation) can reach.

3.2.2 Sulfide

Sulfide analysis was performed on direct subsamples of the liner composite samples. All analysis met the SW846 holding time of 7 days except for samples B1YT92 (S09V000382), B1YTH1

(S09V000626), and B1YTH3 (S09V000642). The first holding time was missed due to the lack of analytical personnel resources. The other two missed holding times were caused by the inability of the analytical personnel to access the laboratory due the lack of facility support, which is beyond the control of analytical personnel and their management. There was no required reporting limit in the SAP for sulfide. The target detection limit was 5 µg/g. Three sample results had adjusted MDLs of 5 µg/g. The rest were between 6 µg/g and 8 µg/g.

Batches 13951, 13952, 14332, 14517, 14598, and 14778: There were no notable issues with these batches and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 14184: The RPD between the sample and duplicate exceeded the required 30% in the SAP at 36%. Since the sample result was below the quantitation limit, this criterion is not applicable. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

Batch 14354: The RPD between the sample and duplicate exceeded the required 30% in the SAP at 32%. Since the sample result was below the quantitation limit, this criterion is not applicable. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

3.2.3 pH Analysis

The pH analysis was performed on the liner composite samples. These analyses met all QC requirements in the FSAP, SAP, and QAPP. The FSAP lists a pH holding time requirement of "as soon as possible." All pH measurements were taken immediately after the water leach was performed, but the sampling to analysis date varied from 2 to 20 days (see Attachment 3). There is no correlation between pH results and days to analysis, and the results fall within an expected range for alkaline soils. This indicates that the large variation in time has no apparent effect on the results. However, the client's expectation was that analysis would be performed within 14 days. For future projects, the analysis will be performed in less time.

3.2.4 Mercury

Analysis for mercury was performed on digested subsamples of the liner composite samples. All results met the QC requirements in the FSAP, SAP, and QAPP. All analyses met the holding time of 28 days, except for samples B1YT80 (S09V000174), B1YT83 (S09V000175), and B1YT98 (S09V000392). This was apparently the result of an oversight error by the analytical staff. The laboratory is working on improvements in holding time expiration tracking.

This analysis met the required and target detection limits except for three samples: B1YT71 (S09V000171), B1YT74 (S09V000172), and B1YT77 (S09V000173). These sample results met the target detection limit of 0.2 mg/Kg but were twice the required detection limit of 0.01 mg/Kg.

3.2.5 Ion Chromatography - Ammonium

Analysis for NH_4^+ was performed using a distillation preparation of the liner composite samples. The SAP lists an administrative holding time of 7 days. The laboratory believes that after

distillation and preservation, the holding is 28 days based on EPA drinking water and waste water holding times for preserved samples. There is no regulatory holding time limit promulgated for ammonium in soil. Four samples were analyzed outside of the administrative 7-day holding time: B1YT71 (S09V000219), B1YT92 (S09V000425), B1YTH1 (S09V000632), and B1YTH3 (S09V000648). This was apparently the result of an oversight error by the analytical staff. The laboratory is working on improvements in holding time expiration tracking. These analyses met the target detection limit listed in the SAP. There was no required reporting limit in the SAP or FSAP for ammonium.

Batches 14073, 14226, 14237, and 14498: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 14301: The preparation blank had a result above the MDL but below the quantitation limit. Since the blank result was more than 5% of the sample, a "B" flag has been applied to the associated results. Since both the sample and the blank results were below the quantitation limit, reanalysis was not required. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

Batch 14710: Samples B1YTF4 (S09V000599) and B1YTF4 (S09V000615) were analyzed with an LCS and MS, which used a standard that was 2 days past the expiration date. Since the recoveries of the expired standards were within 95% to 100% of the expected value, and the analytical batch contained other valid standards with acceptable recoveries, it is the laboratory's opinion that the data quality was not affected. Therefore, no reanalysis was requested. One of the two preparation blanks contained in this analytical batch had an ammonium result slightly above the MDL. Since the associated samples were non-detect, there is no effect on the data. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

Batch 14840: The preparation blank had a result above the MDL but below the quantitation limit. Since the blank result was more than 5% of the sample results, a "B" flag has been applied to the associated results. Since the blank result was below the quantitation limit, reanalysis was not required. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

Batch 14659: The preparation blank had a result above the MDL but below the quantitation limit. Since the blank result was more than 5% of the sample results, a "B" flag has been applied to the associated results. Since both the sample and the blank results were below the quantitation limit, reanalysis was not required. All QC requirements in the FSAP, SAP, and the QAPP were met for this batch.

3.2.6 Ion Chromatography – Anions and Small Organic Acids

Ion chromatography analysis was performed on a water digest of subsamples from all soil composite samples except for B20XV5. This was due to insufficient sample volume. This sample was the 6-ft. to 8-ft. interval from core hole C6402, which was a retake of the same interval in core hole C6404. The laboratory met all the required and target detection limits. All analyses were within the applicable holding time. All sample spikes used in this analysis are post digestion spikes. Current laboratory procedures and practice were developed for the analysis of concentrated waste, which typically does not include the use of predigestion spikes for this

analysis. The laboratory will change to predigestion spike for future projects. In general, these samples experienced multiple RPD failures in every batch. All samples were reanalyzed and little improvement was seen. Other analyses also experienced high RPDs. The exact cause of the IC failures is unknown at this time, but it is matrix related. The "c" has been applied to all samples in the batch, not just the sample used for the duplicate analysis.

Batch 16700: Nitrite and nitrate were present in the preparation blank at levels below the quantitation limit; therefore, reanalysis was not required. Sample results have been flagged with "B" when appropriate. The RPD for formate and oxalate exceeded the required 30%. However, since the results for these analytes were below the quantitation limit, the criterion does not apply. The RPD for fluoride, acetate, sulfate, nitrate, and phosphate exceeded the 30% requirement, and results were all above the quantitation limit. The sample results have been flagged with a "c."

Batch 16701: The preparation blank result for chloride was above the MDL but less than the quantitation limit. Therefore, the data quality was not affected and reanalysis was not required. The samples were "B" flagged as appropriate. The closing continuing calibration blank (CCB) result for formate was above the MDL but less than the quantitation limit. Therefore, the data quality was not affected and reanalysis was not required. The samples were "B" flagged as appropriate. The RPD for nitrite and oxalate exceeded the required 30%. However, since the results for these analytes were below the quantitation limit, the criterion does not apply. The RPD for sulfate, nitrate, and chloride exceeded the 30% requirement, and results were all above the quantitation limit. The sample results have been flagged with a "c."

Batch 16744: The RPD for acetate exceeded the required 30%. Since the result for this analyte was below the quantitation limit, the criterion does not apply. The RPD for nitrite exceeded the 30% requirement, and all results were above the quantitation limit. The sample results have been flagged with a "c."

Batch 17027: The RPD for oxalate and formate exceeded the required 30%. Since the result for these analytes were below the quantitation limit, the criterion does not apply. The RPD for acetate, nitrate, nitrite, and sulfate exceeded the 30% requirement, and results were all above the quantitation limit. The sample results have been flagged with a "c."

3.2.7 Inductively Coupled Plasma/Atomic Emission Spectroscopy

The ICP/AES analysis was performed on an acid-digest (SW846-3050B) of all liner composite samples. In general, the ICP/AES analysis experienced repeated failures for the duplicate RPDs, serial dilutions, and matrix spike recoveries. The laboratory believes these failures are due to interferences from high levels of iron and aluminum, and sample inhomogeneity. This is supported by the fact that there were no post digestion spike failures. The interference from the iron and aluminum appeared to cause signal suppression in most cases. The impact of this interference could be reduced by reanalyzing the samples using smaller aliquots or greater dilution, but this would cause some primary elements to be reported as estimated or non-detected above the required detection limits. This was discussed with the client, who agreed that reanalysis would not improve the overall analytical results (see Attachment 5). Additionally, it was noted that some of the secondary analytes experienced LCS failures and that reanalysis was not required for secondary elements. In particular, the digestion method used, which was an acid

leach, does not produce consistent results for silicon. The amount of silicon leached from a highly siliceous material, like soil, is not consistent when using an acid leach. Also, the LCS recoveries are somewhat variable and may be related to the concentration and types of acid used. Silicon is not listed with other elements in SW846-3050B, section 1.1, under "Scope and Application" for the method.

The ICP/AES analysis was unable to obtain the required detection limit for antimony, arsenic, cadmium, lead, nickel, selenium, silver, thallium, and vanadium. These elements have been reported from separate ICP/MS analyses. Additionally, some chromium and cobalt results were from these same ICP/MS analyses. Total uranium has been reported by the ICP/AES analysis but did not meet the required detection limits in the FSAP. Since the isotopic uranium analysis by ICP/MS met the required detection limit for ^{238}U, the overall data usability was not affected. For all other metals reported by ICP/AES, all target and required detection limits were met or the results were above the quantitation limit, with the exception of one sample. Sample B1YT71 from core C6392 failed to meet the required detection limit for molybdenum and the target detection limits for beryllium, copper, and molybdenum.

Batch 15041: The low level standard (LLS) for potassium failed low at 69%. This indicates that results near the LLS could be biased low. Since all potassium results were near the mid-range of the calibration, the data was not affected by the low LLS recovery. The MS recoveries for aluminum, calcium, and iron failed to meet the FSAP criterion. Since the sample concentrations of these analytes exceeded four times the spike level, the MS recovery criterion does not apply. The MS recovery for silicon exceeded the ±25% criterion in the SAP and FSAP at 311%. The laboratory believes that the failure is due to the inconsistent leaching of silicon discussed previously. The associated sample results have been flagged with a "b."

Batch 16002: The MS recoveries for aluminum, calcium, iron, and magnesium failed to meet the FSAP criterion. Since the sample concentrations of these analytes exceeded four times the spike level, the MS recovery criterion does not apply. The MS recovery for sodium, tantalum, titanium, and potassium exceeded the ±25% criterion in the SAP and FSAP, and the results have been flagged with a "b." The laboratory believes this is a result of matrix interference due to the high levels of other elements in these samples and sample inhomogeneity. This was discussed with the client (see Attachment 5), and reanalysis was deemed unnecessary. The MS recovery for tantalum was less than 1%. The laboratory believes this was due to an issue with the standard. Since tantalum is not a required analyte, reanalysis was not required. Zinc was detected in the preparation blank above the MDL but less than the quantitation limit. Since the result was less than 5% of the sample result, the data quality was not affected.

Batch 16229: Calcium was present in the preparation blank but was less than 5% of the lowest sample result. The MS recoveries for aluminum, calcium, iron, silicon, titanium, and magnesium failed to meet the FSAP criterion. Since the sample concentrations of these analytes exceeded four times the spike level, the MS recovery criterion does not apply. The serial dilution for manganese and sodium failed the 10% requirement at 19% and 12%, respectively. The results have been flagged with an "e." This could indicate that the parent sample result is biased low due to matrix interference.

Batch 16778: The ICV standard recovery for rubidium was outside the 90% to 110% criterion at 112%. The sample results have been flagged with an "X." Reanalysis was not required since rubidium is a secondary analyte. The results for palladium and rubidium in the CCBs and initial calibration standard (ICB) were above MDL but below the quantitation limits. A "B" flag was applied since the blank result was greater than 5% of the sample results. Reanalysis was not required because all results (blank and samples) were below the quantitation limit. The LLS for rubidium, potassium, and palladium exceeded the 130% recovery criterion at 237%, 134%, and 137%, respectively. The palladium and rubidium results should be considered biased high. Since these are secondary analytes, reanalysis is not required. All potassium results are above the ICV and CCV level. Therefore, the slightly high recovery of the LLS does not impact the data quality. The LCS for silicon failed low at 52%. Silicon results should be considered biased low and are flagged with an "a." The preparation blank results for calcium and zinc were above the MDL but below the quantitation limit and less than 5% of the sample result. Therefore, the sample results were not affected. The duplicate RPD for praseodymium exceeded the 30% requirement in the SAP and FSAP. Since the sample result was below the quantitation limit, this criterion does not apply. The MS recoveries for aluminum, calcium, iron, and magnesium were outside the ±25% requirement in the SAPs. However, since the sample results for these elements were more than four times the spike level, the criterion does not apply. The MS recoveries for sodium, potassium, rubidium, silicon, and titanium were outside the 75% to 125% requirement, so all associated sample results have been flagged with a "b." The laboratory believes this is a result of matrix interference due to the high levels of other elements in these samples. The %D for the serial dilutions exceeded 10% for magnesium, phosphorous, silicon, and titanium. The laboratory believes this is a result of matrix interference due to the high levels of other elements in these samples. An "e" flag has been applied to these results. Since the post digestion spike passed, the serial dilution was not required, nor was reanalysis. However, these results do indicate matrix interference.

Batch 16822: The mid batch CCB result for praseodymium was above the MDL but below the quantitation limit. All associated sample results were less than 20 times the CCB result and were flagged with a "B." Since the blank and sample results were below the quantitation limit, reanalysis was not required. The initial calibration blank result for iron was above the MDL but less than the quantitation limit and much less than 5% of the sample results; therefore, the data quality was not affected. The LCS failed low for silicon and tungsten; since these were secondary analytes, reanalysis was not required. The affected sample results have been flagged with an "a." The duplicate RPD for cerium, cobalt, europium, sulfur, and praseodymium exceeded the required 30%. Since the results were below the quantitation limit, this criterion does apply. The duplicate RPD for aluminum, calcium, copper, iron, magnesium, manganese, sodium, neodymium, phosphorous, strontium, titanium, yttrium, and zinc exceeded the 30% criterion, and the associated samples have been flagged with "c." The laboratory believes that this particular failure is due to sample inhomogeneity. The serial dilution for silicon, magnesium, calcium, iron, and manganese exceeded the required 10% criterion. Since the post digestion spike passed, the serial dilution was not required, nor was reanalysis. However, these results do indicate matrix interference. The MS recovery for aluminum, calcium, iron, and magnesium exceeded the 30% requirement in the SAP and FSAP. Since the sample results were more than four times the spike concentration, this criterion does not apply. The MS recovery for phosphorous, potassium, sodium, and tungsten exceeded the 30% requirement in the SAP and FSAP. The laboratory believes this is a result of matrix interference due to the high levels of

other elements in these samples and sample inhomogeneity. This was discussed with the client (see Attachment 5), and reanalysis was deemed unnecessary. The MS recovery for cerium was less than 1%. The laboratory believes this was due to an issue with the standard. Since cerium is not a required analyte, reanalysis was not required.

3.2.8 Inductively Coupled Plasma/Mass Spectroscopy

The ICP/MS actinide analysis was performed on the SW846-3050 acid digestion of all liner composite samples. The ICP/MS ^{126}Sn and ^{99}Tc analysis was performed on the same digest, without the addition of the hydrochloric acid. Hydrochloric acid is not used for ^{99}Tc analysis because of the potential formation of a ZnCl ion pair with mass 99.

Direct calibration, where a standard containing the isotope and element of interest is used to calibrate the response of the isotope, is the most accurate type of calibration. Standard material is not available for all the isotopes of interest. Those isotopes without available standards are calibrated using the instrument's mass-response curve that is generated by using the intensity/concentration relationship for the available isotope standards. While the isotope results calibrated in this manner are designated "semi-quantitative" in the procedure, the differences in instrument response along the curve are generally small enough across the actinide mass range such that the results generated might be expected to be within similar uncertainties associated with quantitative results (i.e., those obtained directly against an isotope-specific standard).

A similar approach is used to evaluate the recoveries of calibration checks, standards, and spikes. Just as all of the elemental isotopes of interest are not available for calibration, they are also not available for the various QC samples. Because the chemical properties of an element are the same for all of its isotopes, one elemental isotope can be used as a measure for other isotopes of interest. For example, by measuring the recovery of ^{238}U in the various QC samples, the accuracy of the other uranium isotopes also can be evaluated. Table 1 lists the isotopes used for standards and spike samples for ICP-MS analyses. A response curve is derived using the slopes of the calibration lines of the available isotope standards. Slopes for the isotopes without available standards are then derived from the response curve, and results are calculated using the derived slopes.

Table 1. Inductively Coupled Plasma-Mass Spectroscopy Standards and Spikes.

Standard Type	Analytes Analyzed
Initial calibration verification (nondigested)	^{232}Th, ^{235}U, ^{238}U, ^{237}Np, ^{99}Tc, ^{117}Sn
Acid digest standard (laboratory control standard)	^{232}Th, ^{235}U, ^{238}U, ^{237}Np, ^{99}Tc, ^{117}Sn
Predigest spike (MS)	^{232}Th, ^{235}U, ^{238}U, ^{237}Np, ^{99}Tc, ^{117}Sn
Post-digest spike	^{232}Th, ^{235}U, ^{238}U, ^{237}Np, ^{99}Tc, ^{117}Sn
No standard or spike of either type	^{126}Sn, ^{230}Th, ^{233}U, ^{234}U, ^{236}U,

3.2.8.1 Technetium-99 and Tin-126

The required detection limit listed in the SAP for ^{99}Tc was met. The target detection limit for ^{99}Tc was not met. There were no required or target detection limits for ^{126}Sn listed in the SAP. The FSAP lists a holding time of isotopic analytes as 6 months. All samples were initially

analyzed within the holding time. However, due to a required reanalysis, nine samples exceeded the holding time. The reanalysis was delayed by instrument repair, failure of the chemist review to recognize the need for reanalysis, and delayed third level review by the project manager. Additionally, Washington River Projection System's management set the analytical priority of C Farm analysis behind other projects. Since the analytical results did not significantly change from the initial to the final analysis, the laboratory does not believe these exceedances affected the final results.

Batches 16639, 16734, and 16982: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 16341: The preparation blank contained ^{117}Sn below the quantitation limit. However, all samples in the batch were nondetect for ^{117}Sn, so the data was not affected. The LCS for ^{117}Sn exceeded the required 120% at 141% and the associated results have been flagged with an "a." This could indicate a high bias for these results. However, since the results for all samples were below the MDL, the data was not affected. The MS for ^{117}Sn met the recovery requirements, demonstrating preparation batch accuracy to some degree.

Batch 16865: The mid-run CCB contained ^{99}Tc below the quantitation limit. All field samples in this batch demonstrated results below the MDL; therefore, the data was not affected.

Batch 16970: All blanks contained a low level of ^{126}Sn, and the preparation blank contained a low level of ^{126}Sn and ^{99}Tc. Since neither ^{126}Sn or ^{99}Tc were detected in the samples, the data quality was not affected and reanalysis was not required.

3.2.8.2 Actinides

The required and target detection limits were met for all isotopes and in all samples. The FSAP lists the holding time for isotopic analytes as 6 months. All samples were initially analyzed within the holding time. However, due to a required reanalysis, 11 samples exceeded the holding time. The reanalysis was delayed by instrument repair, failure of the chemist review to recognize the need for reanalysis, and a delayed third level review by the project manager. Additionally, Washington River Projection System's management set the analytical priority of C Farm analysis behind other projects. Since the analytical results did not significantly change from the initial to the final analysis, the laboratory does not believe these exceedances affected the final results.

Batch 15672: Neptunium-237 was detected in the mid-run CCB below the quantitation level. All affected samples have a similar result and have been flagged with a "B." Since all ^{237}Np results were below the quantitation level, reanalysis is not required. All blanks (CCB and preparation blanks) contained ^{232}Th below the quantitation level and were less than 5% of the sample results. Therefore, the results were not affected and reanalysis was not required. The LLS for ^{235}U was recovered above the 130% requirement at 131%. Since the lowest sample result was more than 10 times the LLS level, the results were not affected. The RPD for ^{237}Np exceeded the 30% requirement at 47%. Since the results were below the quantitation limit, this criterion does not apply. The closing CCB result for ^{238}U was above the MDL but below the quantitation limit and less than 5% of the sample results; therefore, reanalysis was not required.

Batch 16171: The preparation blank result for ^{235}U was below the quantitation limit but less than 5% of the lowest sample result. Therefore, no reanalysis was required and the data quality was

not affected. The preparation blank result for ^{232}Th was above the quantitation limit but less than 5% for the sample result; therefore, reanalysis was not required and the data quality was not affected. The preparation blank contained ^{238}U above the quantitation level and was greater than 5% of three of the sample results. However, since the sample results were below the TDL and above the quantitation limit, the client gave permission to report the data with a "B" qualifier (see Attachment 5). The ending LLS for ^{235}U exceeded the 130% requirement at 133%. This could indicate a high bias for ^{235}U results near the LLS level. However, the lowest sample result for ^{235}U was approximately 80 times the LLS level and the data quality was not affected.

Batch 16595: The preparation blank contained ^{238}U and ^{235}U above the quantitation level and was greater than 5% of all of the sample results in this batch. Since the sample results were above the quantitation level but below the TDL, the client gave permission to report the data with a "B" qualifier and narration of the issue (see Attachment 5). The preparation blank result for ^{233}U was below the quantitation limit and greater than 5% of the sample results. Since both the sample results and the blank result were below the quantitation level, reanalysis was not required. The associated results have been flagged with a "B." The preparation blank result for ^{232}Th was above the quantitation limit but less than 5% of the sample results; therefore, reanalysis was not required and the data quality was not affected. The ICB and CCBs contained ^{232}Th below the quantitation limit, which had no effect on the data quality. The RPD for ^{234}U exceeded the 30% requirement at 38%; since the sample result was below the quantitation limit, this criterion does not apply.

Batch 17023: The closing LLS exceeded the 130% criterion for ^{232}Th at 164%. However, all results were near the CCV level, which is 200 times the LLS. Therefore, the data quality was not affected. The RPD for ^{234}U and ^{238}U exceeded the 30% requirement; since the sample result was below the quantitation limit, this criterion does not apply.

Batch 17024: The first CCB contained ^{235}U at a level equal to the MDL; since it was below the quantitation limit, the data quality was not affected. The initial LLS exceeded the 130% for ^{232}Th criterion at 164%. However, all results were near the CCV, which is 200 times the LLS, and therefore, there was no effect on the data quality. The RPD for ^{234}U exceeded the 30% requirement; since the sample result was below the quantitation limit, this criterion does not apply.

3.2.8.3 Trace Metals

Antimony, arsenic, cadmium, lead, nickel, selenium, silver, thallium, and vanadium were analyzed by ICP/MS to obtain the required detection limits in the SAP. Additionally, some chromium and cobalt results were used from the ICP/MS analyses. Except for the required detection limit for selenium, all target and required detection limits were met or the sample results were above the quantitation limit and the sample detection limit criteria do not apply. The target detection limit for selenium was approximately an order of magnitude below the detection limit obtained by using ICP/MS. The laboratory does not anticipate reaching this detection limit for future projects. The FSAP lists the holding time of isotopic analytes as 6 months. All samples were initially analyzed within the holding time using ICP/AES. However, due to a required reanalysis, 23 samples exceeded this holding time. The reanalysis was delayed by instrument repair, failure of the chemist review to recognize the need for reanalysis, and a delayed third level review by the project manager. Additionally, Washington River Projection System's management set the analytical priority of C Farm analysis behind other projects. Since the

analytes with results that could be compared (chromium, cobalt, nickel, and vanadium) did not significantly change from the initial ICP/AES to the final ICP/MS analysis, the laboratory does not believe these exceedances affected the final results.

SW846-6020A requires that an interference check standard be used to determine possible isobaric or polyatomic ion interferences. The current laboratory procedure does not require the use of this standard, and it was not included in these analyses. However, interferences were mitigated by the use of the collision cell, or gas mode, of the instrument. This was used for arsenic and vanadium to mitigate chloride interference. Since the blank result for these elements were below the MDL, the mitigation appears to have been successful. The laboratory plans to use the required interference check standard for future projects.

Batch 16927: The initial LLS recovered Cr at 152%. Since all chromium results were above the ICV/CCV level, the high recovery of the LLS does not affect data quality for chromium. The selenium recoveries for the LLS were outside the 70% to 130% requirement in SW846 at 167% for the initial LLS and 36% for the final LLS. The selenium concentration selected for the LLS was only slightly above the MDL and was determined to be too low. Some of the subsequent analyses used a more appropriate LLS level of selenium. The preparation blank contained silver, cadmium, thallium, and nickel above their MDLs but below the quantitation limits. All sample results, except for nickel, have been flagged with a “B” because the blank result was greater than 5% of the sample results. Reanalysis was not required because the blank results were below the quantitation limits.

Batch 16990: The preparation blank and mid-run CCB results for thallium were above the MDL but less than the quantitation limit. Since the blank result was greater than 5% of all sample results, a “B” flag has been applied. Reanalysis was not required since the blank result was below the quantitation limit.

Batch 17021: The closing LLS for selenium was recovered at 202%. Since all sample results for selenium were below the MDL, the data quality was not affected. The selenium concentration selected for the LLS was at the MDL and was determined to be too low. Some of the subsequent batches used a more appropriate LLS concentration of selenium. The preparation blank result for selenium was above the MDL. However, since all sample results were below the MDL, the data quality was not affected. The closing CCV for silver was below the required 90% at 89.3%. This CCV bracketed only QC samples, all of which met requirements. Therefore, reanalysis was deemed unnecessary. The duplicate RPD for nickel exceeded the 30% requirement at 45%, and the associated results have been flagged with a “c.” The laboratory believes this is due to sample inhomogeneity, and with client agreement, reanalysis was not performed (see Attachment 5).

Batch 17062: The LLS recoveries for selenium were 213% and 220%. Since all sample results for selenium were below the MDL, the data quality was not affected. The selenium concentration selected for this LLS, though higher than previously used, was determined to be too low. Subsequent analyses used a more appropriate LLS concentration of selenium. The preparation blank and closing CCB results for selenium were above the MDL. However, since all sample results were below the MDL, the data quality was not affected. The duplicate RPD for cadmium exceeded the 30% requirement at 33%. Since the sample result was below the quantitation level, this criterion does not apply. The duplicate RPD for lead, thallium, and vanadium exceeded the 30% requirement at 47%, 59%, and 44%, respectively, and the associated results have been flagged with a “c.” Based on ICP/AES and other analyses, the laboratory believes this is due to

sample inhomogeneity and, with client agreement, no reanalysis was performed (see Attachment 5).

Batch 17063: The preparation blank result for thallium was above the MDL but less than the quantitation limit. Since the blank result was greater than 5% of all sample results, a "B" flag has been applied. Reanalysis was not required since the blank result was below the quantitation limit. The duplicate RPD for thallium exceeded the 30% requirement at 32%. Since the sample result was below the quantitation level, this criterion does not apply.

Batch 17222: The preparation blank result for selenium was above the MDL. However, since all sample results were below the MDL, the data quality was not affected.

Batch 17230: The post digestion spike failed low at 42% for selenium. However, since the MS met the required recovery criteria at 102%, a post digestion spike is not required (per SW846). It should be noted that the raw sample result was negative, indicating a matrix interference. This may be the cause of the low post digestion spike recovery. The spike level for the MS is higher than the post digestion spike and possibly negated the interference.

Batch 17234: There were no notable issues with this batch; all QC requirements in the FSAP, SAP, and the QAPP were met.

3.3 RADIOCHEMICAL ANALYSIS

The holding time listed in the FSAP for radioactive isotopes is 6 months. SW846 does not address holding times for these analytes. All radiochemical analyses met the 6-month holding time. Holding time tables for these analytes have not been included in Attachment 2.

3.3.1 Gamma Energy Analysis

Gamma energy analysis was performed directly on approximately 60 mL of soil from all liner composite samples. Sample B1YT98 was inadvertently analyzed twice. The sample with the highest ^{137}Cs result (S09V000473) has been reported in Attachment 1. The other analysis results and raw data are contained in Appendix 2. The GEA analysis met all the required detection limits in the SAP. The laboratory was unable to meet any of the target detection limits.

Batches 13909, 15005, 15098, 15100, and 15511: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batches 15099: This batch did not contain a field sample duplicate as required in the QAPP. However, the client indicated (see Attachment 5) the FSAP and SAP only requires one field duplicate per core hole. Since the client QC requirement was met, reanalysis was not required.

3.3.2 Strontium-90/89

Strontium-90/89 analysis was performed on a strong acid digest of all liner composite samples. Fifteen of the sample analyses met the required detection limit of 2.3 pCi/g listed in the FSAP or had results above the quantitation limit. Of the remaining ten samples, all but one achieved a detection limit between 2.3 pCi/g and 4.2 pCi/g. No detection limit exceeded the lowest action limit of 23 pCi/g in Table 5.2 of the SAP.

Batches 16420, 16466, and 16485: There were no notable QC issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 16482: The preparation blank had a positive result slightly above the minimum detectable activity with a counting error of 117%. All samples, except one, had results below the MDA. The sample result above the MDA was below the quantitation limit and has been flagged with a "B." Because the result of the blank and the sample were below the quantitation limit, reanalysis was not performed.

Batch 16610: The RPD between the sample and duplicate was 116%. The original digestates were reanalyzed with similar results. There was insufficient sample to perform a second preparation of the sample. A "c" flag has been applied to all samples in the batch.

Batch 16776: The blank result displayed in Attachment 1 for sample S09V000509 (<2.7E-6 μCi/g), is different from that in the batch report (<1.95E-6 μCi/g). This resulted from the sample being rejected and reanalyzed in a new batch (16776) while the remaining samples in the original batch were reported from the original batch. Both batches share the same preparation blank, which has now been analyzed twice. Currently, the Data Summary Report (Attachment 1) reports only one blank result; it is from the original batch. Additional programming is required to change this. The two blank results are essentially the same.

3.3.3 Tritium

The tritium analysis was performed on a water leach of all liner composite samples. This method only measured the tritium in the samples which can be dissolved in water. This analysis achieved the required detection limit in the FSAP but could not meet the target detection limit. There were no notable issues with any of the tritium batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

3.3.4 Selenium-79

The ^{79}Se analysis was performed on a strong acid digest of all liner composite samples. The analysis achieved the target detection limit in the FSAP. No required detection limit was listed. No standard is currently available for ^{79}Se. A cold carrier is used to monitor recovery and is measured gravimetrically.

Batches 16105 and 16145: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batches 16188, 16194, and 16259: The preparation blanks for these batches demonstrated positive results below the quantitation limit, as did many of the samples. All results had very large counting errors and were below the target detection limit. Because of these factors, reanalysis was not required. The associated results have been flagged with a "B."

Batch 16409: The blank results displayed in Attachment 1 for sample S09V000509 (<1.51E-6 μCi/g) and S09V000666 (5.23E-6 μCi/g) are different from that in the batch report (<2.2E-6 μCi/g). This resulted from these samples being rejected and reanalyzed in a new batch

(16409), while the remaining samples in the original batch were reported from the original batch. Both batches share the same preparation blank, which has now been analyzed twice. The current Data Summary Report (Attachment 1) reports only one blank result; it is from the original batch. Additional programming is required to change this. The two blank results are essentially the same. Even though the original blank result for sample S09V000666 was positive, it had a counting uncertainty of 185%.

3.3.5 Carbon-14

The ^{14}C analysis was performed on a water leach of all liner composite samples. The 10-ft. to 12-ft. interval from core hole C6404 did not retrieve sufficient liner material to produce a sample for this analysis. The analysis achieved the required detection limit in the FSAP but exceeded the target detection limit. This analysis will only detect water soluble forms of ^{14}C. There were no notable issues with the batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

3.3.6 Nickel-63

The ^{63}Ni analysis was performed on a strong acid digest of all liner composite samples. The analysis achieved the required detection limit in the FSAP but exceeded the target detection limit of 30 pCi/g. Most samples had detection limits of between 50 pCi/g and 100 pCi/g.

Batches 15697, 16267, 16282, and 16392: There were no notable issues with these ^{63}Ni batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 16240: The preparation blank had a positive result slightly above the MDA with a counting error of 412%. All samples, except one, had results below the MDA. The sample result above the MDA was below the quantitation limit and has been flagged with a “B.” Because the results for the blank and the sample were below the quantitation limit, reanalysis was not performed.

Batch 16551: The blank result displayed in Attachment 1 for sample S09V000509 (<5.65E-5 μCi/g) is different from that in the batch report (<4.98E-6 μCi/g). This resulted from the sample being rejected and reanalyzed in a new batch (16551), while the remaining samples in the original batch were reported from the original batch. Both batches share the same preparation blank, which was analyzed twice. The current Data Summary Report (Attachment 1) reports only one blank result; it is from the original batch. Additional programming is required to change this. The two blank results are essentially the same.

3.3.7 Iodine-129

Analysis for ^{129}I was performed on an iodine specific fusion digest of all liner composite samples. The required and target detection limits in the SAP were met.

Batches 16203, 16246, and 16307: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 16468: The preparation blank result was above the quantitation limit but below the target detection limit. The customer contact agreed (see Attachment 5) that since the result was below the target detection limit, reanalysis was unnecessary. One of the samples in this batch had a result above the quantitation limit but below the target detection limit. This result has been flagged with a "B." The remaining sample results were nondetect.

Batch 16496: The preparation blank result was above the quantitation limit but below the target detection. Since the sample results were all nondetect, reanalysis was not required.

3.3.8 Americium-241, Curium-243/244, and Curium-242

Analysis for ^{241}Am, $^{243/244}$Cm, and ^{242}Cm was performed on a strong acid digest of all liner composite samples. For this analysis, there were no notable issues with any batches and all QC requirements in the FSAP, SAP, and the QAPP were met. The required detection limit in the SAP was met, and all but three samples met the target detection limit.

3.3.9 Plutonium-238 and Plutonium-239/240

Plutonium isotopic (^{238}Pu and $^{239/240}$Pu) analysis was performed on a strong acid digest of all liner composite samples. For this analysis, there were no notable issues with any batches and all QC requirements in the FSAP, SAP, and the QAPP were met. The required and target detection limits in the SAP were met

3.4 ORGANIC ANALYSES

3.4.1 Volatile Organic Analysis

The VOA was performed on all field samples by purge and trap. Field sampling, sample containers, and preservation followed SW846-5035. The soil samples were delivered in a freezer, in pre-weighed VOA vials with magnetic stir bars and approximately 5 g of sample. After receipt, the VOA samples were stored in a freezer. For each sample interval, an additional high level sample preserved in methanol was also received. These were not used because none of the results for the frozen samples were above the calibration range. The exact weight of the sample and the tare weight of the VOA vials were recorded by sampling personnel and delivered with the samples. Four liquid trip blank samples were also received and analyzed. The samples were preserved with either HCl or H_2SO_4 to a pH < 2.

The holding time for all samples is 14 days. All samples but two meet the required holding time. Sample B1YTB2 (S09V000410), a soil sample, exceeded the holding time requirement by 2 days. This was caused by a lack of facility resources (radiological control technicians), which was beyond the control of the analytical staff contractor at 222-S. The facility operator is addressing the issue by hiring additional facility support staff. Sample B1YY24 (S09V000493), a trip blank, was analyzed 1 day beyond the required holding time. This was due to an oversight by 222-S analytical personnel. The laboratory believes that the affect of the holding time exceedance on sample results is minimal. A study by the Department of Energy and others have

shown that exceedances of less than 2 weeks produce no statistical difference and only a few compounds are affected for up to 6 weeks (see Reference Section).

The VOA analysis met the target and required detection limits in the SAP with the following exceptions: for 2-nitropropane, one sample was slightly above the target detection limit; for cis-1,2-dichloroethene, trans-1,2-dichloroethene, m,p-xylene, o-xylene, and TCE, two samples were slightly above the target detection limits. These detection limit exceedances were caused by a less than 5 g aliquot in the VOA vial. The laboratory cannot adjust the amount of sample when following SW846-5035 and must analyze them as received.

Loss of Internal Standards, Spike Compounds, and Surrogates: During the VOA analysis of the C Farm soil samples, low recoveries of the internal standard and surrogates were frequently experienced. At times, the instrument produced no response at all for these monitoring compounds. The issue was extensively investigated and was isolated to only the C Farm soil samples. Liquid samples and laboratory prepared soil standards (using laboratory VOA vials and stir bars) were not affected. The C Farm soil samples were analyzed on different instruments, which eliminated instrumentation as the problem. The laboratory believes that this problem is related to the sample matrix and/or the oversized stir bars used by the client. Additionally, it was determined that some of the VOA vials provided by the client leaked around the cap during purging. The problem was determined to be some type of blockage that impeded purge flow. The laboratory eventually developed a technique that provided improved results. This technique consisted of lightly shaking the VOA vial while monitoring purge flow with an in-line flow meter. The laboratory has requested that the client discontinue the use of the large stir bar and use different VOA vials.

The purpose of the internal standard is to compensate for fluctuation and drift in instrument response. The instrument responses for spikes, surrogates, or compounds found in the sample are adjusted base on their closest internal standard. A complete loss of internal standard undoubtedly invalidates the sample results. However, low internal standard recoveries do not necessarily mean that the data is unusable. SW846 only specifies minimum internal standard recovery requirements for the CCV, not the samples. While there are no regulatory limits for internal standard recoveries in a sample, there are practical limitations to the amount of fluctuation that can be tolerated before quantitation is affected. Typically that value is around the limits specified for the CCV (-50 to +100% drift). The further that the sample internal standards are from the established CCV limit, the more likely the quantitation is adversely affected. When internal standard recoveries fall outside these limits, surrogate recoveries may be used to evaluate any adverse effects on quantitation. On all samples exhibiting low internal standard responses, associated surrogate recoveries were evaluated to determine if the loss had significant effect on the reported results. Based on this evaluation, the laboratory believes that the VOA results contained in this report are useable.

Samples and their associated MS and matrix spike duplicate (MSD) were initially analyzed together in a single analytical run. However, because of the frequent internal standard failures, many reanalyses were required. Due to the limited number of extra sample vials (five per sample), the reanalysis did not typically contain the original sample, MS, and MSD. Consequently, the analytical batches contained in this report have sample and associated QC results for different analytical runs, which were often on different days. The construction of

batches in this manner was necessary for the laboratory information management system to associate a sample and its MS/MSD pair. All information and data concerning the analysis and reanalysis are contained in the VOA section of Appendix B.

The discussion below of the individual batches will not contain additional information concerning the low recoveries of internal standards. Detailed information for each sample is contained Appendix B.

Batch 14157: The method blank contained 1,2-dichloroethane and acetone below the estimated quantitation limit. Since the sample results were below the MDL for these compounds, reanalysis is not required. The LCS demonstrated a high recovery for acetone, 1-butanol, 2-butanone, and methyl isobutyl ketone (MIBK). Since these compounds were non-detect in the sample, reanalysis is not required. Sample results have been flagged with an "a."

Batch 14180: Other than the previously discussed internal standard issue, there were no notable issues with this batch and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 15471: The RPD between the MS and MSD failed to meet the 30% requirement for acetone, 1-butanol, 2-butanone, and MIBK. Since the sample did not contain quantifiable amounts of these compounds, reanalysis was not necessary. However, the sample results were flagged with a "c" indicating a batch precision failure. The MS failed slightly high at 131% for 2-butanone. Since this compound was not detected above the quantitation level, reanalysis was not required. The sample was flagged with a "b."

Batch 15472: The second method blank contained acetone below the estimated quantitation limit. Since the associated sample did not contain acetone above the estimated quantitation limit, reanalysis is not required. A "B" flag has been applied to the sample result. Toluene was present in the second method blank below the estimated quantitation limit. Since the associated sample results were below the MDL, the data was not affected. The first LCS demonstrated a high recovery for 1,1-dichloroethene, MIBK, acetone, and 2-butanone. Since these compounds were not detected in the samples above the estimated quantitation limit, reanalysis is not required. Sample results have been flagged with an "a." The MS recovery for 1-butanol was above the 30% requirement and a "b" flag has been added to the associated results. Since this compound was not detected in the associated samples, reanalysis was not required. The CCV %D exceeded the ±20% requirement for trichlorofluoromethane, 1,1-dichloroethene, carbon disulfide, acetone, and 2-butanone. All were above the expected value. Since all compounds were either not detected or below the estimated quantitation limit, the results were not affected and reanalysis not required. The CCV met the 15% average %D requirement.

Batch 15474: The method blank contained acetone below the estimated quantitation limit. Since the associated sample did not contain acetone, reanalysis is not required. The CCV for acetone exceeded the 20% %D requirement. Since the CCV was above the calibration amount and the sample was nondetect, reanalysis was not required.

Batch 15476: The method blank contained acetone below the estimated quantitation limit. Since the associated sample did not contain acetone, reanalysis is not required.

Batch 15477: The method blank contained acetone below the estimated quantitation limit. Since the associated samples did not contain acetone above the estimated quantitation limit, reanalysis is not required. All acetone results were slightly above the MDL and have been flagged with a "B." The RPD between the MS and MSD exceeded the 30% requirement at 31% for 1-butanol. Since the samples were nondetect for this compound, reanalysis was not required. A "c" flag was added to the associated sample results. The CCV for acetone exceeded the 20% %D requirement. Since the CCV was above the calibration amount and the samples were below the estimated quantitation limit, reanalysis was not required.

Batch 15479: There were no notable issues with this liquid sample batch, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 15491: Other than the previously discussed internal standard issue, there were no notable issues with this batch and all QC requirements in the FSAP, SAP, and the QAPP were met. Since the client only required an MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6406 is in batch 15477.

Batch 15492: Other than the previously discussed internal standard issue, there were no notable issues with this batch and all QC requirements in the FSAP, SAP, and the QAPP were met. Since the client only required an MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6406 is in batch 15477, and the MS/MSD for core hole C6402 is in batch 15471.

Batch 15493: There were no notable issues with this liquid sample batch, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 15503: The method blank contained acetone below the estimated quantitation limit. Since associated samples did not contain acetone above the estimated quantitation limit, reanalysis is not required. Two samples contained acetone at slightly above the MDL and have been flagged with a "B." The method blank contained toluene below the estimated quantitation limit. Since associated samples did not contain toluene above the MDL, reanalysis was not required.

Batch 15525: The CCV %D for 1-butanol was slightly high at 20.6%. Since the sample did not contain 1-butanol above the MDL, the result was not adversely affected. Since the client only required an MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6404 is in batch 15674.

Batch 15671: The CCV associated with the field samples and the MSD for sample B1TY75 (S09V000125) had a %D of -23% for 1-butanol. This could indicate that positive results for 1-butanol could be biased low. A laboratory-defined "Y" flag has been applied to these results. 1-butanol was not detected in these samples. Additionally, the MSD was recovered at 90%, indicating that the low CCV had minimal affect on the results. The CCV associated with the MS/MSD for sample B1YT72 (S09V000124) and MS for sample B1YT75 (S09V000125) had a %D of -30% for 1-butanol. The recoveries for the field quality control samples were within the required 70% to 130%, indicating that the low CCV had minimal effect on the analysis results. The average %D was less than 15%, which meets the SW-846 requirement.

Batch 15673: The CCV %D exceeded the 20% limit for acetone. Acetone was recovered above the expected calibration value. This could indicate a high bias for acetone sample results. Since the sample result for acetone was below the estimated quantitation limit, reanalysis was not required and the data was not affected. The method blank contained acetone and toluene below the estimated quantitation limit. The sample contained acetone below the estimated quantitation limit and was nondetect for toluene. Since all results (blank and sample) were below the estimated quantitation limit, reanalysis was not required. Since the client only required an MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6400 is in batch 15503.

Batch 15674: The CCV had a %D at -21% for 1-butanol. This could indicate that positive results for 1-butanol could be biased low. A laboratory defined "Y" flag has been applied to these results. 1-butanol was not detected in these samples. The LCS and MS/MSD recoveries were within the required limits, indicating that the low CCV had minimal effect on the analysis results. The average %D was less than 15%, which meets the SW-846 requirement.

Batch15785: The LCS recoveries for 1-butanol, 2-butanone, MIBK, and acetone were above the required 130%. The sample did not contain these compounds above the MDL, so the results were not affected. The method blank contained toluene below the estimated quantitation limit. Since the associated sample did not contain toluene above the MDL, reanalysis was not required. The CCV %D for 1-butanol was slightly high at 20.1%. Since the sample did not contain 1-butanol above the MDL, the result was not adversely affected. Since the client only required and MS/MSD pair per core hole (see Attachment 5), there is no MS/MSD in this batch. The MS/MSD for core hole C6404 is in batch 15674. The average %D was less than 15%, which meets the SW-846 requirement.

3.4.2 Semivolatile Organic Analysis

The semivolatile organic analysis (SVOA) was performed on methylene chloride extractions of all liner composite samples except B20XV5 and B20XW3. These samples were not analyzed based on the client's instructions. Each extract was analyzed twice using two separate calibration curves to provide calibrated results for all compounds listed in the FSAP and SAP. All holding times were met except for the extraction of sample B20XV9 (S09V000742). This was caused by failure to assign the test during log-in.

Ten of the twenty-two samples contained a low level of bis (2-ethylhexyl) phthalate, which was not detected above the MDL in the method blanks. Additionally, low levels of di-n-butylphthalate were detected in four samples and was present in the method blank associated with two of the samples. Low levels of phthalates may represent contamination of the samples during sampling and/or analysis, but environmental contamination could also be the source. If laboratory contamination is present, it will usually appear in the method blank. Due to the prevalence of low level phthalate contamination in the environment, it can be hard to determine the source of low level results. Equipment blanks can help isolate the source of phthalates, but no equipment blanks were analyzed with these samples. One possible source of phthalate could be the red plastic end caps used with the liners. It is the laboratory's opinion that the use of these end caps should be discontinued.

The SVOA analysis met the required and target detection limits with two exceptions:

- The adjusted MDLs for cyclohexanone were above the 0.5mg/kg target detection limit for most samples. This compound obtained detection limits between 0.5 mg/kg an 0.7 mg/kg. The adjusted MDLs for di-n-butyl-phthalate were above the target detection limit of 0.33 mg/kg. The analysis achieved a detection limit of between 0.5 mg/kg and 0.7 mg/kg for this compound.
- LCS, MS, and MSD recoveries were compared against the laboratory's statistical process control (SPC) limits, as required by SW-846. The use of SPC limits is allowed in the FSAP, SAP, and QAPP.

Batches 14181, 14528, 14529, and 15811: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and the QAPP were met.

Batch 14169: The surrogate terphenyl-d14 was recovered below the laboratories SPC limits of 75% to 175% at 62%. It is the laboratory's opinion that this is not a particularly low recovery and the usability of the associated results was not affected. The SPC limits appear to be biased high. SPC limits are currently under review and will be updated. This bias is expected to be corrected. All other QC requirements were met.

Batch 14527: Di-n-butylphthalate was detected in the method blank below the quantitation limit. However, the blank result exceeded 5% of the associated sample results. These results have been flagged with a "B." Since the blank and sample results were below the quantitation limit, reanalysis was not required. No MS or MSD was analyzed with this batch. Since the client only required that an MS and MSD be analyzed once per core hole (see Attachment 5), this requirement was met in batch 14529. All other QC requirements were met.

Batch 14580: For two samples, the surrogate terphenyl-d14 was recovered below the laboratory's SPC limits of 75% to 175% at 64% and 58%. It is the laboratory's opinion that this is not a particularly low recovery and the usability of the associated results was not affected. The SPC limits appear to be biased high. SPC limits are currently under review and will be updated. This bias is expected to be corrected. All other QC requirements were met.

Batch 15509: All QC requirements were met. However, a large cyclohexene peak was detected during the second analysis of the samples. Since the TICs were reported from the 1st analysis only, this peak has not been reported. The laboratory believes that the cyclohexene was present in the methylene chloride used for the extraction.

3.4.3 Tentatively Identified Compounds

Unassigned peaks or TICs were treated as follows. Standards were obtained and analyzed for each secondary analyte identified in the SAP. This data was accumulated in the Hanford library. Following analysis, the largest TICs with instrument responses greater than 10% of the response of the nearest internal standard were evaluated and compared to the Hanford library. The estimated concentration of these TICs was calculated using measured response factors from the Hanford library compound list.

After comparison to the Hanford library, remaining unknowns were compared to the National Institute of Standards and Technology (NIST) 02, *HP Mass Spectral (compound) Libraries*. The estimated concentration of compounds identified from the NIST library was calculated based on an arbitrary response factor of 1.0. If the compounds were not identified as a result of this comparison, they were reported as "unknown." Summaries of the SVOA and VOA TICs from the field samples and method blanks are provided in Attachment 4. TICs found in the field samples and which were present in the associated batch method blank have been flagged with "B."

4.0 PROCEDURES

Table 2 lists the analytical procedures used for analysis of the C-Farm samples.

Table 2. Analytical Procedures.

Analysis	Preparation Method	Analysis Procedure
Inorganic Analyses		
Cyanide	LA-695-103, Rev. I-0, J-0 (SW-846 9010C)	LA-695-103, Rev. I-0, J-0 (SW-846 9014)
Sulfide	LA-361-101, Rev. D-0 (SW-846 9030B)	LA-361-101, Rev. D-0 (SW-846 9215)
pH	Direct	LA-212-105, Rev. G-0 (SW-846 9045D)
Mercury – Cold Vapor Atomic Absorption	LA-325-106, Rev. G-0 (SW-846 7470A, 7471A)	LA-325-106, Rev. G-0 (SW-846, 7470A, 7471A)
Ammonia – IC	LA-544-112, Rev. D-0	LA-533-101, Rev. O-0
Anions & Organic Acids – IC	LA-504-101, Rev. L-0	LA-533-115, Rev. J-0
Metals – ICP /AES	LA-505-163, Rev. F-0 (SW-846 3050B)	LA-505-161, Rev. I-0, J-0a (SW-846 6010C)
^{99}Tc, ^{126}Sn – ICP/MS	LA-505-163, Rev. F-0 (SW-846 3050B)	LA-506-102, Rev. E-0
Metals – ICP/MS	LA-505-163, Rev. F-0 (SW-846 3050B)	LA-506-103, Rev. A-0 (SW-846 6020A)
Actinides – ICP/MS	LA-505-163, Rev. F-0 (SW-846 3050B)	LA-506-102, Rev. E-0
Radiochemical Analyses		
GEA	Direct	LA-548-121, Rev. I-0
^{90}Sr – Separation/Beta counting	LA-544-101, Rev. F-0	LA-220-101, Rev. I-0
Tritium – LSC	LA-504-101, Rev. L-0	LA-218-114, Rev. F-0
^{14}C – LSC	LA-504-101, Rev. L-0	LA-348-104, Rev. H-0
^{79}Se – Separation/LSC	LA-544-101, Rev. F-0	LA-365-102, Rev. I-0
^{63}Ni – Separation/LSC	LA-544-101, Rev. F-0	LA-285-102, Rev. D-0
^{129}I – Separation/GEA	LA-544-101, Rev. F-0	LA-378-105, Rev. C-0
^{241}Am, $^{243/244, 242}$Cm – Separation/AEA	LA-544-101, Rev. F-0	LA-953-104, Rev. H-1
$^{239/240, 238}$Pu – Separation/AEA	LA-544-101 Rev. F-0	LA-953-104, Rev. H-1
Organic Analyses		
VOC – GC-MS	Direct	LA-523-118, Rev. G-0

Table 2. Analytical Procedures.

Analysis	Preparation Method	Analysis Procedure
SVOC – GC/MS	LA-523-138, Rev. F-0 (SW846-3540C)	LA-523-135, Rev. C-0

5.0 REFERENCES

ATL-MP-1011, 2008, *ATL Quality Assurance Project Plan for 222-S Laboratory*, Rev. 8 and Rev. 9, Advanced Technologies and Laboratories International, Inc., Richland, Washington.

NIST 02, 2002, *HP Mass Spectral Libraries*, July 2002 Release, Hewlett-Packard Company, Palo Alto, California.

SW-846, 1986, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods,* Third Edition, as amended, U.S. Environmental Protection Agency, Washington, D.C.

DASTM STP 1057, 1991, *Waste Testing and Quality Assurance: Third Volume, Holding Times of Volatile Organics in Water*, American Society for Testing and Materials, Philadelphia, Pennsylvania.

CONF-96071123-5, 1996, *A Confirmatory Holding Time Study for purgeable VOCs in Water Samples,* Oak Ridge National Laboratory, Tennessee.

RPP-PLAN-40564, 2009, *Field Sampling and Analysis Plan for Sites P and L at Waste Management Area,* Rev. 0, Washington River Protection Solutions, Inc.

RPP-PLAN-38777, 2008, *Sampling and Analysis Plan for Phase 2 Characterization of Vadose Zone Soil in Waste Management Area C*, Rev. 0, Washington River Protection Solutions, Inc.

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-013	PAGE 1 OF 2
COLLECTOR: Rosane, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND
SAMPLING LOCATION: C6392, I-003	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO.: HNF-N-576-3 pg 56	ACTUAL SAMPLE DEPTH: 14'-15"	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S20090160

SPECIAL HANDLING AND/OR STORAGE
7°C / 45°F

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C	
TYPE OF CONTAINER	aGs*	aGs*	
NO. OF CONTAINER(S)	5	3	
VOLUME	40mL	40mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B1YT69 / S09V000123	SOIL	4-14-09	1300	✓	✓								
~~+S09V000124~~	Called												
S09V000131													

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane, Larry Rosane	4-14-09/1515	Tw Collock Tw Collock	4-14-09 1515
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

CRCL 2009 0160
ZB, Ref 1 Rta

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-015	PAGE 2 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C6392, I-003	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg56	ACTUAL SAMPLE DEPTH 14'-15'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-015	PAGE 1 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-003	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 56	ACTUAL SAMPLE DEPTH 14'-15'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

7°C/45°F

SPECIAL HANDLING AND/OR STORAGE
22252009 0160

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	~~2~~ 2 4-14-09
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1YT71/20090160	SOIL	4-14-09	1300	✓
S09V000148 → ZB				
S09V000149				

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne Larry Rosanne	4-14-09/1515	Tw Gllock [signature]	4-14-09 1515

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

only two liners were filled due to material

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-013	PAGE 2 OF 2
COLLECTOR Rosanne, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-003	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg56	ACTUAL SAMPLE DEPTH 14'-15'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-016	PAGE 1 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-004	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 57	ACTUAL SAMPLE DEPTH 19.5'-21.5'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S20090160

SPECIAL HANDLING AND/OR STORAGE
28°F/46°F
-2°C/8°C

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C	
TYPE OF CONTAINER	aGs*	aGs*	
NO. OF CONTAINER(S)	5	3	
VOLUME	40mL	40mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B1YT72	SOIL	4-21-09	1041	✓	✓								
S09V000124 (Low)													
S09V000132 (High)													

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne - Larry Rosanne	4-21-09/1330	R Steele R/Steele	4-21-09 1330
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-016	PAGE 2 OF 2
COLLECTOR Rosane, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P **AIR QUALITY** ☐	**DATA TURNAROUND** 75 Days / 75 Days
SAMPLING LOCATION C6392, I-004	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-W-576-3 pg 57	**ACTUAL SAMPLE DEPTH** 19.5', 21.5'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-018	PAGE 1 OF 2
COLLECTOR Rosanne, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-004	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 57	ACTUAL SAMPLE DEPTH 19.5'-21.5'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S20090160

SPECIAL HANDLING AND/OR STORAGE
8°C/46°F

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B1YT74	SOIL	4-21-09	1041
S09V000152 (a)			
153 (b)			
154 (c)			

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne, Larry Rosanne	4-21-09/1330	R Steele	4.21.09 1330
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-018	PAGE 2 OF 2
COLLECTOR Rosane, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P	**DATA TURNAROUND**
SAMPLING LOCATION C6392, I-004	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002	**AIR QUALITY** ☐	**75 Days / 75 Days**
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 pg 57	**ACTUAL SAMPLE DEPTH** 19.5'-21.5'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-019	PAGE 1 OF 2
COLLECTOR: Rosawe, Rust	COMPANY CONTACT: SYDNOR, HA	TELEPHONE NO.: 373-3967	PROJECT COORDINATOR: WIDRIG, DL	PRICE CODE: 8P	DATA TURNAROUND: 75 Days / 75 Days
SAMPLING LOCATION: C6392, I-005	PROJECT DESIGNATION: WMA C Sampling for CMS		SAF NO.: V09-002	AIR QUALITY: ☐	
ICE CHEST NO.	FIELD LOGBOOK NO.: HUF-W-576-3 pg 59	ACTUAL SAMPLE DEPTH: 25'-27'	COA: 301483ES10	METHOD OF SHIPMENT: GOVERNMENT VEHICLE	
SHIPPED TO: 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

22252009 0160

SPECIAL HANDLING AND/OR STORAGE
54°F / 34°F
12°C / 1°C

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C	
TYPE OF CONTAINER	aGs*	aGs*	
NO. OF CONTAINER(S)	5	3	
VOLUME	40mL	40mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B1YT75 GV ppr 4-22-09	SOIL	4-22-09	1000	✓	✓	
SOV9000125 (Lo)						
SOV9000133 (Hi) GV						
Lot #				814110	B907501V3	

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosawe Larry Rosawe	4-22-09 1313	TM Collock	4-22-09 1313

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-019	PAGE 2 OF 2
COLLECTOR Rosane, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-005	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 59	ACTUAL SAMPLE DEPTH 25'-27'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V09-002-021	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8P	DATA TURNAROUND
Rosanne, Rust	SYDNOR, HA	373-3967	WIDRIG, DL		
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**	**AIR QUALITY** ☐	75 Days / 75 Days
C6392, I-005	WMA C Sampling for CMS		V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
	HNF-N-576-3 pg 59	25'-27'	301483ES10	GOVERNMENT VEHICLE	
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
222-S Lab Operations					

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S2009016 0

SPECIAL HANDLING AND/OR STORAGE
12°C / 54°F

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1YT77	SOIL	4-22-09	1000	✓
S09V000156				
S09V000158				
S09V000157				
LOT #				~~340750 4-22-09~~

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne, Larry Rosanne	4-22-09 1313	TM Collick	4-22-09 1313
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-021	PAGE 2 OF 2
COLLECTOR Rosane, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C6392, I-005	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 59	ACTUAL SAMPLE DEPTH 25'-27'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V09-002-022	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8P	DATA TURNAROUND
Rosawe, Rust	SYDNOR, HA	373-3967	WIDRIG, DL	AIR QUALITY ☐	75 Days / 75 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**		
C6392, I-006	WMA C Sampling for CMS		V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
	HNF-2572-3 pg 61	~~HNF 10 57~~ 42-44' SAR 4-30-09	301483ES10	GOVERNMENT VEHICLE	
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
222-S Lab Operations					

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

2226 2009 0160

SPECIAL HANDLING AND/OR STORAGE
-1°C/22°C
30°F/72°F
RPR 9/28/09 ~~2009 0160~~

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C									
TYPE OF CONTAINER	aGs*	aGs*									
NO. OF CONTAINER(S)	5	3									
VOLUME	40mL	40mL									
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS									

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B1YT78	SOIL	4-30-09	1015	✓	✓								
509V000126	(Li)												
509V000134	(Hi)												

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosawe, Larry Rosawe	4-30-09/ 1510	Todd McGlock/	4/30/09 1510
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-022	PAGE 2 OF 2
COLLECTOR Rosane, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P **AIR QUALITY** ☐	**DATA TURNAROUND** 75 Days / 75 Days
SAMPLING LOCATION C6392, I-006	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-526-3 pg61	**ACTUAL SAMPLE DEPTH** 42'-44'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-024	PAGE 1 OF 2
COLLECTOR Roanne, Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-006	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg61	ACTUAL SAMPLE DEPTH 42'-44'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

SPECIAL HANDLING AND/OR STORAGE
222S20090160 22°C/72°F

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1YT80	SOIL	4-30-09	1015 ~~1015~~ 4-30-09	✓
S09V000160				
S09V000161				
S09V000162				

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane, Larry Rosane	4-30-09/ 1510	Tim Gollock Tim Gollock	4/30/09 1510
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-024	PAGE 2 OF 2
COLLECTOR Rosine, Rust	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 8P **AIR QUALITY** ☐	**DATA TURNAROUND** 75 Days / 75 Days
SAMPLING LOCATION C6392, I-006	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V09-002		
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 pg 61	**ACTUAL SAMPLE DEPTH** 42'-44'	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-025	PAGE 1 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-007	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg 61	ACTUAL SAMPLE DEPTH 56'-58'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

SPECIAL HANDLING AND/OR STORAGE
222S20090160 -1°C/22°C 30°C/72°F

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~6 C	
TYPE OF CONTAINER	aGs*	aGs*	
NO. OF CONTAINER(S)	5	3	
VOLUME	40mL	40mL	
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B1YT81	SOIL	4-30-09	1415	✓	✓	
S09V000127	(L.)					
S09U000135	(H.)					
Lot #				B1F0110	B9075011V13	

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosanne Larry Rosanne	4-30-09 / 1510	Ted Mock Ted Mock	4/30/09 1510
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-025	PAGE 2 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-007	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-3 pg61	ACTUAL SAMPLE DEPTH 56'-58'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** All VOA samples will be collected using EPA Method 5035A.
** VOA sample bottle sets will include 3 bottles for high level analysis, 5 bottles for low level analysis.
** The laboratory is to use one of the low level VOA bottles for moisture content determination.
** VOA bottles will be labeled with an appended suffix of K, L, M, N, or P for low level and W, X, or Y for high level. These suffixes are for the purpose of providing bottle weights to the laboratories. These suffixes should not be included as part of the sample ID reported in the final data packages.

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)VOA - 5035/8260 (LOW LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}
(2)VOA - 5035/8260 (HIGH LEVEL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-027	PAGE 1 OF 2
COLLECTOR Rosanne Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-007	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-576-5 pg 61	ACTUAL SAMPLE DEPTH 56-58'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

SPECIAL HANDLING AND/OR STORAGE
222S20090160 22°C/72°F

PRESERVATION	Cool~6C
TYPE OF CONTAINER	Liner
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1YT83 164	SOIL	4-30-09	1415	✓
S09V000~~175~~				
S09V000 165				
S09V000 166				

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Larry Rosane, Larry Rosane	4-30-09/1500	Tim Tech Tim Tech	4/30/09 1510
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

ORIGINAL

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

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-002-027	PAGE 2 OF 2
COLLECTOR Rosane Rust	COMPANY CONTACT SYDNOR, HA	TELEPHONE NO. 373-3967	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION C6392, I-007	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V09-002		
ICE CHEST NO.	FIELD LOGBOOK NO. HNF-N-526-3 p61	ACTUAL SAMPLE DEPTH 56'-58'	COA 301483ES10	METHOD OF SHIPMENT GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO.		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the NCOs will cap remaining liners for shipment to 222-S. Where capping is not possible, they will put into 500 mL or 250 mL poly bottles with Teflon lined lids.
(1)Semi-VOA - 8270 Complete (TF) {1,2,4-Trichlorobenzene, 1,2-Dichlorobenzene, 2,4,5-Trichlorophenol, 2,4,6-Trichlorophenol, 2,4-Dinitrotoluene, 2,6-bis(1,1-dimethylethyl)-4-methyl phenol, 2-Chlorophenol, 2-Methylphenol (cresol, o-), 2-Nitrophenol, 3-Methylphenol (cresol, m-), 4-Chloro-3-methylphenol, 4-Methylphenol (cresol, p-), Acenaphthene, Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl) phthalate, Butylbenzylphthalate, Cellosolve Solvent, Chrysene, Cyclohexanone, Di-n-butylphthalate, Di-n-octylphthalate, Dibenz[a,h]anthracene, Dibutylphosphate, Ethylene glycol, Fluoranthene, Hexachlorobutadiene, Hexachloroethane, Indeno(1,2,3-cd)pyrene, Isobutyl alcohol, Monobutyl phosphate, Naphthalene, Nitrobenzene, Pentachlorophenol, Pyrene, Pyridine, Total cresols, Tributyl phosphate, n-Nitrosodi-n-dipropylamine, n-Nitrosomorpholine} ICP Metals - 6010 (SW-846) (TF) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Uranium, Vanadium, Zinc} Mercury - 7471 - (CV) (TF) {Mercury} PCBs - 8082 {Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, Aroclor-1260} TPH-Gasoline Range - WTPH-G {Total petroleum hydrocarbons - gasoline range} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range} Pesticides - 8081 (TF) {2,4'-DDD (Dichlorodiphenyldichloroethane), 2,4'-DDE (Dichlorodiphenyldichloroethylene), 2,4'-DDT (Dichlorodiphenyltrichloroethane), 4,4'-DDD (Dichlorodiphenyldichloroethane), 4,4'-DDE (Dichlorodiphenyldichloroethylene), 4,4'-DDT (Dichlorodiphenyltrichloroethane), Aldrin, Chlordane, Dieldrin, Endrin, Gamma-BHC (Lindane), Heptachlor epoxide, Hexachlorobenzene} IC Anions - 9056 {2-Hydroxyacetate, Acetate, Chloride, Fluoride, Formate, Nitrate, Nitrite, Oxalate, Sulfate} 300.7_AMMONIUM (TF) {Nitrogen in ammonium} Sulfide - 9215 {Sulfide} Total Cyanide - 9014 (TF) {Cyanide} pH (Soil) - 9045 {pH Measurement} GAMMA ENERGY ANALYSIS (TF) {Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Actinides ICPMS (TF) {Neptunium-237, Technetium-99, Thorium-230, Thorium-232, Tin-126, Uranium-233, Uranium-234, Uranium-235, Uranium-236, Uranium-238} Americium-241 (TF) {Americium-241} I129_SEP_GEA (TF) {Iodine-129} C-14 {Carbon-14} CURIUM {Curium-242, Curium-243, Curium-244} H3 - TRITIUM {Tritium} Isotopic Plutonium {Plutonium-238, Plutonium-239/240} Nickel-63 (TF) {Nickel-63} Selenium-79 (TF) {Selenium-79} Strontium-89,90 -- Sr-90 {Strontium-90}

ORIGINAL

A-6003-618(01/06)

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V09-003-009	PAGE 1 OF 1
COLLECTOR Karen White	**COMPANY CONTACT** SYDNOR, HA	**TELEPHONE NO.** 373-3967	**PROJECT COORDINATOR** WIDRIG, DL	**PRICE CODE** 7P	**DATA TURNAROUND**
SAMPLING LOCATION C6404, I-005TB	**PROJECT DESIGNATION** WMA C Sampling for CMS - QC Sampling		**SAF NO.** V09-003	**AIR QUALITY** ☐	75 Days / 75 Days
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-576-3 pg 66	**ACTUAL SAMPLE DEPTH** N/A	**COA** 301483ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
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)

222S2009C345

SPECIAL HANDLING AND/OR STORAGE
13°C/55°F

PRESERVATION	HCl or H2SO4 to pH <2/Cool~4C
TYPE OF CONTAINER	aGs*
NO. OF CONTAINER(S)	3
VOLUME	40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1YY23	WATER	5-18-09	07:30	✓
509V000377				

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Karen White / [signature] 5-18-09	1455	T M Gilliland / [signature] 5-18-09	1455
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
(1)VOA - 8260 (TCL) (TF) {1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloro-1,2,2-trifluoroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethane, 1-Butanol, 2-Butanone, 2-Nitropropane, 2-Pentanone, 4-Methyl, Acetone, Benzene, Carbon disulfide, Carbon tetrachloride, Chlorobenzene, Chloroform, Diethyl ether, Ethyl acetate, Ethylbenzene, Methylene chloride, Tetrachloroethene, Toluene, Trichloroethene, Trichloromonofluoromethane, Vinyl chloride, Xylenes (total), cis-1,2-Dichloroethylene, m-Xylene, o-Xylene, p-Xylene, trans-1,2-Dichloroethylene, trans-1,3-Dichloropropene}

ORIGINAL

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

A-6003-618(01/06)

Appendix 5

Data Validation Supporting Documentation

APPENDIX A

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	(C)	D	E
PROJECT: WMA C			DATA PACKAGE: VSR10-013		
VALIDATOR: Carl Schloesslin		LAB: 222-S Laboratory		DATE: 4-28-2010	
			SDG: 20090160		
ANALYSES PERFORMED					
Gross Alpha/Beta	Strontium-90 X	Technetium-99	Alpha Spectroscopy X	Gamma Spectroscopy X	
Total Uranium	Radium-22	Tritium X	Selenium-79 X	Carbon-14 X	Nickel-63 X
SAMPLES/MATRIX Soil samples B1YT71, B1YT74, B1YT77, B1YT80, B1YT83					

1. Completeness ..... ☐ N/A

Technical verification forms present?.....Yes (No) N/A

Comments: None

2. Initial Calibration (Levels D, E) ..... ☒ N/A

Instruments/detectors calibrated?.....Yes No N/A

Initial calibration acceptable? .....Yes No N/A

Standards NIST traceable?.....Yes No N/A

Standards Expired? .....Yes No N/A

Calculation check acceptable? .....Yes No N/A

Comments:

3. Continuing Calibration (Levels D, E) ..... ☒ N/A

Calibration checked within required frequency? ..... Yes No N/A

Calibration check acceptable? ..... Yes No N/A

Calibration check standards traceable? ..... Yes No N/A

Calibration check standards expired? ..... Yes No N/A

Calculation check acceptable? ..... Yes No N/A

Comments:

4. Background Counts (Levels D, E) ..... ☒ N/A

Background Counts checked within required frequency? ..... Yes No N/A

Background Counts acceptable? ..... Yes No N/A

Calculation check acceptable? ..... Yes No N/A

Comments:

5. Blanks (Levels B, C, D, E) ..... ☐ N/A

Method blank analyzed within required frequency?.....Yes No N/A
Method blank results acceptable? .....Yes No N/A
Analytes detected in method blank? .....Yes No N/A
Field blank(s) analyzed? .....Yes No N/A
Field blank results acceptable? .....Yes No N/A
Analytes detected in field blank(s)?.....Yes No N/A
Transcription/Calculation Errors? (Levels D, E).....Yes No N/A
Comments: None

6. Laboratory Control Samples or Blank Spike Samples (Levels C, D, E) ..... ☐ N/A

LCS /BSS analyzed within required frequency? .....Yes No N/A
LCS/BSS recoveries acceptable?.....Yes No N/A
LCS/BSS traceable? (Levels D,E) .....Yes No N/A
LCS/BSS expired? (Levels D,E).....Yes No N/A
LCS/BSS levels correct? (Levels D,E) .....Yes No N/A
Transcription/Calculation Errors? (Levels D, E).....Yes No N/A
Comments:
No LCS performed for Se-79 analysis.

7. Chemical Carrier Recovery (Levels C, D, E) ..... ☐ N/A

Chemical carrier added? .....Yes No N/A
Chemical recovery acceptable?.....Yes No N/A
Chemical carrier traceable? (Levels D, E).....Yes No N/A

Chemical carrier expired? (Levels D, E) .....Yes No N/A

Transcription/Calculation errors? (Levels D, E).....Yes No N/A

Comments:

Sample B1YT71 Ni recovery (for Ni-63) = 113%

8. Tracer Recovery (Levels C, D, E) ..... ☐ N/A

Tracer added?.....Yes No N/A

Tracer recovery acceptable? .....Yes No N/A

Tracer traceable? (Levels D, E) .....Yes No N/A

Tracer expired? (Levels D, E).....Yes No N/A

Transcription/Calculation errors? (Levels D, E).....Yes No N/A

Comments: None

9. Matrix Spikes (Levels C, D, E)..... ☐ N/A

Matrix spike analyzed? .....Yes No N/A

Spike recoveries acceptable? .....Yes No N/A

Spike source traceable? (Levels D, E) .....Yes No N/A

Spike source expired? Levels D, E).....Yes No N/A

Transcription/Calculation Errors? (Levels D, E) .....Yes No N/A

Comments: None

10. Duplicates (Levels C, D, E) ..... ☐ N/A

Duplicates Analyzed at required frequency? ..... Yes No N/A

RPD Values Acceptable? ..... Yes No N/A

Transcription/Calculation Errors? (Levels D, E) ..... Yes No N/A

Comments: None

11. Field QC Samples (Levels C, D E) ..... ☐ N/A

Field duplicate sample(s) analyzed? ..... Yes No N/A

Field duplicate RPD values acceptable? ..... Yes No N/A

Field split sample(s) analyzed? ..... Yes No N/A

Field split RPD values acceptable? ..... Yes No N/A

Performance audit sample(s) analyzed? ..... Yes No N/A

Performance audit sample results acceptable? ..... Yes No N/A

Comments: None

12. Holding Times (All levels)

Are sample holding times acceptable? ..... Yes No N/A

Comments: None

13. Results and Detection Limits (All Levels) ☐ N/A

Results reported for all required sample analyses? Yes No N/A

Results supported in raw data?(Levels D, E) Yes No N/A

Results Acceptable? (Levels D, E) Yes No N/A

Transcription/Calculation errors? (Levels D, E) Yes No N/A

MDA's meet required detection limits? Yes No N/A

Transcription/calculation errors? (Levels D, E) Yes No N/A

Comments: None

Appendix 6

Additional Documentation Requested By Client

LABCORE Completed Batch Report for Batch# 00013909

Analyst: LaPlant, Gary **Book#:** 31B64

Instrument: GEA04 B-1A

Method: GEA, LA-548-121 Rev/Mod I-0

Specification: C Farm WMA C

Prep Batch:

Batch Comment: C Farm WMA C for GEA. gll

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 STD	S0904230047		0	0	Cobalt-60	LIQUID	.00444	4.5780E-03		3.23	5.50E-05	uCi/mL	103.11	% Recovery	
1 STD	S0904230047		0	0	Cesium-137	LIQUID	.00483	5.2100E-03		5.80	6.07E-05	uCi/mL	107.87	% Recovery	
Sample Sequence 2															
2 BLNK	S0904230048		0	0	Cobalt-60	LIQUID		<2.3500E-07			2.35E-07	uCi/g			
2 BLNK	S0904230048		0	0	Antimony-125	LIQUID		<6.0500E-07			6.05E-07	uCi/g			
2 BLNK	S0904230048		0	0	Cesium-137	LIQUID		<2.8900E-07			2.89E-07	uCi/g			
2 BLNK	S0904230048		0	0	Europium-152	LIQUID		<1.2000E-06			1.20E-06	uCi/g			
2 BLNK	S0904230048		0	0	Europium-154	LIQUID		<7.8800E-07			7.88E-07	uCi/g			
2 BLNK	S0904230048		0	0	Europium-155	LIQUID		<4.6400E-07			4.64E-07	uCi/g			
Sample Sequence 3															
3 SAMPLE	S09V000171		0	0	Cobalt-60	SOLID	N/A	8.3330E-07		15.31	2.40E-07	uCi/g			
3 SAMPLE	S09V000171		0	0	Antimony-125	SOLID	N/A	1.1220E-06		40.05	8.63E-07	uCi/g			J
3 SAMPLE	S09V000171		0	0	Cesium-137	SOLID	N/A	7.3130E-05		6.25	2.89E-07	uCi/g			
3 SAMPLE	S09V000171		0	0	Europium-152	SOLID	N/A	<1.2800E-06			1.28E-06	uCi/g			U
3 SAMPLE	S09V000171		0	0	Europium-154	SOLID	N/A	<8.8500E-07			8.85E-07	uCi/g			U
3 SAMPLE	S09V000171		0	0	Europium-155	SOLID	N/A	<7.8100E-07			7.81E-07	uCi/g			U
Sample Sequence 4															
4 SAMPLE	S09V000172		0	0	Cobalt-60	SOLID	N/A	6.2590E-07		18.79	2.05E-07	uCi/g			
4 SAMPLE	S09V000172		0	0	Antimony-125	SOLID	N/A	<6.9900E-07			6.99E-07	uCi/g			U
4 SAMPLE	S09V000172		0	0	Cesium-137	SOLID	N/A	6.3090E-06		7.66	3.26E-07	uCi/g			
4 SAMPLE	S09V000172		0	0	Europium-152	SOLID	N/A	<1.1900E-06			1.19E-06	uCi/g			U
4 SAMPLE	S09V000172		0	0	Europium-154	SOLID	N/A	2.2770E-06		8.41	8.08E-07	uCi/g			
4 SAMPLE	S09V000172		0	0	Europium-155	SOLID	N/A	8.0980E-07		39.17	4.95E-07	uCi/g			J
Sample Sequence 5															
5 SAMPLE	S09V000173		0	0	Cobalt-60	SOLID	N/A	<2.6000E-07			2.60E-07	uCi/g			U
5 SAMPLE	S09V000173		0	0	Antimony-125	SOLID	N/A	<6.8700E-07			6.87E-07	uCi/g			U
5 SAMPLE	S09V000173		0	0	Cesium-137	SOLID	N/A	1.3110E-06		20.88	4.03E-07	uCi/g			
5 SAMPLE	S09V000173		0	0	Europium-152	SOLID	N/A	<1.2500E-06			1.25E-06	uCi/g			U
5 SAMPLE	S09V000173		0	0	Europium-154	SOLID	N/A	<8.6700E-07			8.67E-07	uCi/g			U
5 SAMPLE	S09V000173		0	0	Europium-155	SOLID	N/A	<5.1100E-07			5.11E-07	uCi/g			U
Sample Sequence 6															

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed Batch Report for Batch# 00013909

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
6	DUP	S0904230049	S09V000173	0	0	Cobalt-60	SOLID	<2.6000E-07	<2.4700E-07			2.47E-07	uCi/g			
6	DUP	S0904230049	S09V000173	0	0	Antimony-125	SOLID	<6.8700E-07	<6.3600E-07			6.36E-07	uCi/g			
6	DUP	S0904230049	S09V000173	0	0	Cesium-137	SOLID	1.3110E-06	1.3740E-06		14.89	2.64E-07	uCi/g	4.6927	% RPD	
6	DUP	S0904230049	S09V000173	0	0	Europium-152	SOLID	<1.2500E-06	<1.2400E-06			1.24E-06	uCi/g			
6	DUP	S0904230049	S09V000173	0	0	Europium-154	SOLID	<8.6700E-07	<7.9700E-07			7.97E-07	uCi/g			
6	DUP	S0904230049	S09V000173	0	0	Europium-155	SOLID	<5.1100E-07	<4.8600E-07			4.86E-07	uCi/g			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00013909

John Rehya 27 Apr 09
Reviewer Signature Date

LABCORE Completed Batch Report for Batch# 00013909

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0904230047	STD				
2	S0904230048	BLNK				
3	S09V000171	SAMPLE		20090160	B1YT71	C Farm WMA C
4	S09V000172	SAMPLE		20090160	B1YT74	C Farm WMA C
5	S09V000173	SAMPLE		20090160	B1YT77	C Farm WMA C
6	S0904230049	DUP	S09V000173			

Data Review Check List

Procedure LA-548-121 GEA

Batch # 13909

Review Item	Level 1 Yes	Level 1 No	Level 1 N/A	Level 2	Comments and Samples Affected
Batch Items					
1. Was an LCS and blank run the batch?	X			✓	
2. Was a duplicate run with the batch?	X			✓	
3. Was the book # of the standard (and spike) on the traveler?	X			✓	
4. Was the batch traveler completed (sample #, dilution, aliquot size)?	X			✓	
5. Were any line outs initialed and dated?	X			✓	
6. Was balance check completed on the day of use (if used)?	X			✓	
Result Items					
7. Did results etc. correctly up-load to LABCORE (OMNILims or MULTILims)?	X			✓	
8. If No, was LABCORE corrected?			X	✓	
9. Are result units correct?	X			✓	
10. If No, were units corrected?			X	✓	
11. Was data flagged?	X			✓	
12. Are all flags present and correct?	X			✓	
13. Are LCS results within limits (Lab's or customer's)?	X			✓	
14. Is blank <MDC, or <5% isotope concentration, or <5% decision level?	X			✓	
15. Are duplicate RPDs <20% (or RSD) or within customer limits?	X			✓	
16. Are the correct procedure number and Rev/Mod on the report?	X			✓	
Procedure Speciffic Items					
27. Were the customer required detection or quantification limits met?	X			✓	

1st Level Reviewer: [signature] **Date:** 28 Apr 09

2nd Level Reviewer: [signature] **Date:** 4/28/2009

PM Reviewer: [signature] 10/05/09

Data Review Check List

Procedure LQ-508-105 Calibration of the Genie 2000 Gamma Energy Analysis System

Batch: 13909 Instrument: GEA 4

	Review Item	Level 1 Yes	Level 1 No	Level 1 N/A	Level 2	Comments & Samples Affected
	Standard Reference Material					
1	Was the certificate from standards lab checked for accuracy?	✓			✓	
2	Were the standard activities verified on an appropriate detector?	✓			✓	
3	Were the results sent to standards lab for standard approval?	✓			✓	
4	Is the Standards Laboratory Certificate data correctly entered as a certificate file?	✓			✓	
	Spectrum Collection					
5	Was the Instrument Check Standard counted and within limits before obtaining the calibration spectrum?	✓			✓	
6	Did the file name correspond to the convention specified by the calibration procedure?	✓			✓	
7	Was the CALIB library selected for peak and nuclide ID?	✓			✓	
8	Was the correct decay date entered?	✓			✓	
	Energy Calibration					
9	Are there a minimum of 5 peaks evenly spread over the energy region of interest?	✓			✓	
10	For an initial calibration was a full energy and shape calibration performed?	✓			✓	
11	Did all the peaks fit the energy vs channel graph?	✓			✓	
12	Was a graphical report printed for energy vs channel for the log book?	✓			✓	
13	If this was a full energy and peak shape calibration, was a graphical report printed of the full width half max and low tail shape fitting?	✓			✓	
	Efficiency Calibration					
14	Do the error bars for all isotopes encompass the calibration curve?	✓			✓	
15	Was a graphical report printed for energy vs efficiency for the log book?	✓			✓	
	Calibration Check					
16	Was the average radionuclide recovery for the recalcuclated calibration spectrum within 5% (1.96 Standard Deviations) of the mean standard value?	✓			✓	
17	Are all graphical reports posted in the detector log book and signed by the chemist?	✓			✓	
	Data Review					
18	Instrument check standards in limits before and after	✓			✓	
19	Background counts before and after are satisfactory	✓			✓	
20	Dead time below limits	✓			✓	
21	Decay correction applied where necessary	✓			✓	
22	Falsely identified radionuclides lined out and initialled	✓			✓	

1st Level Reviewer: RA Jones **Date:** 24/Apr 09

2nd Level Reviewer: John Relyea **Date:** 27 Apr 09

4/23/2009 2:07:31PM
IncompleteBatchShort Version 2.7.22
batchreports 2.7.25

LABCORE Data Entry Template for Batch# 00013909

Analyst: h0074758 **Standard ID / Book#:** 31864
Instrument:
Method: GEA, LA-548-121 Rev/Mod I-0
Prep Batch:
Batch Comment: C Farm WMA C for GEA. gll

S	Type	Sample	R	A	Matrix	Group#	Project
1	STD		0		LIQUID		
	Analytes Requested:	Cesium-137, Cobalt-60					
2	BLNK		0		LIQUID		
	Analytes Requested:	Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155					
3	SAMPLE	S09V000171	0		SOLID	20090160	C Farm WMA C
	Analytes Requested:	Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155					
4	SAMPLE	S09V000172	0		SOLID	20090160	C Farm WMA C
	Analytes Requested:	Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155					
5	SAMPLE	S09V000173	0		SOLID	20090160	C Farm WMA C
	Analytes Requested:	Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155					
6	DUP	S09V000173	0		SOLID		
	Analytes Requested:	Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155					

Final Page for Batch# 00013909

G LaPlant 4-23-09
Analyst Signature **Date**

Em Bacha 4.24.09
Data Entry Signature **Date**

Data Entry Comments:

S = Batch Slot Number, R = Retest Number, A = Aliquot Code.

GEA Data Collection Sheet

Worklist	Test Code	Matrix	Analyst	Date	Time
13909	GEA	SOLID	gll	4-23-09	1500

Det.#
4

Pipet ID #	Checked
4653515	☑
	☐
	☐

Balance ID # LE-BAL-089

Balance Check ☑

Type of Mounts	Std Book # Sample #	Sam Size G or Ml	Sample Dilution	GENIE File #
Standard	31864	1 mL	1	4g4351
Blank	—			4g4352
SAMPLE	509V000171	66.2914		4g4354
SAMPLE	" 172	73.0689		4g4356
SAMPLE	" 173	66.7614		4g4357
DUPLICATE	" 173	71.7740		4g4358

Wrk. St. #4.C:\TRVLRS_EXCEL\GEA.xls

Comment: Cfarm WMA

LABCORE Completed Batch Report for Batch# 00015005

Analyst: LaPlant, Gary **Book#:** 31B64

Instrument: GEA02 B-1A

Method: GEA, LA-548-121 Rev/Mod I-0

Specification: C Farm WMA C

Prep Batch:

Batch Comment: C-Farm WMA C Soils for GEA. gll

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 STD	S0907150037		0	0	Cobalt-60	LIQUID	.00444	4.4010E-03		3.32	1.00E-04	uCi/mL	99.122	% Recovery	
1 STD	S0907150037		0	0	Cesium-137	LIQUID	.00483	5.0170E-03		4.90	1.09E-04	uCi/mL	103.87	% Recovery	
Sample Sequence 2															
2 BLNK	S0907150038		0	0	Cobalt-60	LIQUID		<3.6600E-07			3.66E-07	uCi/g			
2 BLNK	S0907150038		0	0	Antimony-125	LIQUID		<8.5700E-07			8.57E-07	uCi/g			
2 BLNK	S0907150038		0	0	Cesium-137	LIQUID		<5.5900E-07			5.59E-07	uCi/g			
2 BLNK	S0907150038		0	0	Europium-152	LIQUID		<1.7000E-06			1.70E-06	uCi/g			
2 BLNK	S0907150038		0	0	Europium-154	LIQUID		<1.1900E-06			1.19E-06	uCi/g			
2 BLNK	S0907150038		0	0	Europium-155	LIQUID		<9.6600E-07			9.66E-07	uCi/g			
Sample Sequence 3															
3 SAMPLE	S09V000174		0	0	Cobalt-60	SOLID	N/A	<4.3800E-07			4.38E-07	uCi/g			U
3 SAMPLE	S09V000174		0	0	Antimony-125	SOLID	N/A	<1.0900E-06			1.09E-06	uCi/g			U
3 SAMPLE	S09V000174		0	0	Cesium-137	SOLID	N/A	1.6440E-06		27.15	6.47E-07	uCi/g			
3 SAMPLE	S09V000174		0	0	Europium-152	SOLID	N/A	<2.0700E-06			2.07E-06	uCi/g			U
3 SAMPLE	S09V000174		0	0	Europium-154	SOLID	N/A	<1.3800E-06			1.38E-06	uCi/g			U
3 SAMPLE	S09V000174		0	0	Europium-155	SOLID	N/A	<1.0400E-06			1.04E-06	uCi/g			U
Sample Sequence 4															
4 SAMPLE	S09V000175		0	0	Cobalt-60	SOLID	N/A	<3.9600E-07			3.96E-07	uCi/g			U
4 SAMPLE	S09V000175		0	0	Antimony-125	SOLID	N/A	<1.1300E-06			1.13E-06	uCi/g			U
4 SAMPLE	S09V000175		0	0	Cesium-137	SOLID	N/A	<5.4700E-07			5.47E-07	uCi/g			U
4 SAMPLE	S09V000175		0	0	Europium-152	SOLID	N/A	<1.9700E-06			1.97E-06	uCi/g			U
4 SAMPLE	S09V000175		0	0	Europium-154	SOLID	N/A	<1.4400E-06			1.44E-06	uCi/g			U
4 SAMPLE	S09V000175		0	0	Europium-155	SOLID	N/A	<1.0500E-06			1.05E-06	uCi/g			U
4 SAMPLE	S09V000175		0	0	Potassium-40	SOLID	N/A	1.9420E-05		28.59	8.01E-06	uCi/g			
Sample Sequence 5															
5 SAMPLE	S09V000547		0	0	Cobalt-60	SOLID	N/A	<4.3000E-07			4.30E-07	uCi/g			U
5 SAMPLE	S09V000547		0	0	Antimony-125	SOLID	N/A	<1.0000E-06			1.00E-06	uCi/g			U
5 SAMPLE	S09V000547		0	0	Cesium-137	SOLID	N/A	<5.2200E-07			5.22E-07	uCi/g			U
5 SAMPLE	S09V000547		0	0	Europium-152	SOLID	N/A	<1.9100E-06			1.91E-06	uCi/g			U
5 SAMPLE	S09V000547		0	0	Europium-154	SOLID	N/A	<1.2100E-06			1.21E-06	uCi/g			U

LABCORE Completed Batch Report for Batch# 00015005

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
5	SAMPLE	S09V000547		0	0	Europium-155	SOLID	N/A	<1.0500E-06			1.05E-06	uCi/g			U
Sample Sequence 6																
6	SAMPLE	S09V000563		0	0	Cobalt-60	SOLID	N/A	<4.6500E-07			4.65E-07	uCi/g			U
6	SAMPLE	S09V000563		0	0	Antimony-125	SOLID	N/A	<1.1100E-06			1.11E-06	uCi/g			U
6	SAMPLE	S09V000563		0	0	Cesium-137	SOLID	N/A	<5.9300E-07			5.93E-07	uCi/g			U
6	SAMPLE	S09V000563		0	0	Europium-152	SOLID	N/A	<2.0000E-06			2.00E-06	uCi/g			U
6	SAMPLE	S09V000563		0	0	Europium-154	SOLID	N/A	<1.3600E-06			1.36E-06	uCi/g			U
6	SAMPLE	S09V000563		0	0	Europium-155	SOLID	N/A	<1.0500E-06			1.05E-06	uCi/g			U
Sample Sequence 7																
7	SAMPLE	S09V000579		0	0	Cobalt-60	SOLID	N/A	<3.4900E-07			3.49E-07	uCi/g			U
7	SAMPLE	S09V000579		0	0	Antimony-125	SOLID	N/A	<9.0500E-07			9.05E-07	uCi/g			U
7	SAMPLE	S09V000579		0	0	Cesium-137	SOLID	N/A	<4.9300E-07			4.93E-07	uCi/g			U
7	SAMPLE	S09V000579		0	0	Europium-152	SOLID	N/A	<1.6300E-06			1.63E-06	uCi/g			U
7	SAMPLE	S09V000579		0	0	Europium-154	SOLID	N/A	<1.0300E-06			1.03E-06	uCi/g			U
7	SAMPLE	S09V000579		0	0	Europium-155	SOLID	N/A	<9.1300E-07			9.13E-07	uCi/g			U
Sample Sequence 8																
8	SAMPLE	S09V000595		0	0	Cobalt-60	SOLID	N/A	<4.7300E-07			4.73E-07	uCi/g			U
8	SAMPLE	S09V000595		0	0	Antimony-125	SOLID	N/A	<1.1200E-06			1.12E-06	uCi/g			U
8	SAMPLE	S09V000595		0	0	Cesium-137	SOLID	N/A	<5.8700E-07			5.87E-07	uCi/g			U
8	SAMPLE	S09V000595		0	0	Europium-152	SOLID	N/A	<1.8100E-06			1.81E-06	uCi/g			U
8	SAMPLE	S09V000595		0	0	Europium-154	SOLID	N/A	<1.3100E-06			1.31E-06	uCi/g			U
8	SAMPLE	S09V000595		0	0	Europium-155	SOLID	N/A	<1.0800E-06			1.08E-06	uCi/g			U
8	SAMPLE	S09V000595		0	0	Lead-212	SOLID	N/A	1.1660E-06		47.22	8.15E-07	uCi/g			J
Sample Sequence 9																
9	SAMPLE	S09V000611		0	0	Cobalt-60	SOLID	N/A	<4.1400E-07			4.14E-07	uCi/g			U
9	SAMPLE	S09V000611		0	0	Antimony-125	SOLID	N/A	<1.0600E-06			1.06E-06	uCi/g			U
9	SAMPLE	S09V000611		0	0	Cesium-137	SOLID	N/A	<6.1300E-07			6.13E-07	uCi/g			U
9	SAMPLE	S09V000611		0	0	Europium-152	SOLID	N/A	<2.1700E-06			2.17E-06	uCi/g			U
9	SAMPLE	S09V000611		0	0	Europium-154	SOLID	N/A	<1.2600E-06			1.26E-06	uCi/g			U
9	SAMPLE	S09V000611		0	0	Europium-155	SOLID	N/A	<1.1100E-06			1.11E-06	uCi/g			U
9	SAMPLE	S09V000611		0	0	Potassium-40	SOLID	N/A	1.3580E-05		40.49	8.38E-06	uCi/g			J
Sample Sequence 10																
10	DUP	S0907150039	S09V000611	0	0	Cobalt-60	SOLID	<4.1400E-07	<3.7700E-07			3.77E-07	uCi/g			
10	DUP	S0907150039	S09V000611	0	0	Antimony-125	SOLID	<1.0600E-06	<9.6100E-07			9.61E-07	uCi/g			
10	DUP	S0907150039	S09V000611	0	0	Cesium-137	SOLID	<6.1300E-07	<5.0900E-07			5.09E-07	uCi/g			
10	DUP	S0907150039	S09V000611	0	0	Europium-152	SOLID	<2.1700E-06	<1.8100E-06			1.81E-06	uCi/g			
10	DUP	S0907150039	S09V000611	0	0	Europium-154	SOLID	<1.2600E-06	<1.2400E-06			1.24E-06	uCi/g			
10	DUP	S0907150039	S09V000611	0	0	Europium-155	SOLID	<1.1100E-06	<9.7600E-07			9.76E-07	uCi/g			
10	DUP	S0907150039	S09V000611	0	0	Potassium-40	SOLID	1.3580E-05	1.5770E-05		32.59	7.62E-06	uCi/g	14.923	% RPD	

LABCORE Completed Batch Report for Batch# 00015005

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00015005

R H Jones 17 Jul 09

Reviewer Signature Date

LABCORE Completed Batch Report for Batch# 00015005

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0907150037	STD				
2	S0907150038	BLNK				
3	S09V000174	SAMPLE		20090160	B1YT80	C Farm WMA C
4	S09V000175	SAMPLE		20090160	B1YT83	C Farm WMA C
5	S09V000547	SAMPLE		20090364	B1YTD5	C Farm WMA C
6	S09V000563	SAMPLE		20090364	B1YTD8	C Farm WMA C
7	S09V000579	SAMPLE		20090364	B1YTF1	C Farm WMA C
8	S09V000595	SAMPLE		20090364	B1YTF4	C Farm WMA C
9	S09V000611	SAMPLE		20090364	B1YTF7	C Farm WMA C
10	S0907150039	DUP	S09V000611			

Data Review Check List

Procedure LA-548-121 GEA

Batch # 15005

Review Item	Level 1 Yes	Level 1 No	Level 1 N/A	Level 2	Comments and Samples Affected
Batch Items					
1. Was an LCS and blank run the batch?	X			✓	
2. Was a duplicate run with the batch?	X			✓	
3. Was the book # of the standard (and spike) on the traveler?	X			✓	
4. Was the batch traveler completed (sample #, dilution, aliquot size)?	X			✓	
5. Were any line outs initialed and dated?	X			✓	
6. Was balance check completed on the day of use (if used)?	X			✓	
Result Items					
7. Did results etc. correctly up-load to LABCORE (OMNILims or MULTILims)?	X			✓	
8. If No, was LABCORE corrected?			X	✓	
9. Are result units correct?	X			✓	
10. If No, were units corrected?			X	✓	
11. Was data flagged?	X			✓	
12. Are all flags present and correct?	X			✓	
13. Are LCS results within limits (Lab's or customer's)?	X			✓	
14. Is blank <MDC, or <5% isotope concentration, or <5% decision level?	X			✓	
15. Are duplicate RPDs <20% (or RSD) or within customer limits?	X			✓	
16. Are the correct procedure number and Rev/Mod on the report?	X			✓	
Procedure Speciffic Items					
27. Were the customer required detection or quantification limits met?	X			✓	

1st Level Reviewer: S A Cattus **Date:** 17 July 09

2nd Level Reviewer: Matthew Beaman **Date:** 7/20/09

PM Reviewer: Gerald P Robison 10-5-09

Data Review Check List

Procedure LQ-508-105 Calibration of the Genie 2000 Gamma Energy Analysis System

Batch: 15005 Instrument: GEA 2

	Review Item	Level 1 Yes	Level 1 No	Level 1 N/A	Level 2	Comments & Samples Affected
	Standard Reference Material					
1	Was the certificate from standards lab checked for accuracy?	✓			✓	
2	Were the standard activities verified on an appropriate detector?	✓			✓	
3	Were the results sent to standards lab for standard approval?	✓			✓	
4	Is the Standards Laboratory Certificate data correctly entered as a certificate file?	✓			✓	
	Spectrum Collection					
5	Was the Instrument Check Standard counted and within limits before obtaining the calibration spectrum?	✓			✓	
6	Did the file name correspond to the convention specified by the calibration procedure?	✓			✓	
7	Was the CALIB library selected for peak and nuclide ID?	✓			✓	
8	Was the correct decay date entered?	✓			✓	
	Energy Calibration					
9	Are there a minimum of 5 peaks evenly spread over the energy region of interest?	✓			✓	
10	For an initial calibration was a full energy and shape calibration performed?	✓			✓	
11	Did all the peaks fit the energy vs channel graph?	✓			✓	
12	Was a graphical report printed for energy vs channel for the log book?	✓			✓	
13	If this was a full energy and peak shape calibration, was a graphical report printed of the full width half max and low tail shape fitting?	✓			✓	
	Efficiency Calibration					
14	Do the error bars for all isotopes encompass the calibration curve?	✓			✓	
15	Was a graphical report printed for energy vs efficiency for the log book?	✓			✓	
	Calibration Check					
16	Was the average radionuclide recovery for the recalcuclated calibration spectrum within 5% (1.96 Standard Deviations) of the mean standard value?	✓			✓	
17	Are all graphical reports posted in the detector log book and signed by the chemist?	✓			✓	
	Data Review					
18	Instrument check standards in limits before and after	✓			✓	
19	Background counts before and after are satisfactory	✓			✓	
20	Dead time below limits	✓			✓	
21	Decay correction applied where necessary	✓			✓	
22	Falsely identified radionuclides lined out and initialled	✓			✓	

1st Level Reviewer: RA Jones **Date:** 17 Jul 09

2nd Level Reviewer: [illegible] **Date:** 17 July 09

7/15/2009 3:20:23PM
IncompleteBatchShort Version 2.7.26
batchreports 2.7.26

LABCORE Data Entry Template for Batch# 00015005

Analyst: h0074758 **Standard ID / Book#:** 31864

Instrument:

Method: GEA, LA-548-121 Rev/Mod I-0

Prep Batch:

Batch Comment: C-Farm WMA C Soils for GEA. gll

CACN:200389

S	Type	Sample	R	A	Matrix	Group#	Project
1	STD		0		LIQUID		
	Analytes Requested:	Cesium-137, Cobalt-60					
2	BLNK		0		LIQUID		
	Analytes Requested:	Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155					
3	SAMPLE	S09V000174	0		SOLID	20090160	C Farm WMA C
	Analytes Requested:	Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155					
4	SAMPLE	S09V000175	0		SOLID	20090160	C Farm WMA C
	Analytes Requested:	Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155					
5	SAMPLE	S09V000547	0		SOLID	20090364	C Farm WMA C
	Analytes Requested:	Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155					
6	SAMPLE	S09V000563	0		SOLID	20090364	C Farm WMA C
	Analytes Requested:	Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155					
7	SAMPLE	S09V000579	0		SOLID	20090364	C Farm WMA C
	Analytes Requested:	Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155					
8	SAMPLE	S09V000595	0		SOLID	20090364	C Farm WMA C
	Analytes Requested:	Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155					
9	SAMPLE	S09V000611	0		SOLID	20090364	C Farm WMA C
	Analytes Requested:	Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155					
10	DUP	S09V000611	0		SOLID		
	Analytes Requested:	Antimony-125, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155					

Final Page for Batch# 00015005

7-15-09 — **Analyst Signature** — **Date**

7-17-09 — **Data Entry Signature** — **Date**

Data Entry Comments:

S = Batch Slot Number, R = Retest Number, A = Aliquot Code.

GEA Data Collection Sheet

Batch	Test Code	Matrix	Analyst	Date	Time
15005	GEA	Solid	gll	7-15-09	1530

Det.#
2

Pipet ID #	Checked
4653515	☑
	☐
	☐

Balance ID # LE-BAL-089

Balance Check ☑

Check Std # 133B58 B

Type of Mounts	Std Book # Sample #	Sam Size G or Ml	Sample Dilution	GENIE File #
Standard	31B64	1 ml	N/A	2g2148
Blank		79.6857	N/A	2g2149
Sample	S09V000174	79.6857	N/A	2G2153
Sample	S09V000175	79.5367	N/A	2g2154
Sample	S09V000547	84.7415	N/A	2g 2155
Sample	S09V000563	76.4241	N/A	2g2157
Sample	S09V000579	95.1676	N/A	2g2158
Sample	S09V000595	~~76.4241~~ 78.0493 7/15	N/A	2g2159
Sample	S09V000611	79.2011	N/A	2g2160
Duplicate	S09V000611	88.7758	N/A	2g2163

Comment: C-Farm WMA C Soils

Page 1 of 1

LABCORE Completed Batch Report for Batch# 00016420

Analyst: Lai, Sue **Book#:** 31B64

Instrument: A/B Detector 18 B-1A

Method: STRONTIUM-90, LA-220-101 Rev/Mod I-0

Specification: C Farm WMA C

Prep Batch: 00015214

Batch Comment: C Farm WMA C for SR-90 scl

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 STD	S0910130006		0 0		Strontium-89/90	LIQUID	.00078692	7.8604E-04		2.23	1.60E-06	uCi/mL	99.888	% Recovery	
1 STD	S0910130006		0 0		Strontium-C	LIQUID		89.1				% Recovery	N/A		
Sample Sequence 2															
2 BLNK-PREP	S0907270034		0 1	E	Strontium-89/90	SOLID		<1.5600E-06			1.56E-06	uCi/g			
2 BLNK-PREP	S0907270034		0 1	E	Strontium-C	SOLID		88.2				% Recovery			
Sample Sequence 3															
3 SAMPLE	S09V000203		0 1	E	Strontium-89/90	SOLID	N/A	1.1985E-04		8.5	2.98E-06	uCi/g			
3 SAMPLE	S09V000203		0 1	E	Strontium-C	SOLID		46				% Recovery			
Sample Sequence 4															
4 SAMPLE	S09V000204		0 1	E	Strontium-89/90	SOLID	N/A	2.3674E-05		20.89	2.32E-06	uCi/g			
4 SAMPLE	S09V000204		0 1	E	Strontium-C	SOLID		60.999				% Recovery			
Sample Sequence 5															
5 SAMPLE	S09V000205		0 1	E	Strontium-89/90	SOLID	N/A	3.8754E-06		122.25	3.05E-06	uCi/g			J
5 SAMPLE	S09V000205		0 1	E	Strontium-C	SOLID		45.499				% Recovery			
Sample Sequence 6															
6 DUP	S0907270035	S09V000205	0 1	E	Strontium-89/90	SOLID	3.8754E-06	3.4909E-06		128.13	2.88E-06	uCi/g	10.439	% RPD	
6 DUP	S0907270035	S09V000205	0 1	E	Strontium-C	SOLID	45.499	45.899				% Recovery			
Sample Sequence 7															
7 SAMPLE	S09V000206		0 1	E	Strontium-89/90	SOLID	N/A	6.6772E-06		44.96	1.72E-06	uCi/g			J
7 SAMPLE	S09V000206		0 1	E	Strontium-C	SOLID		79.499				% Recovery			
Sample Sequence 8															
8 SAMPLE	S09V000207		0 1	E	Strontium-89/90	SOLID	N/A	4.9154E-06		68.59	2.06E-06	uCi/g			J
8 SAMPLE	S09V000207		0 1	E	Strontium-C	SOLID		67.8				% Recovery			

Comments Section:

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016420

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00016420

Heather Becan 10/20/09

Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016420

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0910130006	STD				
2	S0907270034	BLNK-PREP				
3	S09V000203	SAMPLE		20090160	B1YT71	C Farm WMA C
4	S09V000204	SAMPLE		20090160	B1YT74	C Farm WMA C
5	S09V000205	SAMPLE		20090160	B1YT77	C Farm WMA C
6	S0907270035	DUP	S09V000205			
7	S09V000206	SAMPLE		20090160	B1YT80	C Farm WMA C
8	S09V000207	SAMPLE		20090160	B1YT83	C Farm WMA C

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

Data Review Check List

Procedure LA-220-101, 103, 105 Sr-90

Batch # 16420

Review Item	Level 1 Yes	Level 1 No	Level 1 N/A	Level 2	Comments and Samples Affected
Batch Items					
1. Was an LCS and blank run the batch?	X			X	
2. Was a duplicate run with the batch?	X			X	
2a. Was a spike run with the batch?		X		X	Not requested.
3. Was the book # of the standard (and spike) on the traveler?	X			X	
4. Was the batch traveler completed (sample #, dilution, aliquot size)?	X			X	
5. Were any line outs initialed and dated?	X			X	
6. Was balance check completed on the day of use (if used)?	X			X	
Result Items					
7. Was sample, traveler and counting data correct on ACE form?	X			X	
8. If No, was ACE form corrected?			X	X	
9. Did results etc. correctly up-load to LABCORE (OMNILims or MULTILims)?	X			X	
10. If No, was LABCORE corrected?			X	X	
11. Are result units correct?	X			X	
12. If No, were units corrected?			X	X	
13. Was data flagged?	X			X	
14. Are all flags present and correct?	X			X	
15. Are LCS results within limits (Lab's or customer's)?	X			X	
16. Are Spike results within limits (Lab's or customer's)?			X	X	
17. Is blank <MDC, or <5% isotope concentration, or <5% decision level?	X			X	
18. Are duplicate RPDs <20% (or RSD) within customer limits?	X			X	
19. Are the correct procedure number and Rev/Mod on the report?	X			X	
Procedure Speciffic Items					
20. Were carrier recoveries between 45% and 110%?	X			X	
21. Were the customer required detection or quantification limits met?		X		X	All results above req. DL
22. Were any results at or above customer notification limits?			X	X	
23. If yes, was the PC notified?			X	X	

1st Level Reviewer: [signature] **Date:** 20 Oct 09

2nd Level Reviewer: [signature] **Date:** ~~10/20/2009~~ 10/20/09 10/20/09

PM Reviewer: [signature] 10/29/200

10/13/2009 9:17:22AM
IncompleteBatchShort Version 2.7.26
batchreports 2.7.26

LABCORE Data Entry Template for Batch# 00016420

Analyst:

Standard ID / Book#: 3/B64

Instrument:

Method: STRONTIUM-90, ~~LA-220-103~~ LA-220-101 Rev/Mod ~~J-0~~ I-0 10-19-21

Prep Batch: 00015214

Batch Comment: C Farm WMA C for SR-90 scl

CACN:200389

S	Type	Sample	R	A	Matrix	Group#	Project
1	STD		0		LIQUID		
	Analytes Requested:	Strontium-89/90, Strontium-C					
2	BLNK-PREP		1	E	SOLID		
	Analytes Requested:	Strontium-89/90, Strontium-C					
3	SAMPLE	S09V000203	1	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Strontium-89/90, Strontium-C					
4	SAMPLE	S09V000204	1	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Strontium-89/90, Strontium-C					
5	SAMPLE	S09V000205	1	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Strontium-89/90, Strontium-C					
6	DUP	S09V000205	1	E	SOLID		
	Analytes Requested:	Strontium-89/90, Strontium-C					
7	SAMPLE	S09V000206	1	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Strontium-89/90, Strontium-C					
8	SAMPLE	S09V000207	1	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Strontium-89/90, Strontium-C					

Final Page for Batch# 00016420

Sue (Chu-Mei) Lai 10-14-09
Analyst Signature **Date**

J. Mogg 10-14-2009
Data Entry Signature **Date**

Mel Wing 10.14.09

Data Entry Comments:

S = Batch Slot Number, R = Retest Number, A = Aliquot Code.

Sr-90 Worklist Data (LA-220-101/103/104)

Sample Mounting Data

Batch # 16420 Matrix: Solid Analyst S.L.

Sep. Date 10-13-09 Date/Time @ elevator 10-14-09 / 1105

Std # 31B64 Spk # N/A Spk. Vol. N/A

Pipet ID # Checked

4173954 ✓

D73442 ✓

Carrier(ml) 1

Carrier ID: 86V19B

Balance ID # LE-BAL-078

Balance Check

Counting Room Data

Det # 18

Bkg 7.15

Beta Check

Standard # 35B64F

Counting Time (Minutes) 10

Date of first Count 10/14/09

Comments: C-Farm WMA C for Sr-90 Gp 20090160

Sample Type	Sample Number	Sample Vol. (mL)	Sample Dilution	Sep. Time	Gross Weight	Tare Weight	Total Counts	Cnt. Time (Min.)	Time of Count
Standard	31B64	1	1	14:00	7.9917	7.9026	7963	10	1446
Blank		10	1	14:00	7.9400	7.8518	62		1456
Sample	S09V000203	10	1	14:00	7.9184	7.8724	720		1507
Sample	S09V000204	10	1	14:00	7.8977	7.8367	236		1517
Sample	S09V000205	10	1	14:00	7.9493	7.9038	92		1527
Duplicate	S09V000205	10	1	14:00	7.9030	7.8571	91		1538
Sample	S09V000206	10	1	14:00	7.9292	7.8497	134		1548
Sample	S09V000207	10	1	14:00	7.9850	7.9172	110	✓	1559

LABCORE Completed Batch Report for Batch# 00016169

Analyst: LaPlant, Gary **Book#:** 66B64

Instrument: LSC2 LS6000 B-1A

Method: TRITIUM, LA-218-114 Rev/Mod F-0

Specification: C Farm WMA C

Prep Batch: 00014910

Batch Comment: C-Farm WMA C for H3. gll

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 STD	S0909170022		0 0		Tritium	LIQUID	.0023721	2.1882E-03		0.6	6.52E-07	uCi/mL	92.246	% Recovery	
Sample Sequence 2															
2 BLNK-PREP	S0907090056		0 0	W	Tritium	LIQUID		<3.2800E-04			3.28E-04	uCi/g			
Sample Sequence 3															
3 SAMPLE	S09V000187		0 0	W	Tritium	SOLID	N/A	<4.1500E-04			4.15E-04	uCi/g			U
Sample Sequence 4															
4 DUP	S0907090057	S09V000187	0 0	W	Tritium	SOLID	<4.1500E-04	<3.0700E-04			3.07E-04	uCi/g			
Sample Sequence 5															
5 SPK	S0909170023	S09V000187	0 0		Tritium	SOLID	.0023721	2.2152E-03			4.15E-04	uCi/g	93.384	% Recovery	
Sample Sequence 6															
6 SAMPLE	S09V000188		0 0	W	Tritium	SOLID	N/A	<4.3600E-04			4.36E-04	uCi/g			U
Sample Sequence 7															
7 SAMPLE	S09V000189		0 0	W	Tritium	SOLID	N/A	<3.1400E-04			3.14E-04	uCi/g			U
Sample Sequence 8															
8 SAMPLE	S09V000190		0 0	W	Tritium	SOLID	N/A	<4.1100E-04			4.11E-04	uCi/g			U

Comments Section:

Data Flagger Status:
Flagging Completed

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016169

Final Page for Batch# 00016169

Matthew Bacon 9/21/2009

Reviewer Signature Date

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016169

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0909170022	STD				
2	S0907090056	BLNK-PREP				
3	S09V000187	SAMPLE		20090160	B1YT71	C Farm WMA C
4	S0907090057	DUP	S09V000187			
5	S0909170023	SPK	S09V000187			
6	S09V000188	SAMPLE		20090160	B1YT74	C Farm WMA C
7	S09V000189	SAMPLE		20090160	B1YT77	C Farm WMA C
8	S09V000190	SAMPLE		20090160	B1YT80	C Farm WMA C

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

Data Review Check List

Procedure LA-218-114 Tritium

Batch # 16169

Review Item	Level 1 Yes	Level 1 No	Level 1 N/A	Level 2	Comments and Samples Affected
Batch Items					
1. Was an LCS and blank run the batch?	X			X	
2. Was a duplicate and spike run with the batch?	X			X	
3. Was the book # of the standard (and spike) on the traveler?	X			X	
4. Was the batch traveler completed (sample #, dilution, aliquot size)?	X			X	
5. Were any line outs initialed and dated?			X	X	
6. Was balance check completed on the day of use (if used)?			X	X	
Result Items					
7. Was sample, traveler and counting data correct on ACE form?	X			X	
8. If No, was ACE form corrected?			X	X	
9. Did results etc. correctly up-load to LABCORE (OMNILims or MULTILims)?	X			X	
10. If No, was LABCORE corrected?			X	X	
11. Are result units correct?	X			X	
12. If No, were units corrected?			X	X	
13. Was data flagged?	X			X	
14. Are all flags present and correct?	X			X	
15. Are LCS results within limits (Lab's or customer's)?	X			X	
16. Are Spike results within limits (Lab's or customer's)?	X			X	
17. Is blank <MDC, or <5% isotope concentration, or <5% decision level?	X			X	
18. Are duplicate RPDs <20% (or RSD) within customer limits?			X	X	
19. Are the correct procedure number and Rev/Mod on the report?	X			X	
Procedure Speciffic Items					
20. Was the correct LSC program used for counting?	X			X	
21. Were the customer required detection or quantification limits met?	X			X	

1st Level Reviewer: [illegible] **Date:** 2/ [illegible]

2nd Level Reviewer: [illegible] **Date:** 9/21/2009

PM Reviewer: [illegible] 10/14/2009

Data Review Checklist

CALIBRATION OF LIQUID SCINTILLATION COUNTERS

INSTRUMENT # LSC 6000 WC16085 PROCEDURES LA-508-121 LQ-150-115

BATCH # 16169

Review Items	--- Level 1 --- Yes	No	N/A	Level 2	Comments & Samples Affected
Efficiency Calibration					
1. Instrument calibration stds ^{3}H & ^{14}C run prior to quench curve calibration	✓				
2. Unquenched bkg vial run before quench curve calibration	✓				
3. Calibration performed per procedure LA-508-121	✓				
4. Quench curve calibration had > 7 data points	✓				
5. Quench range of calibration matches expected range of samples	✓				
6. Quench calibration performed in mode where bkg is subtracted from each analysis	✓				
7. Calibration had a second, independent check.	✓				
8. Any non-conformances are documented in maintnance notebook	✓				
9. Calibration reports are pasted and signed in maintenance notebook	✓				
Calibration Verification					
1. Instrument Control Std within limits before and after batch counted	✓				
2. Bkg check within limits before and after batch counted	✓				

1st Level Reviewer: John Ridgway Date: 21 Sep 09

2nd Level Reviewer: Sa Cady Date: 21 Sep 09

LABCORE Data Entry Template for Batch# 00016169

Analyst: h0074758 **Standard ID / Book#:** 66B64

Instrument:

Method: TRITIUM, LA-218-114 Rev/Mod F-0

Prep Batch: 00014910

Batch Comment: C-Farm WMA C for H3. gll

CACN:200389

S	Type	Sample	R	A	Matrix	Group#	Project
1	STD		0		LIQUID		
	Analytes Requested:	Tritium					
2	BLNK-PREP		0	W	LIQUID		
	Analytes Requested:	Tritium					
3	SAMPLE	S09V000187	0	W	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Tritium					
4	DUP	S09V000187	0	W	SOLID		
	Analytes Requested:	Tritium					
5	SPK	S09V000187	0		SOLID		
	Analytes Requested:	Tritium					
6	SAMPLE	S09V000188	0	W	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Tritium					
7	SAMPLE	S09V000189	0	W	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Tritium					
8	SAMPLE	S09V000190	0	W	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Tritium					

Final Page for Batch# 00016169

9-17-09 — Analyst Signature — Date

9/20/9 — Data Entry Signature — Date

MCBrasman 9/21/09

Data Entry Comments:

S = Batch Slot Number, R = Retest Number, A = Aliquot Code.

Tritium Data Collection Sheet

Batch # 16169 Matrix Solid

Analyst gll Date/Time: 9-17-09 / 1340

For Spikes

Spk Bk# 66B64

Pipet ID #	Checked
4715523	☑
	☐
	☐

Check Std #

Counter Position	Sample Type	Sample Number	Sample Volume	Dilution Factor	Volume of Sample	Volume of Spike
	Standard	66B64	1 mL	1		
	Blnk	—	1 mL			
	Sample	S09V000187	1 mL			
	Duplicate	S09V000187	1 mL			
	Spike	S09V000187	1 mL		1.5	1.5
	Sample	S09V000188	1 mL			
	Sample	S09V000189	1 mL			
	Sample	S09V000190	1 mL			

Page 1 of 1

Comments: C-Farm WMA C Gp 20090160

LABCORE Completed Batch Report for Batch# 00016189

Analyst: LaPlant, Gary **Book#:** 66B64

Instrument: LSC2 LS6000 B-1A

Method: TRITIUM, LA-218-114 Rev/Mod F-0

Specification: C Farm WMA C

Prep Batch: 00015039

Batch Comment: C-Farm WMA C for H3. gll

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 STD	S0909170138		0 0		Tritium	LIQUID	.0023721	2.1464E-03		0.6	1.56E-06	uCi/mL	90.484	% Recovery	
Sample Sequence 2															
2 BLNK-PREP	S0907160131		0 0	W	Tritium	LIQUID		<3.0457E-04			3.05E-04	uCi/g			
Sample Sequence 3															
3 SAMPLE	S09V000191		0 0	W	Tritium	SOLID	N/A	<3.0446E-04			3.04E-04	uCi/g			U
Sample Sequence 4															
4 SAMPLE	S09V000405		0 0	W	Tritium	SOLID	N/A	<2.9119E-04			2.91E-04	uCi/g			U
Sample Sequence 5															
5 SAMPLE	S09V000420		0 0	W	Tritium	SOLID	N/A	<2.9654E-04			2.97E-04	uCi/g			U
Sample Sequence 6															
6 SAMPLE	S09V000437		0 0	W	Tritium	SOLID	N/A	<2.9275E-04			2.93E-04	uCi/g			U
Sample Sequence 7															
7 SAMPLE	S09V000452		0 0	W	Tritium	SOLID	N/A	<2.9413E-04			2.94E-04	uCi/g			U
Sample Sequence 8															
8 SAMPLE	S09V000463		0 0	W	Tritium	SOLID	N/A	<2.9362E-04			2.94E-04	uCi/g			U
Sample Sequence 9															
9 DUP	S0907160132	S09V000463	0 0	W	Tritium	SOLID	<2.9362E-04	<2.9291E-04			2.93E-04	uCi/g			
Sample Sequence 10															
10 SPK	S0909210049	S09V000463	0 0		Tritium	SOLID	.0023721	2.1698E-03			2.94E-04	uCi/g	91.47	% Recovery	
Sample Sequence 11															
11 SAMPLE	S09V000470		0 0	W	Tritium	SOLID	N/A	<2.9522E-04			2.95E-04	uCi/g			U

Comments Section:

Data Flagger Status:
Flagging Completed

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016189

Final Page for Batch# 00016189

Heather Becan 10/5/2009

Reviewer Signature Date

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016189

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0909170138	STD				
2	S0907160131	BLNK-PREP				
3	S09V000191	SAMPLE		20090160	B1YT83	C Farm WMA C
4	S09V000405	SAMPLE		20090325	B1YTB1	C Farm WMA C
5	S09V000420	SAMPLE		20090325	B1YTB4	C Farm WMA C
6	S09V000437	SAMPLE		20090325	B1YTB7	C Farm WMA C
7	S09V000452	SAMPLE		20090325	B1YTC0	C Farm WMA C
8	S09V000463	SAMPLE		20090325	BY1T92	C Farm WMA C
9	S0907160132	DUP	S09V000463			
10	S0909210049	SPK	S09V000463			
11	S09V000470	SAMPLE		20090325	BY1T98	C Farm WMA C

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

Data Review Check List

Procedure LA-218-114 Tritium

Batch # 16189

Review Item	Level 1 Yes	Level 1 No	Level 1 N/A	Level 2	Comments and Samples Affected
Batch Items					
1. Was an LCS and blank run the batch?	X			X	
2. Was a duplicate and spike run with the batch?	X			X	
3. Was the book # of the standard (and spike) on the traveler?	X			X	
4. Was the batch traveler completed (sample #, dilution, aliquot size)?	X			X	
5. Were any line outs initialed and dated?	X			X	
6. Was balance check completed on the day of use (if used)?			X	X	
Result Items					
7. Was sample, traveler and counting data correct on ACE form?	X			X	
8. If No, was ACE form corrected?			X	X	
9. Did results etc. correctly up-load to LABCORE (OMNILims or MULTILims)?	X			X	
10. If No, was LABCORE corrected?			X	X	
11. Are result units correct?	X			X	
12. If No, were units corrected?			X	X	
13. Was data flagged?	X			X	
14. Are all flags present and correct?	X			X	
15. Are LCS results within limits (Lab's or customer's)?	X			X	
16. Are Spike results within limits (Lab's or customer's)?	X			X	
17. Is blank <MDC, or <5% isotope concentration, or <5% decision level?	X			X	
18. Are duplicate RPDs <20% (or RSD) within customer limits?			X	X	
19. Are the correct procedure number and Rev/Mod on the report?	X			X	
Procedure Speciffic Items					
20. Was the correct LSC program used for counting?	X			X	
21. Were the customer required detection or quantification limits met?	X			X	

1st Level Reviewer: [illegible] **Date:** 10-5-09

2nd Level Reviewer: [illegible] **Date:** 10/5/2009

PM Reviewer. [illegible] 10-15-2009

Data Review Checklist

CALIBRATION OF LIQUID SCINTILLATION COUNTERS

INSTRUMENT # LS 6000

BATCH # 16189

PROCEDURES LA-508-121 LQ-150-115

Review Items	--- Level 1 --- Yes	No	N/A	Level 2	Comments & Samples Affected
Efficiency Calibration					
1. Instrument calibration stds ^{3}H & ^{14}C run prior to quench curve calibration	✓				
2. Unquenched bkg vial run before quench curve calibration	✓				
3. Calibration performed per procedure LA-508-121	✓				
4. Quench curve calibration had > 7 data points	✓				
5. Quench range of calibration matches expected range of samples	✓				
6. Quench calibration performed in mode where bkg is subtracted from each analysis	✓				
7. Calibration had a second, independent check.	✓				
8. Any non-conformances are documented in maintnance notebook	✓				
9. Calibration reports are pasted and signed in maintenance notebook	✓				
Calibration Verification					
1. Instrument Control Std within limits before and after batch counted	✓				
2. Bkg check within limits before and after batch counted	✓				

1st Level Reviewer: RKJones Date: 1 Oct 2009

2nd Level Reviewer: [illegible] Date: 10-1-09

LABCORE Data Entry Template for Batch# 00016189

Analyst: h0074758 **Standard ID / Book#:** 9/24 B # 66B64

Instrument:

Method: TRITIUM, LA-218-114 Rev/Mod F-0

Prep Batch: 00015039

Batch Comment: C-Farm WMA C for H3. gll

CACN:200389

S	Type	Sample	R	A	Matrix	Group#	Project
1	STD		0		LIQUID		
	Analytes Requested:	Tritium					
2	BLNK-PREP		0	W	LIQUID		
	Analytes Requested:	Tritium					
3	SAMPLE	S09V000191	0	W	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Tritium					
4	SAMPLE	S09V000405	0	W	SOLID	20090325	C Farm WMA C
	Analytes Requested:	Tritium					
5	SAMPLE	S09V000420	0	W	SOLID	20090325	C Farm WMA C
	Analytes Requested:	Tritium					
6	SAMPLE	S09V000437	0	W	SOLID	20090325	C Farm WMA C
	Analytes Requested:	Tritium					
7	SAMPLE	S09V000452	0	W	SOLID	20090325	C Farm WMA C
	Analytes Requested:	Tritium					
8	SAMPLE	S09V000463	0	W	SOLID	20090325	C Farm WMA C
	Analytes Requested:	Tritium					
9	DUP	S09V000463	0	W	SOLID		
	Analytes Requested:	Tritium					
10	SPK	S09V000463	0		SOLID		
	Analytes Requested:	Tritium					
11	SAMPLE	S09V000470	0	W	SOLID	20090325	C Farm WMA C
	Analytes Requested:	Tritium					

Final Page for Batch# 00016189

9-24-09 — Analyst Signature — Date

9/25/09 — Data Entry Signature — Date

10/1/09

Data Entry Comments:

S = Batch Slot Number, R = Retest Number, A = Aliquot Code.

Tritium Data Collection Sheet

Batch # 16189 Matrix Solid

Analyst gll Date/Time: 9-24-09 / 2040

For Spikes

Pipet ID # Checked

4715523 ☑

☐

☐

Spk Bk# 66B64

Check Std # Beckman HNV 2503

Counter Position	Sample Type	Sample Number	Sample Volume	Dilution Factor	Volume of Sample	Volume of Spike
	Standard	66B64	1	1		
	Blnk		1	1		
	Sample	S09V000191	1	1		
	Sample	S09V000405	1	1		
	Sample	S09V000420	1	1		
	Sample	S09V000437	1	1		
	Sample	S09V000452	1	1		
	Sample	S09V000463	1	1		
	Duplicate	S09V000463	1	1		
	Spike	S09V000463	1	1	1.5	1.5
	Sample	S09V000470	1	1		

Comments: C-Farm WMA C Gp 20090325

Page 1 of 1

LABCORE Completed Batch Report for Batch# 00016105

Analyst: LaPlant, Gary **Book#:**

Instrument: LSC2 LS6000 B-1A

Method: SELENIUM-79, LA-365-132 Rev/Mod I-0

Specification: C Farm WMA C

Prep Batch: 00015214

Batch Comment: C-Farm WMA C for Se79. gll

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 BLNK-PREP	S0907270034		0 0	E	Selenium-79	SOLID		<3.2000E-06			3.20E-06	uCi/g			
1 BLNK-PREP	S0907270034		0 0	E	Selenium-C	SOLID		42.786				% Recovery			
Sample Sequence 2															
2 SAMPLE	S09V000203		0 0	E	Selenium-79	SOLID	N/A	2.5003E-06		4309.52	1.50E-06	uCi/g			J
2 SAMPLE	S09V000203		0 0	E	Selenium-C	SOLID		71.642				% Recovery			
Sample Sequence 3															
3 SAMPLE	S09V000204		0 0	E	Selenium-79	SOLID	N/A	<3.1000E-06			3.10E-06	uCi/g			U
3 SAMPLE	S09V000204		0 0	E	Selenium-C	SOLID		49.751				% Recovery			
Sample Sequence 4															
4 SAMPLE	S09V000205		0 0	E	Selenium-79	SOLID	N/A	1.9726E-06		-378.63	1.72E-06	uCi/g			J
4 SAMPLE	S09V000205		0 0	E	Selenium-C	SOLID		63.184				% Recovery			
Sample Sequence 5															
5 DUP	S0907270035	S09V000205	0 0	E	Selenium-79	SOLID	1.9726E-06	<1.5700E-06			1.57E-06	uCi/g			
5 DUP	S0907270035	S09V000205	0 0	E	Selenium-C	SOLID	63.184	65.174				% Recovery			
Sample Sequence 6															
6 SAMPLE	S09V000206		0 0	E	Selenium-79	SOLID	N/A	4.1402E-06		161.04	1.66E-06	uCi/g			J
6 SAMPLE	S09V000206		0 0	E	Selenium-C	SOLID		65.174				% Recovery			
Sample Sequence 7															
7 SAMPLE	S09V000207		0 0	E	Selenium-79	SOLID	N/A	2.1083E-06		-716.52	2.11E-06	uCi/g			J
7 SAMPLE	S09V000207		0 0	E	Selenium-C	SOLID		51.741				% Recovery			

Comments Section:

Data Flagger Status:
Flagging Completed

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016105

Final Page for Batch# 00016105

Heather Beaver 9/17/2009

Reviewer Signature Date

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016105

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0907270034	BLNK-PREP				
2	S09V000203	SAMPLE		20090160	B1YT71	C Farm WMA C
3	S09V000204	SAMPLE		20090160	B1YT74	C Farm WMA C
4	S09V000205	SAMPLE		20090160	B1YT77	C Farm WMA C
5	S0907270035	DUP	S09V000205			
6	S09V000206	SAMPLE		20090160	B1YT80	C Farm WMA C
7	S09V000207	SAMPLE		20090160	B1YT83	C Farm WMA C

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

Data Review Check List

Procedure LA-365-132 Se-79

16105

Review Item	Level 1 Yes	Level 1 No	Level 1 N/A	Level 2	Comments and Samples Affected
Batch Items					
1. Was a blank run the batch?	X			X	
2. Was a duplicate run with the batch?	X			X	
3. Was the batch (worklist) completed (sample #, dilution, aliquot size)?	X			X	
4. Were any line outs initialed and dated?			X	X	
5. Was balance check completed on the day of use (if used)?			X	X	
Result Items					
6. Was sample, traveler and counting data correct on ACE form?	X			X	
7. If No, was ACE form corrected?			X	X	
8. Did results etc. correctly up-load to LABCORE (OMNILims or MULTILims)?	X			X	
9. If No, was LABCORE corrected?			X	X	
10. Are result units correct?	X			X	
11. If No, were units corrected?			X	X	
12. Was data flagged?	X			X	
13. Are all flags present and correct?	X			X	
14. Is blank <MDC, or <5% isotope concentration, or <5% decision level?	X			X	
15. Are duplicate RPDs <20% (or RSD) within customer limits?			X	X	
16. Are the correct procedure number and Rev/Mod on the report?	X			X	
Procedure Speciffic Items					
17. Was correct LSC program used for counting?	X			X	
18. Were carrier recoveries between 30% and 110%?	X			X	
19. Were the customer required detection or quantification limits met?			X	X	

1st Level Reviewer: S A Catte **Date:** 17 Sep 09

2nd Level Reviewer: Marthe Becan **Date:** 9/17/2009

PM Reviewer: Derek P Peterson 11-11-2009

Data Review Checklist

CALIBRATION OF LIQUID SCINTILLATION COUNTERS

INSTRUMENT # LSC6000 WC16085

PROCEDURES LA-508-121 LQ-150-115

BATCH # 16105

Review Items	--- Level 1 --- Yes	No	N/A	Level 2	Comments & Samples Affected
Efficiency Calibration					
1. Instrument calibration stds ^{3}H & ^{14}C run prior to quench curve calibration	✓			✓	
2. Unquenched bkg vial run before quench curve calibration	✓			✓	
3. Calibration performed per procedure LA-508-121	✓			✓	
4. Quench curve calibration had > 7 data points	✓			✓	
5. Quench range of calibration matches expected range of samples	✓			✓	
6. Quench calibration performed in mode where bkg is subtracted from each analysis	✓			✓	
7. Calibration had a second, independent check	✓			✓	
8. Any non-conformances are documented in maintnance notebook	✓			✓	
9. Calibration reports are pasted and signed in maintenance notebook	✓			✓	
Calibration Verification					
1. Instrument Control Std within limits before and after batch counted	✓			✓	
2. Bkg check within limits before and after batch counted	✓			✓	

1st Level Reviewer: John Relyea Date: 16 Sep 09

2nd Level Reviewer: R Jones Date: 16 Sep 09

9/14/2009 8:45:26AM
IncompleteBatchShort Version 2.7.26
batchreports 2.7.26

LABCORE Data Entry Template for Batch# 00016105

Analyst: h0074758 **Standard ID / Book#:** N/A

Instrument:

Method: SELENIUM-79, LA-365-132 Rev/Mod I-0

Prep Batch: 00015214

Batch Comment: C-Farm WMA C for Se79. gll

CACN:200389

S	Type	Sample	R	A	Matrix	Group#	Project
1	BLNK-PREP		0	E	SOLID		
	Analytes Requested:	Selenium-79, Selenium-C					
2	SAMPLE	S09V000203	0	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Selenium-79, Selenium-C					
3	SAMPLE	S09V000204	0	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Selenium-79, Selenium-C					
4	SAMPLE	S09V000205	0	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Selenium-79, Selenium-C					
5	DUP	S09V000205	0	E	SOLID		
	Analytes Requested:	Selenium-79, Selenium-C					
6	SAMPLE	S09V000206	0	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Selenium-79, Selenium-C					
7	SAMPLE	S09V000207	0	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Selenium-79, Selenium-C					

Final Page for Batch# 00016105

9-15-09
Analyst Signature **Date**

9.16.09
Data Entry Signature **Date**

9/16/09

Data Entry Comments:

S = Batch Slot Number, R = Retest Number, A = Aliquot Code.

Se-79 Traveler

Work List # 16105

Analyst gll

Matrix Solid

Date/Time 9-15-09 / 1500

Pipet ID #	Checked
4034986	☑
436223	☑
	☐

Balance ID # CE-BAL-046

Checked ☑

Detector ID WC16085

Carrier # 11351A

Carrier Vol. 1 mL

Check Std # Packard D

Comments: C-Farm WMA C

Sample Type	Sample Number	Sample Size	Dilution Factor	Gross Weight	Tare weight
BLNK	—	10	1	0.7973	0.7887
Sample	S09V000203	10	1	0.8051	0.7907
Sample	S09V000204	10	1	0.7920	0.7820
Sample	S09V000205	10	1	0.7982	0.7855
Duplicate	S09V000205	10	1	0.7978	0.7847
Sample	S09V000206	10	1	0.7990	0.7859
Sample	S09V000207	10	1	0.8002	0.7898

LABCORE Completed Batch Report for Batch# 00015935

Analyst: Lai, Sue **Book#:** 15B64

Instrument: LSC3 LS6500 B-1A

Method: CARBON-14, LA-348-104 Rev/Mod H-0

Specification: C Farm WMA C

Prep Batch: 00015039

Batch Comment: C Farm WMA C for C-14 scl

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 STD	S0908280125		0 0		Carbon-14	SOLID	.001334	1.2878E-03		0.6	1.28E-06	uCi/mL	96.54	% Recovery	
Sample Sequence 2															
2 BLNK-PREP	S0907160131		0 0	W	Carbon-14	LIQUID		<6.7664E-05			6.77E-05	uCi/mL			
Sample Sequence 3															
3 SAMPLE	S09V000191		0 0	W	Carbon-14	SOLID	N/A	6.1066E-05		87.5	5.00E-05	uCi/g			J
Sample Sequence 4															
4 SAMPLE	S09V000405		0 0	W	Carbon-14	SOLID	N/A	<7.0345E-05			7.03E-05	uCi/g			U
Sample Sequence 5															
5 SAMPLE	S09V000420		0 0	W	Carbon-14	SOLID	N/A	<4.8654E-05			4.87E-05	uCi/g			U
Sample Sequence 6															
6 SAMPLE	S09V000437		0 0	W	Carbon-14	SOLID	N/A	<8.9211E-05			8.92E-05	uCi/g			U
Sample Sequence 7															
7 SAMPLE	S09V000452		0 0	W	Carbon-14	SOLID	N/A	<8.0288E-05			8.03E-05	uCi/g			U
Sample Sequence 8															
8 SAMPLE	S09V000463		0 0	W	Carbon-14	SOLID	N/A	<6.4656E-05			6.47E-05	uCi/g			U
Sample Sequence 9															
9 DUP	S0907160132	S09V000463	0 0	W	Carbon-14	SOLID	<6.4656E-05	<5.1220E-05			5.12E-05	uCi/g			
Sample Sequence 10															
10 SPK	S0908280126	S09V000463	0 0		Carbon-14	SOLID	.001334	1.3135E-03			6.47E-05	uCi/g	98.46	% Recovery	
Sample Sequence 11															
11 SAMPLE	S09V000470		0 0	W	Carbon-14	SOLID	N/A	<5.0826E-05			5.08E-05	uCi/g			U

Comments Section:

Data Flagger Status:
Flagging Completed

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00015935

Final Page for Batch# 00015935

Timothy Bacon 9/21/2009

Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00015935

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0908280125	STD				
2	S0907160131	BLNK-PREP				
3	S09V000191	SAMPLE		20090160	B1YT83	C Farm WMA C
4	S09V000405	SAMPLE		20090325	B1YTB1	C Farm WMA C
5	S09V000420	SAMPLE		20090325	B1YTB4	C Farm WMA C
6	S09V000437	SAMPLE		20090325	B1YTB7	C Farm WMA C
7	S09V000452	SAMPLE		20090325	B1YTC0	C Farm WMA C
8	S09V000463	SAMPLE		20090325	BY1T92	C Farm WMA C
9	S0907160132	DUP	S09V000463			
10	S0908280126	SPK	S09V000463			
11	S09V000470	SAMPLE		20090325	BY1T98	C Farm WMA C

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

Data Review Check List

Procedure LA-348-104 C-14

15935

Review Item	Level 1 Yes	Level 1 No	Level 1 N/A	Level 2	Comments and Samples Affected
Batch Items					
1. Was an LCS and blank run the batch?	X			X	
2. Was a duplicate and spike run with the batch?	X			X	
3. Was the book # of the standard (and spike) on the traveler?	X			X	
4. Was the batch traveler completed (sample #, dilution, aliquot size)?	X			X	
5. Were any line outs initialed and dated?	X			X	
6. Was balance check completed on the day of use (if used)?			X	X	
Result Items					
7. Was sample, traveler and counting data correct on ACE form?	X			X	
8. If No, was ACE form corrected?			X	X	
9. Did results etc. correctly up-load to LABCORE (OMNILims or MULTILims)?	X			X	
10. If No, was LABCORE corrected?			X	X	
11. Are result units correct?	X			X	
12. If No, were units corrected?			X	X	
13. Was data flagged?	X			X	
14. Are all flags present and correct?	X			X	
15. Are LCS results within limits (Lab's or customer's)?	X			X	
16. Are Spike results within limits (Lab's or customer's)?	X			X	
17. Is blank <MDC, or <5% isotope concentration, or <5% decision level?	X			X	
18. Are duplicate RPDs <20% (or RSD) within customer limits?			X	X	
19. Are the correct procedure number and Rev/Mod on the report?	X			X	
Procedure Speciffic Items					
20. Was the correct LSC program used for counting?	X			X	
21. Were the customer required detection or quantification limits met?	X			X	

1st Level Reviewer: [signature] **Date:** 17 Sept 09

2nd Level Reviewer: [signature] **Date:** 9/21/2009

PM Reviewer: [signature] 11-10-2009

8/31/2009 1:32:36PM
IncompleteBatchShort Version 2.7.26
batchreports 2.7.26

LABCORE Data Entry Template for Batch# 00015935

Analyst: H0003944 **Standard ID / Book#:** 15B64

Instrument:

Method: CARBON-14, LA-348-104 Rev/Mod ~~01~~ 14-0 10-7-09

Prep Batch: 00015039

Batch Comment: C Farm WMA C for C-14 scl

CACN:200389

S	Type	Sample	R	A	Matrix	Group#	Project
1	STD		0		SOLID		
	Analytes Requested:	Carbon-14					
2	BLNK-PREP		0	W	LIQUID		
	Analytes Requested:	Carbon-14					
3	SAMPLE	S09V000191	0	W	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Carbon-14					
4	SAMPLE	S09V000405	0	W	SOLID	20090325	C Farm WMA C
	Analytes Requested:	Carbon-14					
5	SAMPLE	S09V000420	0	W	SOLID	20090325	C Farm WMA C
	Analytes Requested:	Carbon-14					
6	SAMPLE	S09V000437	0	W	SOLID	20090325	C Farm WMA C
	Analytes Requested:	Carbon-14					
7	SAMPLE	S09V000452	0	W	SOLID	20090325	C Farm WMA C
	Analytes Requested:	Carbon-14					
8	SAMPLE	S09V000463	0	W	SOLID	20090325	C Farm WMA C
	Analytes Requested:	Carbon-14					
9	DUP	S09V000463	0	W	SOLID		
	Analytes Requested:	Carbon-14					
10	SPK	S09V000463	0		SOLID		
	Analytes Requested:	Carbon-14					
11	SAMPLE	S09V000470	0	W	SOLID	20090325	C Farm WMA C
	Analytes Requested:	Carbon-14					

Final Page for Batch# 00015935

Sue (chu-hsei) Lai 9-3-09
Analyst Signature **Date**

9/4/09
Data Entry Signature **Date**

9/8/09

Data Entry Comments:

S = Batch Slot Number, R = Retest Number, A = Aliquot Code.

Data Review Checklist

CALIBRATION OF LIQUID SCINTILLATION COUNTERS

INSTRUMENT # LSC 6500 WC 51586 PROCEDURES LA-508-121 LQ-150-115

BATCH # 15953 9/9/09 35

Review Items	--- Level 1 --- Yes	No	N/A	Level 2	Comments & Samples Affected
Efficiency Calibration					
1. Instrument calibration stds ^{3}H & ^{14}C run prior to quench curve calibration	✓			✓	
2. Unquenched bkg vial run before quench curve calibration	✓			✓	
3. Calibration performed per procedure LA-508-121	✓			✓	
4. Quench curve calibration had > 7 data points	✓			✓	
5. Quench range of calibration matches expected range of samples	✓			✓	
6. Quench calibration performed in mode where bkg is subtracted from each analysis	✓			✓	
7. Calibration had a second, independent check	✓			✓	
8. Any non-conformances are documented in maintnance notebook	✓			✓	
9. Calibration reports are pasted and signed in maintenance notebook	✓			✓	
Calibration Verification					
1. Instrument Control Std within limits before and after batch counted	✓			✓	
2. Bkg check within limits before and after batch counted	✓			✓	

1st Level Reviewer: John Relyea Date: 9 Sep 09

2nd Level Reviewer: R A Jones Date: 9 Sep 09

C-14 Worklist Traveler

Batch# 000 15935

Date/Time 9-3-09 / 13:50

STD/SPK Book#: ~~40B64~~ 15B64

SPK Vol. 1 mL

Matrix: Solid

Analyst: S.L.

Pipet ID #	Checked
4710792	☑
318512	☑
	☐

Det. # WC 51586

Check Std # Packard D

Cntng Pos.	Sam/Dup Type	Sample Number	Sample Vol(mL)	Dilution Factor
	Standard	S.L. 15B64 9-1-09 ~~40B64~~	1	1
	BLNK		5	1
	Sample	S09V000191	5	1
	Sample	S09V000405	5	1
	Sample	S09V000420	5	1
	Sample	S09V000437	5	1
	Sample	S09V000452	5	1
	Sample	S09V000463	5	1
	Duplicate	S09V000463	5	1
	Spike	S09V000463	5	1
	Sample	S09V000470	5	1

Comments: C-Farm WMA C

LABCORE Completed Batch Report for Batch# 00016243

Analyst: Lai, Sue **Book#:** 15B64

Instrument: LSC2 LS6000 B-1A

Method: CARBON-14, LA-348-104 Rev/Mod H-0

Specification: C Farm WMA C

Prep Batch: 00014910

Batch Comment: C-Farm WMA C Gp 20090160 for C-14 scl

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 STD	S0909230032		0 0		Carbon-14	SOLID	.001334	1.3155E-03			1.36E-06	uCi/g	98.61	% Recovery	
Sample Sequence 2															
2 BLNK-PREP	S0907090056		0 1	W	Carbon-14	LIQUID		<3.6457E-07			3.65E-07	uCi/mL			
Sample Sequence 3															
3 SAMPLE	S09V000187		0 1	W	Carbon-14	SOLID	N/A	<5.4456E-05			5.45E-05	uCi/g			U
Sample Sequence 4															
4 DUP	S0907090057	S09V000187	0 1	W	Carbon-14	SOLID	<5.4456E-05	<8.5554E-05			8.56E-05	uCi/g			
Sample Sequence 5															
5 SPK	S0909230033	S09V000187	0 0		Carbon-14	SOLID	.001334	1.3112E-03			5.45E-05	uCi/g	98.295	% Recovery	
Sample Sequence 6															
6 SAMPLE	S09V000188		0 1	W	Carbon-14	SOLID	N/A	<6.4484E-05			6.45E-05	uCi/g			U
Sample Sequence 7															
7 SAMPLE	S09V000189		0 1	W	Carbon-14	SOLID	N/A	<5.6705E-05			5.67E-05	uCi/g			U
Sample Sequence 8															
8 SAMPLE	S09V000190		0 1	W	Carbon-14	SOLID	N/A	<6.9328E-05			6.93E-05	uCi/g			U

Comments Section:

Data Flagger Status:
Flagging Completed

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016243

Final Page for Batch# 00016243

Marsha Beeson 10/09/2009

Reviewer Signature Date

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016243

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0909230032	STD				
2	S0907090056	BLNK-PREP				
3	S09V000187	SAMPLE		20090160	B1YT71	C Farm WMA C
4	S0907090057	DUP	S09V000187			
5	S0909230033	SPK	S09V000187			
6	S09V000188	SAMPLE		20090160	B1YT74	C Farm WMA C
7	S09V000189	SAMPLE		20090160	B1YT77	C Farm WMA C
8	S09V000190	SAMPLE		20090160	B1YT80	C Farm WMA C

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

Data Review Check List

Procedure LA-348-104 C-14

16243

Review Item	Level 1 Yes	Level 1 No	Level 1 N/A	Level 2	Comments and Samples Affected
Batch Items					
1. Was an LCS and blank run the batch?	X			X	
2. Was a duplicate and spike run with the batch?	X			X	
3. Was the book # of the standard (and spike) on the traveler?	X			X	
4. Was the batch traveler completed (sample #, dilution, aliquot size)?	X			X	
5. Were any line outs initialed and dated?	X			X	
6. Was balance check completed on the day of use (if used)?			X	X	
Result Items					
7. Was sample, traveler and counting data correct on ACE form?	X			X	
8. If No, was ACE form corrected?			X	X	
9. Did results etc. correctly up-load to LABCORE (OMNILims or MULTILims)?	X			X	
10. If No, was LABCORE corrected?			X	X	
11. Are result units correct?	X			X	
12. If No, were units corrected?			X	X	
13. Was data flagged?	X			X	
14. Are all flags present and correct?	X			X	
15. Are LCS results within limits (Lab's or customer's)?	X			X	
16. Are Spike results within limits (Lab's or customer's)?	X			X	
17. Is blank <MDC, or <5% isotope concentration, or <5% decision level?	X			X	
18. Are duplicate RPDs <20% (or RSD) within customer limits?			X	X	
19. Are the correct procedure number and Rev/Mod on the report?	X			X	
Procedure Speciffic Items					
20. Was the correct LSC program used for counting?	X			X	
21. Were the customer required detection or quantification limits met?	X			X	

1st Level Reviewer: [signature] **Date:** [illegible]

2nd Level Reviewer: [signature] **Date:** 10/09/2009

PM Reviewer: [signature] 11-10-2009

Data Review Checklist

CALIBRATION OF LIQUID SCINTILLATION COUNTERS

INSTRUMENT # LS 6000

BATCH # 16243

PROCEDURES LA-508-121 LQ-150-115

Review Items	--- Level 1 --- Yes	No	N/A	Level 2	Comments & Samples Affected
Efficiency Calibration					
1. Instrument calibration stds ^{3}H & ^{14}C run prior to quench curve calibration	✓				
2. Unquenched bkg vial run before quench curve calibration	✓				
3. Calibration performed per procedure LA-508-121	✓				
4. Quench curve calibration had > 7 data points	✓				
5. Quench range of calibration matches expected range of samples	✓				
6. Quench calibration performed in mode where bkg is subtracted from each analysis	✓				
7. Calibration had a second, independent check	✓				
8. Any non-conformances are documented in maintnance notebook	✓				
9. Calibration reports are pasted and signed in maintenance notebook	✓				
Calibration Verification					
1. Instrument Control Std within limits before and after batch counted	✓				
2. Bkg check within limits before and after batch counted	✓				

1st Level Reviewer: RA Jones Date: 25 Sep 09

2nd Level Reviewer: [illegible] Date: 26 Sept 09

9/23/2009 1:35:18PM
IncompleteBatchShort Version 2.7.26
batchreports 2.7.26

LABCORE Data Entry Template for Batch# 00016243

Analyst: H0003944 **Standard ID / Book#:** 15B64

Instrument:

Method: CARBON-14, LA-348-104 Rev/Mod ~~4-0~~ 4-0 SMC 10-8-09

Prep Batch: 00014910

Batch Comment: C-Farm WMA C Gp 20090160 for C-14 scl

CACN:200389

S	Type	Sample	R	A	Matrix	Group#	Project
1	STD		0		SOLID		
	Analytes Requested:	Carbon-14					
2	BLNK-PREP		1	W	LIQUID		
	Analytes Requested:	Carbon-14					
3	SAMPLE	S09V000187	1	W	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Carbon-14					
4	DUP	S09V000187	1	W	SOLID		
	Analytes Requested:	Carbon-14					
5	SPK	S09V000187	0		SOLID		
	Analytes Requested:	Carbon-14					
6	SAMPLE	S09V000188	1	W	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Carbon-14					
7	SAMPLE	S09V000189	1	W	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Carbon-14					
8	SAMPLE	S09V000190	1	W	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Carbon-14					

Final Page for Batch# 00016243

Sue (Chu-Mei) Lai 9-23-09
Analyst Signature **Date**

Em Baeke 9.30.09
Data Entry Signature **Date**

MC Breeman 10/7/09

Em Baeke 10.7.09

Data Entry Comments:

S = Batch Slot Number, R = Retest Number, A = Aliquot Code.

C-14 Worklist Traveler

Batch# 16243

Date/Time 9-23-09 / 15:45

Matrix: Solid

STD/SPK Book#: 15B64

SPK Vol. 1 ml

Analyst: S.L.

Pipet ID #	Checked
4710792	✓
318512	✓

Det. # WC 16085

Check Std # Packard 6008502 #2

Cntng Pos.	Sam/Dup Type	Sample Number	Sample Vol(mL)	Dilution Factor
	Standard	15B64	1	1
	BLNK		5	1
	Sample	S09V000187	5	1
	Duplicate	S09V000187	5	1
	Spike	S09V000187	5	1
	Sample	S09V000188	5	1
	Sample	S09V000189	5	1
	Sample	S09V000190	5	1

Comments: C-Farm WMA C Gp 20090160

LABCORE Completed Batch Report for Batch# 00015697

Analyst: Becan, Matthew **Book#:** 51B64

Instrument: LSC3 LS6500 B-1A

Method: NICKEL-63, LA-285-102 Rev/Mod D-0

Specification: C Farm WMA C

Prep Batch: 00015214

Batch Comment: C-Farm WMA C for Ni63. gll

Seq	Type	Sample#	Assoc. Sample	RepR		A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1																	
1	STD	S0908180029		0	0		Nickel-63	LIQUID	.00358	3.0616E-03		1	4.91E-06	uCi/mL	85.521	% Recovery	
1	STD	S0908180029		0	0		Nickel-C	LIQUID		94.376				% Recovery	N/A		
Sample Sequence 2																	
2	BLNK-PREP	S0907270034		0	0	E	Nickel-63	SOLID		<6.1385E-05			6.14E-05	uCi/g			
2	BLNK-PREP	S0907270034		0	0	E	Nickel-C	SOLID		97.137				% Recovery			
Sample Sequence 3																	
3	SAMPLE	S09V000203		0	0	E	Nickel-63	SOLID	N/A	<6.8512E-05			6.85E-05	uCi/g			U
3	SAMPLE	S09V000203		0	0	E	Nickel-C	SOLID		113.42				% Recovery			
Sample Sequence 4																	
4	SAMPLE	S09V000204		0	0	E	Nickel-63	SOLID	N/A	<6.9077E-05			6.91E-05	uCi/g			U
4	SAMPLE	S09V000204		0	0	E	Nickel-C	SOLID		102.44				% Recovery			
Sample Sequence 5																	
5	SAMPLE	S09V000205		0	0	E	Nickel-63	SOLID	N/A	<5.4802E-05			5.48E-05	uCi/g			U
5	SAMPLE	S09V000205		0	0	E	Nickel-C	SOLID		103.37				% Recovery			
Sample Sequence 6																	
6	DUP	S0907270035	S09V000205	0	0	E	Nickel-63	SOLID	<5.4802E-05	<6.7644E-05			6.76E-05	uCi/g			
6	DUP	S0907270035	S09V000205	0	0	E	Nickel-C	SOLID	103.37	105.93				% Recovery			
Sample Sequence 7																	
7	SAMPLE	S09V000206		0	0	E	Nickel-63	SOLID	N/A	<5.9901E-05			5.99E-05	uCi/g			U
7	SAMPLE	S09V000206		0	0	E	Nickel-C	SOLID		101.46				% Recovery			
Sample Sequence 8																	
8	SAMPLE	S09V000207		0	0	E	Nickel-63	SOLID	N/A	<8.5014E-05			8.50E-05	uCi/g			U
8	SAMPLE	S09V000207		0	0	E	Nickel-C	SOLID		97.874				% Recovery			

Comments Section:

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00015697

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00015697

Reviewer Signature Date 20 Oct 09

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00015697

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0908180029	STD				
2	S0907270034	BLNK-PREP				
3	S09V000203	SAMPLE		20090160	B1YT71	C Farm WMA C
4	S09V000204	SAMPLE		20090160	B1YT74	C Farm WMA C
5	S09V000205	SAMPLE		20090160	B1YT77	C Farm WMA C
6	S0907270035	DUP	S09V000205			
7	S09V000206	SAMPLE		20090160	B1YT80	C Farm WMA C
8	S09V000207	SAMPLE		20090160	B1YT83	C Farm WMA C

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

Data Review Check List

Procedure LA-285-102 NI-63

15697

Review Item	Level 1 Yes	Level 1 No	Level 1 N/A	Level 2	Comments and Samples Affected
Batch Items					
1. Was an LCS and blank run the batch?	x			√	
2. Was a duplicate run with the batch?	x			√	
2a Was a spike run with the batch?		x		√	Not requested
3. Was the book # of the standard and carrier (and spike) on the traveler?	x			√	
4. Was the batch traveler completed (sample #, dilution, aliquot size)?	x			√	
5. Were any line outs initialed and dated?	x			√	
6. Was balance check completed on the day of use (if used)?			x	√	
Result Items					
7. Was sample, traveler and counting data correct on ACE form?	x			√	
8. If No, was ACE form corrected?	x			√	
9. Did results etc. correctly up-load to LABCORE (OMNILims or MULTILims)?	x			√	
10. If No, was LABCORE corrected?			x	√	
11. Are result units correct?	x			√	
12. If No, were units corrected?			x	√	
13. Was data flagged?	x			√	
14. Are all flags present and correct?	x			√	
15. Are LCS results within limits (Lab's or customer's)?	x			√	
16. Are Spike results within limits (Lab's or customer's)?			x	√	
17. Is blank <MDC, or <5% isotope concentration, or <5% decision level?	x			√	
18. Are duplicate RPDs <20% (or RSD) within customer limits?			x	√	
19. Are the correct procedure number and Rev/Mod on the report?	x			√	
Procedure Speciffic Items					
20. Was the correct LSC program used for counting?	x			√	
21. Are carrier recoveries between 30% and 110%?		x		√	Sample 203, still a less then value
22. Were the customer required detection or quantification limits met?	x			√	

1st Level Reviewer: Matthew Brown **Date:** 10/19/2009

2nd Level Reviewer: [illegible] **Date:** 10-20-09

PM Rewin [illegible] 10-29/09

Data Review Checklist

CALIBRATION OF LIQUID SCINTILLATION COUNTERS

INSTRUMENT # LSC 6500 WC51586

PROCEDURES LA-508-121 LQ-150-115

BATCH # 15697

Review Items	--- Level 1 --- Yes	No	N/A	Level 2	Comments & Samples Affected
Efficiency Calibration					
1. Instrument calibration stds ^{3}H & ^{14}C run prior to quench curve calibration	✓			✓	
2. Unquenched bkg vial run before quench curve calibration	✓			✓	
3. Calibration performed per procedure LA-508-121	✓			✓	
4. Quench curve calibration had > 7 data points	✓			✓	
5. Quench range of calibration matches expected range of samples	✓			✓	
6. Quench calibration performed in mode where bkg is subtracted from each analysis	✓			✓	
7. Calibration had a second, independent check.	✓			✓	
8. Any non-conformances are documented in maintnance notebook	✓			✓	
9. Calibration reports are pasted and signed in maintenance notebook	✓			✓	
Calibration Verification					
1. Instrument Control Std within limits before and after batch counted	✓			✓	
2. Bkg check within limits before and after batch counted	✓			✓	

1st Level Reviewer: John Relyea Date: 14 Oct 09

2nd Level Reviewer: RAJ Date: 14 Oct 09

10/7/2009 2:41:47PM
IncompleteBatchShort Version 2.7.26
batchreports 2.7.26

LABCORE Data Entry Template for Batch# 00015697

Analyst:

Standard ID / Book#: 51B64

Instrument:

Method: NICKEL-63, LA-285-102 Rev/Mod 0/0

Prep Batch: 00015214

Batch Comment: C-Farm WMA C for Ni63. gll

CACN:200389

S	Type	Sample	R	A	Matrix	Group#	Project
1	STD		0		LIQUID		
	Analytes Requested:	Nickel-63, Nickel-C					
2	BLNK-PREP		0	E	SOLID		
	Analytes Requested:	Nickel-63, Nickel-C					
3	SAMPLE	S09V000203	0	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Nickel-63, Nickel-C					
4	SAMPLE	S09V000204	0	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Nickel-63, Nickel-C					
5	SAMPLE	S09V000205	0	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Nickel-63, Nickel-C					
6	DUP	S09V000205	0	E	SOLID		
	Analytes Requested:	Nickel-63, Nickel-C					
7	SAMPLE	S09V000206	0	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Nickel-63, Nickel-C					
8	SAMPLE	S09V000207	0	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Nickel-63, Nickel-C					

Final Page for Batch# 00015697

Matthew Berry 10/06/2009
Analyst Signature **Date**

10/06/09

M C Brown 10/15/09
Data Entry Signature **Date**

10.15.09

Data Entry Comments:

S = Batch Slot Number, R = Retest Number, A = Aliquot Code.

Ni-63 Traveler (Counting)

Batch# 15697

Analyst MAB

Date/Time delivered @ Elev 10 / 6 / 2009 1415

Pipet ID #	Checked
3240861	☑
451547	☑
	☐

Nickel Carrier Book #	127N14B
Nickel Carrier Concentration	1983
Nickel Carrier Volume 1mL	

Spike# NA

Spike Vol. NA

Check Std# Packard 6008502-2

Sample Type	Sample Number	Sample Size	Dilution Factor	From ICP: Ni Concentration After Sep	From ICP: Ni Concentration Original Sample	Counting Position Number
Standard	51B64	1 ml	1	187.146908	~~0~~ MS 10/15/9	3
Blnk		1	1	192.622910	0	4
Sample	S09V000203	1	1	225.012645	.83923	5
Sample	S09V000204	1	1	203.261272	1.25653	6
Sample	S09V000205	1	1	205.219175	2.21794	7
Duplicate	S09V000205	1	1	210.293018	2.30022	8
Sample	S09V000206	1	1	201.349676	1.52208	9
Sample	S09V000207	1	1	194.222823	1.47542	10

Comments: C-Farm WMA C

Page 1 of 1

LABCORE Completed Batch Report for Batch# 00016203

Analyst: Catlow, Stanley **Book#:** 82B64

Instrument: GEA07 B-1A

Method: IODINE-129 in SOIL, LA-378-105 Rev/Mod C-0

Specification: C Farm WMA C

Prep Batch:

Batch Comment: C Farm MWA C for Gp 20090160 sac

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 STD	S0909210037		0	0	Iodine-129	SOLID	.003197	2.9223E-03		3.4	9.29E-06	uCi/g	91.407	% Recovery	
1 STD	S0909210037		0	0	Iodine-C	SOLID		52.185				% Recovery	N/A		
Sample Sequence 2															
2 BLNK	S0909210038		0	0	Iodine-129	SOLID		<2.7404E-07			2.74E-07	uCi/g			
2 BLNK	S0909210038		0	0	Iodine-C	SOLID		54.155				% Recovery			
Sample Sequence 3															
3 SAMPLE	S09V000171		0	0	Iodine-129	SOLID	N/A	<2.3830E-07			2.38E-07	uCi/g			U
3 SAMPLE	S09V000171		0	0	Iodine-C	SOLID		56.452				% Recovery			
Sample Sequence 4															
4 SAMPLE	S09V000172		0	0	Iodine-129	SOLID	N/A	<2.0209E-07			2.02E-07	uCi/g			U
4 SAMPLE	S09V000172		0	0	Iodine-C	SOLID		60.719				% Recovery			
Sample Sequence 5															
5 SAMPLE	S09V000173		0	0	Iodine-129	SOLID	N/A	<1.9193E-07			1.92E-07	uCi/g			U
5 SAMPLE	S09V000173		0	0	Iodine-C	SOLID		67.611				% Recovery			
Sample Sequence 6															
6 DUP	S0909210039	S09V000173	0	0	Iodine-129	SOLID	<1.9193E-07	<2.1280E-07			2.13E-07	uCi/g			
6 DUP	S0909210039	S09V000173	0	0	Iodine-C	SOLID	67.611	54.155				% Recovery			
Sample Sequence 7															
7 SAMPLE	S09V000174		0	0	Iodine-129	SOLID	N/A	<1.9465E-07			1.95E-07	uCi/g			U
7 SAMPLE	S09V000174		0	0	Iodine-C	SOLID		61.703				% Recovery			
Sample Sequence 8															
8 SAMPLE	S09V000175		0	0	Iodine-129	SOLID	N/A	<2.4231E-07			2.42E-07	uCi/g			U
8 SAMPLE	S09V000175		0	0	Iodine-C	SOLID		50.544				% Recovery			

Comments Section:

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N. A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016203

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00016203

Reviewer Signature 10/6/2009
Date

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N. A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00016203

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0909210037	STD				
2	S0909210038	BLNK				
3	S09V000171	SAMPLE		20090160	B1YT71	C Farm WMA C
4	S09V000172	SAMPLE		20090160	B1YT74	C Farm WMA C
5	S09V000173	SAMPLE		20090160	B1YT77	C Farm WMA C
6	S0909210039	DUP	S09V000173			
7	S09V000174	SAMPLE		20090160	B1YT80	C Farm WMA C
8	S09V000175	SAMPLE		20090160	B1YT83	C Farm WMA C

Data Review Check List

Procedure LA-378-103, 104 I-129

16203

Review Item	Level 1 Yes	Level 1 No	Level 1 N/A	Level 2	Comments and Samples Affected
Batch Items					
1. Was an LCS and blank run the batch?	X			X	
2. Was a duplicate run with the batch?	X			X	
2a. Was a spike run with the batch?		X		X	Not requested.
3. Was the book # of the standard (and spike) on the traveler?	X			X	
4. Was the batch traveler completed (sample #, dilution, aliquot size)?	X			X	
5. Were any line outs initialed and dated?	X			X	
6. Was balance check completed on the day of use (if used)?	X			X	
Result Items					
7. Was sample, traveler and counting data correct on ACE form?	X			X	
8. If No, was ACE form corrected?			X	X	
9. Did results etc. correctly up-load to LABCORE (OMNILims or MULTILims)?	X			X	
10. If No, was LABCORE corrected?			X	X	
11. Are result units correct?	X			X	
12. If No, were units corrected?			X	X	
13. Was data flagged?	X			X	
14. Are all flags present and correct?	X			X	
15. Are LCS results within limits (Lab's or customer's)?	X			X	
16. Are Spike results within limits (Lab's or customer's)?			X	X	
17. Is blank <MDC, or <5% isotope concentration, or <5% decision level?	X			X	
18. Are duplicate RPDs <20% (or RSD) within customer limits?			X	X	
19. Are the correct procedure number and Rev/Mod on the report?	X			X	
Procedure Speciffic Items					
20. Were carrier recoveries between 30% and 110%?	X			X	
21. Were the customer required detection or quantification limits met?	X			X	
22. Were any results at or above customer notification limits?			X	X	
23. If yes, was the PC notified?				X	

1st Level Reviewer: S A Cattan **Date:** 5 Oct 09

2nd Level Reviewer: Maureen Becan **Date:** 10/6/2009

QM Reviewer: Gerald P Peterson 10-9-2009

Data Review Check List

Procedure LQ-508-105 Calibration of the Genie 2000 Gamma Energy Analysis System

Batch: 16203 Instrument: GEA 07

	Review Item	Level 1 Yes	Level 1 No	Level 1 N/A	Level 2	Comments & Samples Affected
	Standard Reference Material					
1	Was the certificate from standards lab checked for accuracy?	✓			✓	
2	Were the standard activities verified on an appropriate detector?	✓			✓	
3	Were the results sent to standards lab for standard approval?	✓			✓	
4	Is the Standards Laboratory Certificate data correctly entered as a certificate file?	✓			✓	
	Spectrum Collection					
5	Was the Instrument Check Standard counted and within limits before obtaining the calibration spectrum?	✓			✓	
6	Did the file name correspond to the convention specified by the calibration procedure?	✓			✓	
7	Was the CALIB library selected for peak and nuclide ID?	✓			✓	
8	Was the correct decay date entered?	✓			✓	
	Energy Calibration					
9	Are there a minimum of 5 peaks evenly spread over the energy region of interest?	✓			✓	
10	For an initial calibration was a full energy and shape calibration performed?	✓			✓	
11	Did all the peaks fit the energy vs channel graph?	✓			✓	
12	Was a graphical report printed for energy vs channel for the log book?	✓			✓	
13	If this was a full energy and peak shape calibration, was a graphical report printed of the full width half max and low tail shape fitting?	✓			✓	
	Efficiency Calibration					
14	Do the error bars for all isotopes encompass the calibration curve?	✓			✓	
15	Was a graphical report printed for energy vs efficiency for the log book?	✓			✓	
	Calibration Check	✓			✓	
16	Was the average radionuclide recovery for the recalcuclated calibration spectrum within 5% (1.96 Standard Deviations) of the mean standard value?	✓			✓	
17	Are all graphical reports posted in the detector log book and signed by the chemist?	✓			✓	
	Data Review					
18	Instrument check standards in limits before and after	✓			✓	
19	Background counts before and after are satisfactory	✓			✓	
20	Batch standard within limits	✓			✓	
21	Dead time below limits	✓			✓	
22	Decay correction applied where necessary	✓			✓	
23	Falsely identified radionuclides lined out and initialled	✓			✓	

1st Level Reviewer: John Relyea **Date:** 28 Sep 09

2nd Level Reviewer: RA Jones **Date:** 28 Sep 09

I-129 SOLIDS Worklist Traveler

Sample Mounting Data

Batch# 16203

Matrix Solid

Counting Rm Data

Analyst SAC

Date/Time 9/25/09 0945

Det # 7

Standard/Spike# 82B64

Spike Vol. 1 mL

Carrier ID 44N25D

Carrier Vol. 0.1 mL

Balance ID # ~~LE~~ LE-BAL-078

Balance check completed ☑ Sme 9/25/09

Check Std # 122B59-B

Pipet ID #	Checked
4976662	☑
3555165	☑
	☐

Sample Type	Sample Number	Sample Size in grams	Gross Weight	Tare Weight	Spectrum Number
Standard		1 mL	2.7100	2.6941	797186
Blank		9.3661	2.7181	2.7016	7g 7187
Sample	S09V000171	9.3661	2.7274	2.7102	7g 7188
Sample	S09V000172	10.1056	2.7229	2.7044	7g 7189
Sample	S09V000173	9.7870	2.7199	2.6993	7g 7190
Duplicate	S09V000173	10.7601	2.7218	2.7053	7g 7191
Sample	S09V000174	11.1562	2.7198	2.7010	7g 7192
Sample	S09V000175	10.2880	2.7111	2.6957	7g 7193

Comments: C Farm WMA C Gp 20090160

Page 1 of 1

LABCORE Data Entry Template for Batch# 00016203

Analyst:

Standard ID / Book#: 82B64

Instrument:

Method: IODINE-129 in SOIL, LA-378-105 Rev/Mod C-0

Prep Batch:

Batch Comment: C Farm MWA C for Gp 20090160 sac

CACN:200389

S	Type	Sample	R	A	Matrix	Group#	Project
1	STD		0		SOLID		
	Analytes Requested:	Iodine-129, Iodine-C					
2	BLNK		0		SOLID		
	Analytes Requested:	Iodine-129, Iodine-C					
3	SAMPLE	S09V000171	0		SOLID	20090160	C Farm WMA C
	Analytes Requested:	Iodine-129, Iodine-C					
4	SAMPLE	S09V000172	0		SOLID	20090160	C Farm WMA C
	Analytes Requested:	Iodine-129, Iodine-C					
5	SAMPLE	S09V000173	0		SOLID	20090160	C Farm WMA C
	Analytes Requested:	Iodine-129, Iodine-C					
6	DUP	S09V000173	0		SOLID		
	Analytes Requested:	Iodine-129, Iodine-C					
7	SAMPLE	S09V000174	0		SOLID	20090160	C Farm WMA C
	Analytes Requested:	Iodine-129, Iodine-C					
8	SAMPLE	S09V000175	0		SOLID	20090160	C Farm WMA C
	Analytes Requested:	Iodine-129, Iodine-C					

Final Page for Batch# 00016203

Analyst Signature — Date: 25 Sept 09

Data Entry Signature — Date: 9/28/9

Em Barela 9.28.09

Data Entry Comments:

S = Batch Slot Number, R = Retest Number, A = Aliquot Code.

LABCORE Completed Batch Report for Batch# 00015316

Analyst: Lai, Sue **Book#:** 31B64

Instrument: A/B Detector 13 B-1A

Method: AMERICIUM, LA-953-104 Rev/Mod H-1

Specification: C Farm WMA C

Prep Batch: 00015214

Batch Comment: C-Farm WMA C for AM scl

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 STD	S0907300027		0 0		Americium-241	SOLID	.0000755	7.7319E-05		6.73	9.28E-06	uCi/mL	102.41	% Recovery	
1 STD	S0907300027		0 0		Americium-243T	SOLID		91.526				% Recovery	N/A		
Sample Sequence 2															
2 BLNK-PREP	S0907270034		0 0	E	Curium-243/244	SOLID		<4.0146E-07			4.01E-07	uCi/g			
2 BLNK-PREP	S0907270034		0 0	E	Americium-241	SOLID		<1.0037E-06			1.00E-06	uCi/g			
2 BLNK-PREP	S0907270034		0 0	E	Americium-243T	SOLID		83.732				% Recovery			
2 BLNK-PREP	S0907270034		0 0	E	Curium-242	SOLID		<4.0146E-07			4.01E-07	uCi/g			
Sample Sequence 3															
3 SAMPLE	S09V000203		0 0	E	Curium-243/244	SOLID	N/A	<4.5970E-07			4.60E-07	uCi/g			U
3 SAMPLE	S09V000203		0 0	E	Americium-241	SOLID	N/A	2.2038E-06		12.87	1.15E-06	uCi/g			
3 SAMPLE	S09V000203		0 0	E	Americium-243T	SOLID		84.106				% Recovery			
3 SAMPLE	S09V000203		0 0	E	Curium-242	SOLID	N/A	<4.5970E-07			4.60E-07	uCi/g			U
Sample Sequence 4															
4 SAMPLE	S09V000204		0 0	E	Curium-243/244	SOLID	N/A	<3.9007E-07			3.90E-07	uCi/g			U
4 SAMPLE	S09V000204		0 0	E	Americium-241	SOLID	N/A	1.3876E-06		16.21	9.75E-07	uCi/g			
4 SAMPLE	S09V000204		0 0	E	Americium-243T	SOLID		96.141				% Recovery			
4 SAMPLE	S09V000204		0 0	E	Curium-242	SOLID	N/A	<3.9007E-07			3.90E-07	uCi/g			U
Sample Sequence 5															
5 SAMPLE	S09V000205		0 0	E	Curium-243/244	SOLID	N/A	<3.9526E-07			3.95E-07	uCi/g			U
5 SAMPLE	S09V000205		0 0	E	Americium-241	SOLID	N/A	<9.8815E-07			9.88E-07	uCi/g			U
5 SAMPLE	S09V000205		0 0	E	Americium-243T	SOLID		89.2				% Recovery			
5 SAMPLE	S09V000205		0 0	E	Curium-242	SOLID	N/A	<3.9526E-07			3.95E-07	uCi/g			U
Sample Sequence 6															
6 DUP	S0907270035	S09V000205	0 0	E	Curium-243/244	SOLID	<3.9526E-07	<3.9666E-07			3.97E-07	uCi/g			
6 DUP	S0907270035	S09V000205	0 0	E	Americium-241	SOLID	<9.8815E-07	<9.9165E-07			9.92E-07	uCi/g			
6 DUP	S0907270035	S09V000205	0 0	E	Americium-243T	SOLID	89.2	83.473				% Recovery			
6 DUP	S0907270035	S09V000205	0 0	E	Curium-242	SOLID	<3.9526E-07	<3.9666E-07			3.97E-07	uCi/g			
Sample Sequence 7															
7 SAMPLE	S09V000206		0 0	E	Curium-243/244	SOLID	N/A	<4.0031E-07			4.00E-07	uCi/g			U
7 SAMPLE	S09V000206		0 0	E	Americium-241	SOLID	N/A	<1.0008E-06			1.00E-06	uCi/g			U

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00015316

Seq	Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
7	SAMPLE	S09V000206		0 0	E	Americium-243T	SOLID		84.781				% Recovery			
7	SAMPLE	S09V000206		0 0	E	Curium-242	SOLID	N/A	<4.0031E-07			4.00E-07	uCi/g			U
Sample Sequence 8																
8	SAMPLE	S09V000207		0 0	E	Curium-243/244	SOLID	N/A	<4.3854E-07			4.39E-07	uCi/g			U
8	SAMPLE	S09V000207		0 0	E	Americium-241	SOLID	N/A	<1.0964E-06			1.10E-06	uCi/g			U
8	SAMPLE	S09V000207		0 0	E	Americium-243T	SOLID		78.647				% Recovery			
8	SAMPLE	S09V000207		0 0	E	Curium-242	SOLID	N/A	<4.3854E-07			4.39E-07	uCi/g			U

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00015316

Heather Becan 8/6/09

Reviewer Signature **Date**

LABCORE Completed Batch Report for Batch# 00015316

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0907300027	STD				
2	S0907270034	BLNK-PREP				
3	S09V000203	SAMPLE		20090160	B1YT71	C Farm WMA C
4	S09V000204	SAMPLE		20090160	B1YT74	C Farm WMA C
5	S09V000205	SAMPLE		20090160	B1YT77	C Farm WMA C
6	S0907270035	DUP	S09V000205			
7	S09V000206	SAMPLE		20090160	B1YT80	C Farm WMA C
8	S09V000207	SAMPLE		20090160	B1YT83	C Farm WMA C

Data Review Check List

Procedure LA-953-104 Pu/Am

Batch # 15316

Review Item	Yes	No	N/A	Level 2	Comments and Samples Affected
Batch Items					
1. Was an LCS and blank run the batch?	X			√	
2. Was a duplicate run with the batch?	X			√	
2.a Was a spike run with the batch?		X		√	Not requested.
3. Was the book # of the standard and tracer (and spike) on the traveler?	X			√	
4. Was the batch traveler completed (sample #, dilution, aliquot size)?	X			√	
5. Were any line outs initialed and dated?	X			√	
6. Was balance check completed on the day of use (if used)?			X	√	
Result Items					
7. Was sample, traveler and counting data correct on ACE form?	X			√	
8. If No, was ACE form corrected?			X	√	
9. Did results etc. correctly up-load to LABCORE (OMNILims or MULTILims)?	X			√	
10. If No, was LABCORE corrected?			X	√	
11. Are result units correct?	X			√	
12. If No, were units corrected?			X	√	
13. Was data flagged?	X			√	
14. Are all flags present and correct?	X			√	
15. Are LCS results within limits (Lab's or customer's)?	X			√	
16. Are Spike results within limits (Lab's or customer's)?			X	√	
17. Is blank <MDC, or <5% isotope concentration, or <5% decision level?	X			√	
18. Are duplicate RPDs <20% (or RSD) within customer limits?			X	√	
19. Are the correct procedure number and Rev/Mod on the report?	X			√	
Procedure Speciffic Items					
20. Were tracer recoveries between 30% and 120%?	X			√	
21. Were the customer required detection or quantification limits met?	X			√	

1st Level Reviewer: S A Cathey **Date:** 6 Aug 09

2nd Level Reviewer: Jonathan Beccard **Date:** 8/6/09

PM Reviewer: Dill Ritenour 10-5-09

Data Review Checklist

CALIBRATION OF GAS FLOW PROPORTIONAL COUNTER

INSTRUMENT # AB 13

BATCH # 15316

PROCEDURES LQ-508-102 LQ-150-115

Review Items	--- Level 1 --- Yes	No	N/A	Level 2	Comments & Samples Affected
Initial Calibration (Plateau generation) and Cross Talk					
1. The PP-10 gas flow rate was 0.1 +/- 0.05 SCFH	✓			✓	
2. Plateau generated before initial calibration or after major maintenance activity	✓			✓	
3. Final plateau has step voltages < 25 V within +/- 50 V of operating value	✓			✓	
4. There were > 5000 counts collected per point near the knee of each plateau	✓			✓	
5. The required raw data is in maintenance notebook	✓			✓	
6. Any non-conformances are documented in maintnance notebook	✓			✓	
7. At least 125,000 counts collected for the cross talk determinations	✓			✓	
8. Crosstalk of alpha into beta is < 10 %	✓			✓	
9. Crosstalk of beta into alpha is < 1 %	✓			✓	
Efficiency Calibration					
1. Calibration sources are NIST traceable & verified with 2nd source	✓			✓	
2. The PP-10 gas flow rate was 0.1 +/- 0.05 SCFH	✓			✓	
3. Plateau V checked/adjusted before calibration	✓			✓	
4. The required raw data is in maintenance notebook	✓			✓	
5. The alpha and beta efficiencies were calculated per procedure LQ-508-002	✓			✓	
6. Calibration had a second, independent check.	✓			✓	
7. Non-conformances are documented	✓			✓	
8. Calibrations are verified by second technical staff member	✓			✓	
9. Calibrations signed off by Counting Room Manager	✓			✓	
10. Efficiency tables for automated calculation were updated.	✓			✓	
Calibration Verification					
1. Instrument Control Std within limits before and after batch counted	✓			✓	
2. Bkg check within limits before and after batch counted	✓			✓	

1st Level Reviewer: John Relyea Date: 4 Aug 09

2nd Level Reviewer: R Jones Date: 4 Aug 09

Data Review Checklist

ENERGY CALIBRATION OF ALPHA SPECTROMETERS

INSTRUMENT # AEA 10, 11, 12, 15 to 19

PROCEDURES LA-508-161 LQ-150-115

BATCH # 15316

Review Items	--- Level 1 --- Yes	No	N/A	Level 2	Comments & Samples Affected
Energy Calibration					
1. Alpha Spectrometer was energy calibrated with a std having > two peaks	✓			✓	
2. Energy Calibration spectrum had clearly resolvable peaks	✓			✓	
3. Energy range of peaks in calibration std encompasses alpha energies expected in samples	✓			✓	
Calibration Verification					
1. Instrument Control Std within limits for all peaks before batch counted	✓			✓	
2. Bkg check within limits and performed < one week ago	✓			✓	

1st Level Reviewer: [signature] Date: 4 Aug 09

2nd Level Reviewer: [signature] Date: 4 Aug 09

7/30/2009 1:56:00PM
IncompleteBatchShort Version 2.7.26
batchreports 2.7.26

LABCORE Data Entry Template for Batch# 00015316

Analyst: H0003944 **Standard ID / Book#:** 31864

Instrument:

Method: AMERICIUM, LA-953-104 Rev/Mod H-I

Prep Batch: 00015214

Batch Comment: C-Farm WMA C for AM scl

CACN:200389

S	Type	Sample	R	A	Matrix	Group#	Project
1	STD		0		SOLID		
	Analytes Requested:	Americium-241, Americium-243T					
2	BLNK-PREP		0		SOLID		
	Analytes Requested:	Americium-241, Americium-243T, Curium-242, Curium-243/244					
3	SAMPLE	S09V000203	0	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Americium-241, Americium-243T, Curium-242, Curium-243/244					
4	SAMPLE	S09V000204	0	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Americium-241, Americium-243T, Curium-242, Curium-243/244					
5	SAMPLE	S09V000205	0	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Americium-241, Americium-243T, Curium-242, Curium-243/244					
6	DUP	S09V000205	0	E	SOLID		
	Analytes Requested:	Americium-241, Americium-243T, Curium-242, Curium-243/244					
7	SAMPLE	S09V000206	0	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Americium-241, Americium-243T, Curium-242, Curium-243/244					
8	SAMPLE	S09V000207	0	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Americium-241, Americium-243T, Curium-242, Curium-243/244					

Final Page for Batch# 00015316

Sue (Chu-Mei) Lai 8-3-09
Analyst Signature **Date**

M G Brown 8/4/9
Data Entry Signature **Date**

EM Banks 8.4.09

Data Entry Comments:

S = Batch Slot Number, R = Retest Number, A = Aliquot Code.

Americium Data Collection Sheet (LA-953-104)

Batch# 15316

Analyst S.L.

Pipet ID No.	Checked
4561245	☑
4653515	☑
4561995	☑
4652915	✓

Analysis Date 8-3-09

Analysis Time 11:25 8-3-09

Standard Book # 31B64

Spike Book # N/A

Spike Volume N/A

Matrix Solid

Tracer Book No. 112B59

Detector No. 13

Bkg CPM 0.12

Count Time 30

Alpha Check STD # 34B64-B

Comments: C-Farm WMA C for Am

Sample Type	Sample Number	Dilution Factor	Sam. Vol Analyzed (mL)	Tracer Vol. (mL)	AT Total Counts	AT Tray#	AEA Spectra No.	AEA Check. Standard No.
Standard		1	0.1	0.100	359	1	1065	65B53-B
Blank		1	5	0.100	171	2	1154	16B53A
Sample	S09V000203	1	5	0.100	197	3	1229	37B30A
Sample	S09V000204	1	5	0.100	211	4	1569	65B53-A
Sample	S09V000205	1	5	0.100	178	5	1628	65B53-B
Duplicate	S09V000205	1	5	0.100	173	6	1703	16B53A
Sample	S09V000206	1	5	0.100	174	7	1883	37B30A
Sample	S09V000207	1	5	0.100	161	8	1937	16B53-B

may not reflect the actual units.

8/6/2009 10:34:52AM
CompleteBatch Version 2.7.25
batchreports 2.7.26

LABCORE Completed Batch Report for Batch# 00015315

Analyst: Lai, Sue **Book#:** 31B64

Instrument: A/B Detector 23 B-1A

Method: PLUTONIUM, LA-953-104 Rev/Mod H-1

Specification: C Farm WMA C

Prep Batch: 00015214

Batch Comment: C-Farm ~~VMA~~ WMA C for PU scl
YAB 8/12/09

Seq Type	Sample#	Assoc. Sample	RepR	A	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1															
1 STD	S0907300024		0 0		Pu-239/240	SOLID	.0000972	9.3372E-05		5.95	7.49E-06	uCi/mL	96.061	% Recovery	
1 STD	S0907300024		0 0		Plutonium-236T	SOLID		77.096				% Recovery	N/A		
Sample Sequence 2															
2 BLNK-PREP	S0907270034		0 0	E	Pu-239/240	SOLID		<7.2380E-07			7.24E-07	uCi/g			
2 BLNK-PREP	S0907270034		0 0	E	Plutonium-236T	SOLID		78.028				% Recovery			
2 BLNK-PREP	S0907270034		0 0	E	Plutonium-238	SOLID		<7.2380E-07			7.24E-07	uCi/g			
Sample Sequence 3															
3 SAMPLE	S09V000203		0 0	E	Pu-239/240	SOLID	N/A	1.0736E-05		6.9	1.10E-06	uCi/g			
3 SAMPLE	S09V000203		0 0	E	Plutonium-236T	SOLID		81.515				% Recovery			
3 SAMPLE	S09V000203		0 0	E	Plutonium-238	SOLID	N/A	<1.0975E-06			1.10E-06	uCi/g			U
Sample Sequence 4															
4 SAMPLE	S09V000204		0 0	E	Pu-239/240	SOLID	N/A	<6.7667E-07			6.77E-07	uCi/g			U
4 SAMPLE	S09V000204		0 0	E	Plutonium-236T	SOLID		90.843				% Recovery			
4 SAMPLE	S09V000204		0 0	E	Plutonium-238	SOLID	N/A	<6.7667E-07			6.77E-07	uCi/g			U
Sample Sequence 5															
5 SAMPLE	S09V000205		0 0	E	Pu-239/240	SOLID	N/A	<6.1519E-07			6.15E-07	uCi/g			U
5 SAMPLE	S09V000205		0 0	E	Plutonium-236T	SOLID		94.156				% Recovery			
5 SAMPLE	S09V000205		0 0	E	Plutonium-238	SOLID	N/A	<6.1519E-07			6.15E-07	uCi/g			U
Sample Sequence 6															
6 DUP	S0907270035	S09V000205	0 0	E	Pu-239/240	SOLID	<6.1519E-07	<5.4857E-07			5.49E-07	uCi/g			
6 DUP	S0907270035	S09V000205	0 0	E	Plutonium-236T	SOLID	94.156	104.55				% Recovery			
6 DUP	S0907270035	S09V000205	0 0	E	Plutonium-238	SOLID	<6.1519E-07	<5.4857E-07			5.49E-07	uCi/g			
Sample Sequence 7															
7 SAMPLE	S09V000206		0 0	E	Pu-239/240	SOLID	N/A	<5.8233E-07			5.82E-07	uCi/g			U
7 SAMPLE	S09V000206		0 0	E	Plutonium-236T	SOLID		95.203				% Recovery			
7 SAMPLE	S09V000206		0 0	E	Plutonium-238	SOLID	N/A	<5.8233E-07			5.82E-07	uCi/g			U
Sample Sequence 8															
8 SAMPLE	S09V000207		0 0	E	Pu-239/240	SOLID	N/A	<6.9936E-07			6.99E-07	uCi/g			U
8 SAMPLE	S09V000207		0 0	E	Plutonium-236T	SOLID		84.46				% Recovery			
8 SAMPLE	S09V000207		0 0	E	Plutonium-238	SOLID	N/A	<6.9936E-07			6.99E-07	uCi/g			U

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed Batch Report for Batch# 00015315

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00015315

Timothy Beeson 8/12/2009

Reviewer Signature **Date**

Units shown for QC (BLK/BKG) may not reflect the actual units.

LABCORE Completed Batch Report for Batch# 00015315

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S0907300024	STD				
2	S0907270034	BLNK-PREP				
3	S09V000203	SAMPLE		20090160	B1YT71	C Farm WMA C
4	S09V000204	SAMPLE		20090160	B1YT74	C Farm WMA C
5	S09V000205	SAMPLE		20090160	B1YT77	C Farm WMA C
6	S0907270035	DUP	S09V000205			
7	S09V000206	SAMPLE		20090160	B1YT80	C Farm WMA C
8	S09V000207	SAMPLE		20090160	B1YT83	C Farm WMA C

Units shown for QC (BLK/BKG) may not reflect the actual units.

* = Rejected Analyte
N, A = Non-reported Analyte

Data Review Check List

Procedure LA-953-104 Pu/Am

Batch # 15315

Review Item	Yes	No	N/A	Level 2	Comments and Samples Affected
Batch Items					
1. Was an LCS and blank run the batch?	X			✓	
2. Was a duplicate run with the batch?	X			✓	
2.a Was a spike run with the batch?		X		✓	Not requested.
3. Was the book # of the standard and tracer (and spike) on the traveler?	X			✓	
4. Was the batch traveler completed (sample #, dilution, aliquot size)?	X			✓	
5. Were any line outs initialed and dated?	X			✓	
6. Was balance check completed on the day of use (if used)?			X	✓	
Result Items					
7. Was sample, traveler and counting data correct on ACE form?	X			✓	
8. If No, was ACE form corrected?			X	✓	
9. Did results etc. correctly up-load to LABCORE (OMNILims or MULTILims)?	X			✓	
10. If No, was LABCORE corrected?			X	✓	
11. Are result units correct?	X			✓	
12. If No, were units corrected?			X	✓	
13. Was data flagged?	X			✓	
14. Are all flags present and correct?	X			✓	
15. Are LCS results within limits (Lab's or customer's)?	X			✓	
16. Are Spike results within limits (Lab's or customer's)?			X	✓	
17. Is blank <MDC, or <5% isotope concentration, or <5% decision level?	X			✓	
18. Are duplicate RPDs <20% (or RSD) within customer limits?			X	✓	
19. Are the correct procedure number and Rev/Mod on the report?	X			✓	
Procedure Speciffic Items					
20. Were tracer recoveries between 30% and 120%?	X			✓	
21. Were the customer required detection or quantification limits met?	X			✓	

1st Level Reviewer: [signature] **Date:** 6 Aug 09

2nd Level Reviewer: [signature] **Date:** 8/12/2009

PM Reviewer: [signature] 10-02-2009

Data Review Checklist

ENERGY CALIBRATION OF ALPHA SPECTROMETERS

INSTRUMENT # AEA 1 to 7, 9

BATCH # 15315

PROCEDURES LA-508-161 LQ-150-115

Review Items	--- Level 1 --- Yes	No	N/A	Level 2	Comments & Samples Affected
Energy Calibration					
1. Alpha Spectrometer was energy calibrated with a std having > two peaks	✓			✓	
2. Energy Calibration spectrum had clearly resolvable peaks	✓			✓	
3. Energy range of peaks in calibration std encompasses alpha energies expected in samples	✓			✓	
Calibration Verification					
1. Instrument Control Std within limits for all peaks before batch counted	✓			✓	
2. Bkg check within limits and performed < one week ago	✓			✓	

1st Level Reviewer: John Relyea Date: 4 Aug 09

2nd Level Reviewer: RA Jones Date: 4 Aug 09

Data Review Checklist

CALIBRATION OF GAS FLOW PROPORTIONAL COUNTER

INSTRUMENT # AB 23

BATCH # 15315

PROCEDURES LQ-508-102 LQ-150-115

Review Items	--- Level 1 --- Yes	No	N/A	Level 2	Comments & Samples Affected
Initial Calibration (Plateau generation) and Cross Talk					
1. The PP-10 gas flow rate was 0.1 +/- 0.05 SCFH	✓			✓	
2. Plateau generated before initial calibration or after major maintenance activity	✓			✓	
3. Final plateau has step voltages < 25 V within +/- 50 V of operating value	✓			✓	
4. There were > 5000 counts collected per point near the knee of each plateau	✓			✓	
5. The required raw data is in maintenance notebook	✓			—	
6. Any non-conformances are documented in maintnance notebook	✓			✓	
7. At least 125,000 counts collected for the cross talk determinations	✓			✓	
8. Crosstalk of alpha into beta is < 10 %	✓			✓	
9. Crosstalk of beta into alpha is < 1 %	✓			✓	
Efficiency Calibration					
1. Calibration sources are NIST traceable & verified with 2nd source	✓			✓	
2. The PP-10 gas flow rate was 0.1 +/- 0.05 SCFH	✓			✓	
3. Plateau V checked/adjusted before calibration	✓			✓	
4. The required raw data is in maintenance notebook	✓			✓	
5. The alpha and beta efficiencies were calculated per procedure LQ-508-002	✓			✓	
6. Calibration had a second, independent check	✓			✓	
7. Non-conformances are documented	✓			✓	
8. Calibrations are verified by second technical staff member	✓			✓	
9. Calibrations signed off by Counting Room Manager	✓			✓	
10. Efficiency tables for automated calculation were updated.	✓			✓	
Calibration Verification					
1. Instrument Control Std within limits before and after batch counted	✓			✓	
2. Bkg check within limits before and after batch counted	✓			—	

1st Level Reviewer: John Belyea Date: 4 Aug 09

2nd Level Reviewer: R Jones Date: 4 Aug 09

LABCORE Data Entry Template for Batch# 00015315

Analyst: H0003944 **Standard ID / Book#:** 31B64

Instrument:

Method: PLUTONIUM, LA-953-104 Rev/Mod H-I

Prep Batch: 00015214

Batch Comment: C-Farm ~~VMA~~ WMA C for PU scl MAB 8/12/09

CACN:200389

S	Type	Sample	R	A	Matrix	Group#	Project
1	STD		0		SOLID		
	Analytes Requested:	Plutonium-236T, Pu-239/240					
2	BLNK-PREP		0		SOLID		
	Analytes Requested:	Plutonium-236T, Plutonium-238, Pu-239/240					
3	SAMPLE	S09V000203	0	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Plutonium-236T, Plutonium-238, Pu-239/240					
4	SAMPLE	S09V000204	0	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Plutonium-236T, Plutonium-238, Pu-239/240					
5	SAMPLE	S09V000205	0	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Plutonium-236T, Plutonium-238, Pu-239/240					
6	DUP	S09V000205	0	E	SOLID		
	Analytes Requested:	Plutonium-236T, Plutonium-238, Pu-239/240					
7	SAMPLE	S09V000206	0	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Plutonium-236T, Plutonium-238, Pu-239/240					
8	SAMPLE	S09V000207	0	E	SOLID	20090160	C Farm WMA C
	Analytes Requested:	Plutonium-236T, Plutonium-238, Pu-239/240					

Final Page for Batch# 00015315

Sue (Chu-Mei) Lai 8-3-09
Analyst Signature **Date**

Em Bueha 8.4.09
Data Entry Signature **Date**

MG Bresn 8/4/9

Data Entry Comments:

S = Batch Slot Number, R = Retest Number, A = Aliquot Code.

Plutonium Data Collection Sheet (LA-953-104)

Batch# 15315

Analyst S.L.

Analysis Date 8-3-08

Analysis Time 10:20 8-3-09

Matrix Solid

Tracer Book No. 58B64

Pipet ID No.	Checked
4561245	☑
4653515	☑
4561995	☑
4652915	✓

Standard Book # 31B64

Spike Book # N/A

Spike Volume N/A

Detector No. 23

Bkg CPM .21

Count Time 30

Alpha Check STD # 34B64-L

Comments: C-Farm WMA C for Pu

Sample Type	Sample Number	Dilution Factor	Sam. Vol Analyzed (mL)	Tracer Vol. (mL)	AT Total Counts	AT Tray#	AEA Spectra No.	AEA Check. Standard No.
Standard		1	0.1	0.100	359	1	1207	16B53-B
Blank		1	5	0.100	188	2	2076	37B30B
Sample	S09V000203	1	5	0.100	307	3	3868	65B534
Sample	S09V000204	1	5	0.100	229	4	4536	65B53B
Sample	S09V000205	1	5	0.100	228	5	5854	16B534
Duplicate	S09V000205	1	5	0.100	250	6	6082	37B304
Sample	S09V000206	1	5	0.100	223	7	7441	16B53B
Sample	S09V000207	1	5	0.100	207	8	9234	65B534

Page 1 of 1