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Data Validation Report for CH2M Hill
Plateau Remediation Company

VSR11-046
Project WMA C

Chemical & Radiochemical Validation - Level C

Validation Performed By: Carl Schlosser **Date:** 5-30-2011

TABLE OF CONTENTS

Volatile Organics

Memorandum 3
Appendix 1 – Glossary of Data Reporting Qualifiers 6
Appendix 2 – Summary of Data Qualification 8
Appendix 3 – Annotated Laboratory Reports 10
Appendix 4 – Laboratory Narrative and Chain-of-Custody Documentation 15
Appendix 5 – Data Validation Supporting Documentation 33
Appendix 6 – Additional Documentation Requested By Client 40

Semivolatile Organics

Memorandum 52
Appendix 1 – Glossary of Data Reporting Qualifiers 56
Appendix 2 – Summary of Data Qualification 58
Appendix 3 – Annotated Laboratory Reports 60
Appendix 4 – Laboratory Narrative and Chain-of-Custody Documentation 65
Appendix 5 – Data Validation Supporting Documentation 85
Appendix 6 – Additional Documentation Requested By Client 92

Inorganics

Memorandum 117
Appendix 1 – Glossary of Data Reporting Qualifiers 121
Appendix 2 – Summary of Data Qualification 123
Appendix 3 – Annotated Laboratory Reports 125
Appendix 4 – Laboratory Narrative and Chain-of-Custody Documentation 132
Appendix 5 – Data Validation Supporting Documentation 152
Appendix 6 – Additional Documentation Requested By Client 159

General Chemistry

Memorandum 227
Appendix 1 – Glossary of Data Reporting Qualifiers 231
Appendix 2 – Summary of Data Qualification 233
Appendix 3 – Annotated Laboratory Reports 235
Appendix 4 – Laboratory Narrative and Chain-of-Custody Documentation 243
Appendix 5 – Data Validation Supporting Documentation 263
Appendix 6 – Additional Documentation Requested By Client 269

Radiochemical

Memorandum 303
Appendix 1 – Glossary of Data Reporting Qualifiers 307
Appendix 2 – Summary of Data Qualification 309
Appendix 3 – Annotated Laboratory Reports 311
Appendix 4 – Laboratory Narrative and Chain-of-Custody Documentation 318
Appendix 5 – Data Validation Supporting Documentation 338
Appendix 6 – Additional Documentation Requested By Client 345

Date: 30 May 2011
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: WMA C
Subject: Volatile Organics - Sample Data Group (SDG) 20100584

INTRODUCTION

This memorandum presents the results of data validation for SDG 20100584 prepared by 222-S Laboratory. The samples validated along with the analytical method are provided in the following table.

Sample ID	Sample Date	Media	Validation Level	Analytical Methods
B26C29	8/29/2010	Soil	C	8260B
B26C37	9/01/2010	Soil	C	8260B

Data validation was conducted in accordance with the CHPRC validation statement of work and the Field Sampling and Analysis Plan for Waste Management Area C, RPP-PLAN-40564, Rev. 2 (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 freezing.

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 with the following exceptions. The toluene and styrene laboratory blank results were > the method detection limits (MDLs). The toluene results

for samples B26C29 and B26C37 were detects <5X the laboratory blank result and should be qualified as non-detects at the sample concentrations (0.520 ug/kg and 0.427 ug/kg, respectively) and flagged "U." The styrene result for sample B26C29 was a detect <5X the laboratory blank result and should be qualified as a non-detect at the sample concentration (0.318 ug/kg) and flagged "U." Styrene was not reported for sample B26C37.

Trip Blanks

No trip blanks were submitted for validation.

Field Blanks

No field blanks were submitted for validation.

Equipment Blanks

No equipment blanks were submitted for validation.

- **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%.

Surrogates

All surrogate recoveries were acceptable.

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

All MS/MSD recoveries were acceptable with the following exceptions. Only nine 8260B MS/MSD analytes were reported. Reported analytes not represented in the MS/MSD were trans-1,3-dichloropropene and carbon disulfide. The sample results for these two analytes were non-detects and should be qualified as estimates and flagged "UJ."

Laboratory Control Samples (LCSs)

All LCS recoveries were acceptable with the following exceptions. Only nine 8260B LCS analytes were reported. Reported analytes not represented in the LCS were trans-1,3-dichloropropene and carbon disulfide. The sample results for these two analytes were non-detects 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%. When duplicate RPDs exceed the limits and have associated results <5X the SAP 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 validation.

Field Split Samples

No field splits were submitted for validation.

- **Detection Limits**

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

All reported sample MDLs were below the RDLs.

- **Completeness**

SDG 20100584 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 laboratory blank infractions and non-represented QC data. See the table in Appendix 2 for a listing of all affected sample results.

REFERENCES

GRP-GD-003, Rev. 0, Change 0, *Data Validation for Chemical Analyses*, August 2010

RPP-PLAN-40564, Rev. 2, *Field Sampling and Analysis Plan for Waste Management Area C*, December 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, but 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 RL. 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.

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

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

- **N** — The analysis indicates the presence of an analyte that has been tentatively identified.

- **NJ** — The analysis indicates the presence of an analyte that has been tentatively identified and the associated numerical value represents its approximate concentration.

- **NJ+** — The analysis indicates the presence of an analyte that has been tentatively identified. The associated value is estimated with a suspected positive bias due to a quality control deficiency identified during data validation.

- **NJ-** — The analysis indicates the presence of an analyte that has been tentatively identified. The associated value is estimated with a suspected negative bias due to a quality control deficiency identified during data validation.

- **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			
SDG: 20100584	Reviewer: AQA	Project: WMA C	Page 1 of 1
Analyte(s)	**DV Flag**	**Samples Affected**	**Reason**
Toluene	0.520U	B26C29	Lab blank contamination
Toluene	0.427U	B26C37	Lab blank contamination
Styrene	0.318U	B26C29	Lab blank contamination
trans-1,3-Dichloropropene Carbon disulfide	UJ	B26C29, B26C37	Non-represented MS/MSD and LCS data

Comments: None

Appendix 3

Annotated Laboratory Reports

Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C29
Sample Depth: 10-12

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5-30-2011

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V001920			71-55-6	1,1,1-Trichloroethane	ug/kg	n/a	<0.0920	<0.0847	n/a	n/a	n/a	n/a	0.0847	n/a	U
S10V001920			79-00-5	1,1,2-Trichloroethane	ug/kg	n/a	<0.166	<0.153	n/a	n/a	n/a	n/a	0.153	n/a	U
S10V001920			79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	n/a	<0.212	<0.195	n/a	n/a	n/a	n/a	0.195	n/a	U
S10V001920			75-35-4	1,1-Dichloroethene	ug/kg	95.3	<0.423	<0.390	n/a	n/a	n/a	n/a	0.390	n/a	U
S10V001920			107-06-2	1,2-Dichloroethane	ug/kg	n/a	<0.0538	<0.0495	n/a	n/a	n/a	n/a	0.0495	n/a	U
S10V001920			71-36-3	1-Butanol	ug/kg	118	<10.3	<9.48	n/a	n/a	n/a	n/a	9.48	n/a	U
S10V001920			108-10-1	Hexone	ug/kg	126	<1.71	<1.57	n/a	n/a	n/a	n/a	1.57	n/a	U
S10V001920			67-64-1	Acetone	ug/kg	109	<2.20	<2.03	n/a	n/a	n/a	n/a	2.03	n/a	U
S10V001920			71-43-2	Benzene	ug/kg	103	<0.147	<0.136	n/a	n/a	n/a	n/a	0.136	n/a	U
S10V001920			75-15-0	Carbon disulfide UJ	ug/kg	n/a	<0.161	<0.148	n/a	n/a	n/a	n/a	0.148	n/a	U
S10V001920			56-23-5	Carbon tetrachloride	ug/kg	n/a	<0.0934	<0.0860	n/a	n/a	n/a	n/a	0.0860	n/a	U
S10V001920			67-66-3	Chloroform	ug/kg	n/a	<0.131	<0.120	n/a	n/a	n/a	n/a	0.120	n/a	U
S10V001920			108-90-7	Chlorobenzene	ug/kg	106	<0.0864	<0.0796	n/a	n/a	n/a	n/a	0.0796	n/a	U
S10V001920			100-41-4	Ethylbenzene	ug/kg	n/a	<0.107	<0.0987	n/a	n/a	n/a	n/a	0.0987	n/a	U
S10V001920			1330-20-7	Xylenes (total)	ug/kg	n/a	<0.203	<0.187	n/a	n/a	n/a	n/a	0.187	n/a	U
S10V001920			78-93-3	2-Butanone	ug/kg	116	<1.96	<1.81	n/a	n/a	n/a	n/a	1.81	n/a	U
S10V001920			75-09-2	Methylenechloride	ug/kg	n/a	<0.0640	<0.0589	n/a	n/a	n/a	n/a	0.0589	n/a	U
S10V001920			127-18-4	Tetrachloroethene	ug/kg	n/a	<0.110	<0.101	n/a	n/a	n/a	n/a	0.101	n/a	U
S10V001920			100-42-5	Styrene 0.318U	ug/kg	n/a	0.371	0.318	n/a	n/a	n/a	n/a	0.117	n/a	BJ
S10V001920			108-88-3	Toluene 0.520U	ug/kg	103	0.221	0.520	n/a	n/a	n/a	n/a	0.0738	n/a	BJ
S10V001920			10061-02-6	trans-1,3-Dichloropropene UJ	ug/kg	n/a	<0.271	<0.250	n/a	n/a	n/a	n/a	0.250	n/a	U
S10V001920			79-01-6	Trichloroethene	ug/kg	102	<0.121	<0.111	n/a	n/a	n/a	n/a	0.111	n/a	U
S10V001920			75-01-4	Vinyl chloride	ug/kg	n/a	<0.173	<0.160	n/a	n/a	n/a	n/a	0.160	n/a	U
S10V001920			156-59-2	cis-Dichloroethylene	ug/kg	n/a	<0.182	<0.167	n/a	n/a	n/a	n/a	0.167	n/a	U
S10V001920			156-60-5	trans-Dichloroethylene	ug/kg	n/a	<0.303	<0.279	n/a	n/a	n/a	n/a	0.279	n/a	U
S10V001920			76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ug/kg	n/a	<0.116	<0.107	n/a	n/a	n/a	n/a	0.107	n/a	U
S10V001920			79-46-9	2-Nitropropane	ug/kg	n/a	<0.588	<0.541	n/a	n/a	n/a	n/a	0.541	n/a	U
S10V001920			141-78-6	Ethyl acetate	ug/kg	n/a	<0.587	<0.541	n/a	n/a	n/a	n/a	0.541	n/a	U
S10V001920			60-29-7	Diethyl ether	ug/kg	n/a	<0.256	<0.236	n/a	n/a	n/a	n/a	0.236	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
M - RPD Outside Range
N - MS/MSD Outside Range
C - Blank Contamination
B - Blank Contamination
B - Estimated
J - Estimated
T - MS/MSD Outside Range

Data Summary Report

Sample Group: 20100584

Core Number: C7680

Customer Sample ID: B26C29

Sample Depth: 10-12

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V001920			75-69-4	Trichlorofluoromethane	ug/kg	n/a	<0.0940	<0.0866	n/a	n/a	n/a	n/a	0.0866	n/a	U
S10V001920			95-47-6	o-Xylene	ug/kg	n/a	<0.0920	<0.0847	n/a	n/a	n/a	n/a	0.0847	n/a	U
S10V001920			179601-23-1	m,p-Xylene	ug/kg	n/a	<0.167	<0.154	n/a	n/a	n/a	n/a	0.154	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
M - RPD Outside Range
N - MS/MSD Outside Range
C - Blank Contamination
B - Blank Contamination
B - Estimated
J - Estimated
T - MS/MSD Outside Range

Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C37
Sample Depth: 92-94

LS
5-30-2011

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002066		71-55-6	1,1,1-Trichloroethane	ug/kg	n/a	<0.0920	<0.0996	n/a	n/a	n/a	n/a	0.0996	n/a	U
S10V002066		79-00-5	1,1,2-Trichloroethane	ug/kg	n/a	<0.166	<0.179	n/a	n/a	n/a	n/a	0.179	n/a	U
S10V002066		79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	n/a	<0.212	<0.229	n/a	n/a	n/a	n/a	0.229	n/a	U
S10V002066		75-35-4	1,1-Dichloroethene	ug/kg	95.3	<0.423	<0.458	n/a	n/a	n/a	n/a	0.458	n/a	U
S10V002066		107-06-2	1,2-Dichloroethane	ug/kg	n/a	<0.0538	<0.0582	n/a	n/a	n/a	n/a	0.0582	n/a	U
S10V002066		71-36-3	1-Butanol	ug/kg	118	<10.3	<11.1	n/a	n/a	n/a	n/a	11.1	n/a	U
S10V002066		108-10-1	Hexone	ug/kg	126	<1.71	<1.85	n/a	n/a	n/a	n/a	1.85	n/a	U
S10V002066		67-64-1	Acetone	ug/kg	109	<2.20	<2.38	n/a	n/a	n/a	n/a	2.38	n/a	U
S10V002066		71-43-2	Benzene	ug/kg	103	<0.147	<0.160	n/a	n/a	n/a	n/a	0.160	n/a	U
S10V002066		75-15-0	Carbon disulfide UJ	ug/kg	n/a	<0.161	<0.174	n/a	n/a	n/a	n/a	0.174	n/a	U
S10V002066		56-23-5	Carbon tetrachloride	ug/kg	n/a	<0.0934	<0.101	n/a	n/a	n/a	n/a	0.101	n/a	U
S10V002066		67-66-3	Chloroform	ug/kg	n/a	<0.131	<0.142	n/a	n/a	n/a	n/a	0.142	n/a	U
S10V002066		108-90-7	Chlorobenzene	ug/kg	106	<0.0864	<0.0935	n/a	n/a	n/a	n/a	0.0935	n/a	U
S10V002066		100-41-4	Ethylbenzene	ug/kg	n/a	<0.107	<0.116	n/a	n/a	n/a	n/a	0.116	n/a	U
S10V002066		1330-20-7	Xylenes (total)	ug/kg	n/a	<0.203	<0.220	n/a	n/a	n/a	n/a	0.220	n/a	U
S10V002066		78-93-3	2-Butanone	ug/kg	116	<1.96	<2.13	n/a	n/a	n/a	n/a	2.13	n/a	U
S10V002066		75-09-2	Methylenechloride	ug/kg	n/a	<0.0640	<0.0693	n/a	n/a	n/a	n/a	0.0693	n/a	U
S10V002066		127-18-4	Tetrachloroethene	ug/kg	n/a	<0.110	<0.119	n/a	n/a	n/a	n/a	0.119	n/a	U
S10V002066		108-88-3	Toluene 0.427U	ug/kg	103	0.221	0.427	n/a	n/a	n/a	n/a	0.0868	n/a	BJ
S10V002066		10061-02-6	trans-1,3-Dichloropropene UJ	ug/kg	n/a	<0.271	<0.293	n/a	n/a	n/a	n/a	0.293	n/a	U
S10V002066		79-01-6	Trichloroethene	ug/kg	102	<0.121	<0.131	n/a	n/a	n/a	n/a	0.131	n/a	U
S10V002066		75-01-4	Vinyl chloride	ug/kg	n/a	<0.173	<0.188	n/a	n/a	n/a	n/a	0.188	n/a	U
S10V002066		156-59-2	cis-Dichloroethylene	ug/kg	n/a	<0.182	<0.197	n/a	n/a	n/a	n/a	0.197	n/a	U
S10V002066		156-60-5	trans-Dichloroethylene	ug/kg	n/a	<0.303	<0.328	n/a	n/a	n/a	n/a	0.328	n/a	U
S10V002066		76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ug/kg	n/a	<0.116	<0.126	n/a	n/a	n/a	n/a	0.126	n/a	U
S10V002066		79-46-9	2-Nitropropane	ug/kg	n/a	<0.588	<0.636	n/a	n/a	n/a	n/a	0.636	n/a	U
S10V002066		141-78-6	Ethyl acetate	ug/kg	n/a	<0.587	<0.636	n/a	n/a	n/a	n/a	0.636	n/a	U
S10V002066		60-29-7	Diethyl ether	ug/kg	n/a	<0.256	<0.277	n/a	n/a	n/a	n/a	0.277	n/a	U
S10V002066		75-69-4	Trichlorofluoromethane	ug/kg	n/a	<0.0940	<0.102	n/a	n/a	n/a	n/a	0.102	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
M - RPD Outside Range
N - MS/MSD Outside Range
C - Blank Contamination
B - Blank Contamination
B - Estimated
J - Estimated
T - MS/MSD Outside Range

Data Summary Report

Sample Group: 20100584

Core Number: C7680

Customer Sample ID: B26C37

Sample Depth: 92-94

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002066			95-47-6	o-Xylene	ug/kg	n/a	<0.0920	<0.0996	n/a	n/a	n/a	n/a	0.0996	n/a	U
S10V002066			179601-23-1	m,p-Xylene	ug/kg	n/a	<0.167	<0.181	n/a	n/a	n/a	n/a	0.181	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
M - RPD Outside Range
N - MS/MSD Outside Range
C - Blank Contamination
B - Blank Contamination
B - Estimated
J - Estimated
T - MS/MSD 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 HOLE C7680 IN SUPPORT OF RCRA SOIL CHARACTERIZATION

1.0 INTRODUCTION

This final report presents the results for the samples taken from Waste Management Area C between August 26, 2010 and September 1, 2010. 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-38777, *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); SW-846, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*; 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 other 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	Additional Organic Analyses QC Results
Attachment 5	Tentatively Identified Compounds (TIC) for Organic Analyses
Attachment 6	Geological Report
Attachment 7	Characterization Change Notices (CCN) and Correspondence
Attachment 8	Receipt Paperwork

2.0 SAMPLE RECEIPT AND BREAKDOWN

2.1 SAMPLE RECEIPT

A total of eight core intervals and two surface grab samples from core hole C7680 along with nine field blanks and six trip blanks were received by the 222-S Laboratory between August 26, 2010 and September 1, 2010. The samples were delivered in a cooler with ice or, in the case of the volatile organic soil samples, in a freezer. The temperatures of the temperature blanks were measured and recorded on the sample receipt check list and/or the chain of custody form.

The chain of custody requested that conductivity be analyzed on the soil samples. Since this analysis was not listed in the SAP or FSAP, it was not performed. The client has indicated that

this analysis may be performed later after a CCN is issued to cover the change to the FSAP (see Attachment 7).

2.2 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. The VOA samples were made from the shoe section of each core interval following SW-846 5035. 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 Attachment 6. Provided sufficient samples existed, the composite for each core interval was analyzed as described in the SAP and FSAP. One core interval, I002, had less than full recovery (see Attachment 2 and Attachment 8).

WRPS shipped subsamples of the composites to Test America Laboratories, Inc. (TAL) in St. Louis, Missouri and Knoxville, Tennessee to be analyzed for dibutyl and monobutyl phosphate, total petroleum hydrocarbons (diesel and gasoline range), ethylene glycol, chlorinated pesticides, and polychlorinated biphenyls (Aroclors and congeners). TAL subsequently subcontracted the monobutyl and dibutyl phosphate analyses to Southwest Research Institute. The results of these analyses will be released in the final WRPS report.

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 5. 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 (MDA) 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 SW-846 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 standard water digest.

"WV" indicates samples that were prepared by a Vadose 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 from FEAD CP-15383, *Common Requirements of the Format for Electronic Analytical Data,* that are defined as follows:

> "B" for organic or radiochemistry results is used to indicate that the analyte was detected in the method or preparation blank and in the sample.
>
> "B" for inorganic results is used to indicate that the reported result should be considered an estimate because it is below the quantitation limit. The "B" flag is applied to sample concentrations that are greater than the MDL but less than the quantitation limit.
>
> "C" for inorganic results 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 or equal to 20% of the reported sample result.
>
> "J" for organic results is used to indicate 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.
>
> "T" for GC/MS results is used to indicate the matrix spike (MS) recovery or matrix spike duplicate (MSD) recovery is outside control limits.
>
> "U" for all results is used to indicate that the reported result is less than the calculated detection limit.
>
> "N" for all but GC/MS is used to indicate that the MS recovery or MSD recovery was outside of the specified range in the QAPP or SAP.
>
> "N" for GC/MS is used to indicate a TIC which has been named.
>
> "M" for inorganic results is used to indicate that the relative percent difference (RPD) between the sample and the duplicate is greater than 30%.

Manual calculations using rounded results from the Data Summary Report (Attachment 1) 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 1 to 10 g of sample was digested depending on the analysis being performed. The digestate was then filtered and diluted to a final volume. This digestion was used for all radiochemical analyses except ^{3}H, ^{14}C, and ^{129}I. This digestion is a leach of the acid soluble species only.

3.1.2 SW-846 3050B - Acid Digestion-Heating Block

This acid digestion follows SW-846 3050B using a heating block and nitric and hydrochloric acids. An aliquot of approximately 5 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) analyses. 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. A separate digestion for antimony was prepared using additional hydrochloric acid, as recommended in SW-846.

3.1.3 Water Digestion

A water digestion or leach was prepared for the anions by ion chromatography, ^{14}C, and ^{3}H 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.

3.1.4 Vadose Water Digestion

A 70-g sample of soil was leached using a ratio of one part water to one part soil. To maintain a one-to-one ratio, the amount of water added to the sample was adjusted based on the percent moisture of the soil. The slurries were placed on a shaker table for about 1 hour. They were then transferred to a centrifuge tube and centrifuged at 4,000 rpm for 30 minutes. The leachates were filtered using a disposable vacuum filtration system. The filtrates were transferred to a clean bottle and then analyzed for ^{99}Tc by ICP/MS analysis.

3.2 INORGANIC ANALYSES

3.2.1 Cyanide

The cyanide analysis by distillation and spectrophotometry was performed on the grab samples and liner composite samples. All analyses met the SW-846 holding time of 14 days. There was no required reporting limit in the SAP for cyanide. The target detection limit was 0.5 µg/g, which is lower than what the current laboratory procedure (lachet micro-distillation) is reporting as reached. There were no notable quality control (QC) issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.2.2 Sulfide

Sulfide analysis by distillation and ion selective electrode was performed on the grab samples and liner composite samples. All analyses met the SW-846 holding time of 7 days. There was no required reporting limit in the SAP for sulfide. The target detection limit was 5 µg/g. All sample results had adjusted MDLs of approximately 7 µg/g. There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.2.3 pH Analysis

The pH analysis was performed on the grab samples and 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 after the water leach was performed. The sampling to analysis time varied from 19 to 25 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 variation in time has no apparent effect on the results.

3.2.4 Mercury

Analysis for mercury by cold-vapor/atomic absorption was performed on the grab samples and liner composite samples. All results met the QC requirements in the FSAP, SAP, and QAPP. All analyses met the holding time of 28 days. This analysis met the required and target detection limits.

3.2.5 Ion Chromatography – Ammonium

Analysis for ammonium was performed using a distillation preparation of the grab samples and the liner composite samples. There is no regulatory holding time limit promulgated for ammonium in soil. The SAP lists an administrative holding time of 7 days. The laboratory believes that after distillation and preservation, the holding time is 28 days, based on U.S. Environmental Protection Agency drinking water and waste water holding times for preserved samples. All samples met these holding times. However, sample B26C26 did not produce usable results and is discussed below in batch 21960. These analyses met the target detection limit listed in the SAP. There was no required reporting limit in the SAP or FSAP for ammonium.

Batch 21732: Ammonium was detected in the preparation blanks at a level below the quantitation limit and above the MDL. Ammonium was also detected in the samples above the quantitation limit but at more than 5 times the level of the blank; therefore, these results have not been flagged with a “C”.

Batch 21960: This batch experienced a major analytical error that was not discovered for several months. During the final review of this batch, which occurred several months after the analysis, it was discovered that for sample B26C26, it appeared that the spike standard was added to both the sample and MS. All the samples for core hole C7680 were reanalyzed months past the holding, and it was obvious from the results that most of the original ammonium had dissipated and results were unusable. These issues were discussed with the client and it was agreed that no result should be reported for sample B26C26 (see Attachment 7). The seven remaining sample results in the original batch were reported. Ammonium was detected in the preparation blanks at a level above the quantitation limit. Ammonium was also detected in three of the samples above the quantitation limit but at more than 5 times the level of the blank. All results have not been flagged with a “C”.

3.2.6 Ion Chromatography – Anions and Small Organic Acids

Ion chromatography analysis was performed on all grab samples and liner composite samples. The laboratory met all of the required and target detection limits. All analyses were within the applicable SW-846 holding times. The sample spikes used for the standard water digestions are predigestion spikes.

Batch 21990: The result for chloride in the preparation blank was slightly above the MDL and below the quantitation limit. All sample results were above the quantitation limit and were greater than 5 times the blank; therefore, no "C" flags were applied.

3.2.7 Inductively Coupled Plasma/Atomic Emission Spectroscopy

The ICP/AES analysis was performed on an acid-digest (SW-846 3050B) of all grab samples and liner composite samples. The ICP/AES analysis was unable to obtain the required detection limit for antimony, arsenic, cadmium, lead, selenium, silver, and thallium for the soil sample. These elements have been reported from separate ICP/MS analyses. Total uranium has not been reported by the ICP/AES analysis since it cannot meet the required detection limits in the SAP. The isotopic uranium analysis by ICP/MS met the required detection limit for ^{238}U, which is essentially total uranium. The overall data usability was not affected. For all other metals reported by ICP/AES, all target and required detection limits were met. SW-846 lists the holding times for ICP/AES metals as 6 months. All analyses met the holding times. All primary metal constituents are reported. Secondary constituents are only reported if the results were above the MDL and had a valid calibration.

Batch 23817: The interference check standard-A produced positive results for phosphorous, neodymium, and manganese, which are not contained in this standard. This could indicate a positive interference. However, since in the interference check standard-AB (ICSAB) phosphorous and manganese were recovered at 100% and 99%, there appears to be no positive interference. The ICSAB also produced a result above the quantitation limit for neodymium. This indicates that spectral interference was occurring. Neodymium results in the sample were not reported due to the high probability that they were the result of this interference. A low level of iron was detected in the preparation blank, but reanalysis was not required since these levels were less than 20% of the lowest sample result.

The MS recoveries for aluminum, calcium, iron, magnesium, potassium, manganese, phosphorous, and titanium exceeded the ±25% requirement in the FSAP and SAP. Since the sample results for these elements exceeded the MS level by more than four times, this criterion does not apply.

The MS recovery for barium, sodium, silicon, strontium, and zirconium exceeded the ±25% requirement in the SAP and FSAP. These results have been flagged with an "N". The exact cause of these failures is unknown. Matrix interference is suspected for barium and zirconium since these commonly fail. However, since all duplicate results were higher than the sample results, analytical error cannot be ruled out. These results were discussed with the client and reported "as is" (see Attachment 7).

The RPD between the sample and the duplicate exceeded the ±30% requirement in the SAP for sodium, chromium, and strontium. These results have been flagged with an "M". The exact cause of these failures is unknown. Matrix interference is suspected; however, since all duplicate results were higher than the sample results, analytical error cannot be ruled out. These results were discussed with the client and reported "as is" (see Attachment 7).

The RPD between the sample and the duplicate exceeded the ±30% requirement in the SAP for silicon. The laboratory believes this was due to matrix interference. Reanalysis was not required since this is secondary element. It should be noted that silicon is not listed with other elements in SW-846 3050B, section 1.1, under "Scope and Application" for the method and does not perform consistently when using this digest. The silicon results have been flagged with an "M".

The method blank contained a low level of calcium and iron. Since the adjusted blank results were less than 20% of the lowest sample result, reanalysis was not required and no qualifier flag was applied.

3.2.8 Inductively Coupled Plasma/Mass Spectroscopy

The ICP/MS actinide and trace metal analyses were performed on the standard SW-846 3050 acid digestion of all grab samples and liner composite samples. The ICP/MS ^{126}Sn and ^{99}Tc analysis was performed on the sample digest without the addition of hydrochloric acid. Hydrochloric acid is not used for ^{99}Tc analysis because of the potential formation of a ZnCl ion pair with mass 99. ICP/MS trace metal analysis for antimony was perform on the SW-846 3050 digest with additional hydrochloric acid, which is required to keep antimony in the solution. In addition to these acid digests, ICP/MS ^{99}Tc analysis was performed on a vadose water digest of all solid samples.

Direct is the most accurate type of calibration; however, standard material is not commercially available for all of the isotopes of interest. Concentrations of those isotopes without available standards are estimated based on the instrument's mass-response curve, which is generated by using the intensity/concentration relationship for the available isotope standards. Results estimated in this manner are designated "semi-quantitative."

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 SAP lists the holding time for isotopic analytes as 6 months. All samples were analyzed within the holding time.

Because there is no available source for ^{126}Sn, ^{117}Sn is used to monitor the chemical recovery for this analysis. Though not specifically requested in the SAP, ^{117}Sn is reported for the laboratory control sample (LCS) and MS in order to demonstrate method accuracy and presence of possible matrix interference.

All sample results for ^{126}Sn were above the MDL and below the quantitation limit with one exception. Based on this, the laboratory suspects that a low level isobaric interference is present in these samples at mass 126. The laboratory believes the most likely suspect is ^{126}Te, but there are other possible candidates. One sample result was above the quantitation level for ^{126}Sn. Users of this data should be aware that all positive ^{126}Sn results in the report may be due to isobaric interference. The laboratory is currently evaluating how to quantify the possible isobaric interferences for ^{126}Sn.

Batch 24040: The MS for ^{117}Sn was recovered below the ±25% requirement at 53%. Similar results have been observed in other batches; this appears to be a matrix interference issue. This batch was not reanalyzed, but others have been with no improvement. Tin results should be considered biased low at these levels. All samples in the batch have been flagged with an "N". The laboratory is investigating changing the acid mixture used to perform low level ^{126}Sn analysis in hopes of improving spike recoveries. Tin-126 was detected in two of the three continuing calibration blanks at slightly above the MDL. Since all results were below the quantification level, reanalysis was not required. The affected results have been flagged with a "B".

3.2.8.2 Technetium-99 (Vadose Water Digest)

The required and target detection limits listed in the SAP for ^{99}Tc were met. The SAP lists a holding time of 6 months for isotopic analytes. All analyses met this holding time. There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.2.8.3 Actinides

The required and target detection limits were met for all isotopes and in all samples. The SAP lists the holding time for isotopic analytes as 6 months. All samples were analyzed within the holding time.

Batch 23367: The closing low level standard (LLS) for ^{235}U exceeded the ±30% limit at 169%. Since all ^{235}U results were at least 17 times the LLS level, the data usability was not affected. The preparation blank result for ^{236}U was slightly above the MDL. The samples had similar results that should be considered equivalent to the blank. The affected results have been flagged with a "B".

Batch 23808: One LLS for ^{232}Th exceeded the ±30% limit at 133%. Since all ^{232}Th results were at least 130 times the LLS level, the data quality was not affected. The preparation blank result for ^{230}Th was slightly above the MDL. The samples had similar results that should be considered equivalent to the blank. The affected results have been flagged with a "B".

3.2.8.4 Trace Metals

Antimony, arsenic, cadmium, lead, selenium, silver, and thallium were analyzed by ICP/MS to obtain the required detection limits in the SAP. Except for the required detection limit for selenium, all required detection limits were met or the sample results were above the quantitation limit and the sample detection limit criteria do not apply. All target detection limits were met. The required detection limit for selenium was approximately an order of magnitude below the detection limit obtained by ICP/MS. The laboratory does not anticipate reaching this detection

limit for future projects. The adjusted MDL for selenium was approximately 0.27 µg/g. SW-846 lists the holding time for metals as 6 months. All samples were analyzed within the holding time.

Batch 24457: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batch 22891: The LLS recoveries for antimony exceeded the ±30% limit at 177% and 166%. This would indicate a high bias for sample results near the LLS level. Since all sample results were below the RDL, the data usability was not affected.

Batch 24435: The closing LLS recovery for selenium exceeded the ±30% limit at 131%, which is believed to be due to carryover from the continuing calibration verification (CCV) standard, and impact on the data usability is minimal. The cadmium RPD exceeded the required ±30 in the FSAP and SAP at 31%. Since the sample result was below the quantitation limit, this criterion does not apply.

3.3 RADIOCHEMICAL ANALYSIS

The holding time listed in the SAP for radioactive isotopes is 6 months. The FSAP lists the holding time as "none." SW-846 does not address holding times for radiochemical analytes. All radiochemical analyses met the 6-month holding time listed in the SAP. Holding time tables for these analytes have not been included in Attachment 3. With the exception of the ^{14}C and ^{3}H analyses, tracers and spikes are added prior to the digestion.

3.3.1 Gamma Energy Analysis

GEA was performed directly on the grab samples and liner composite samples. The SAP requires the reporting of all isotopes with positive results above the MDA; therefore, isotopes additional to those required in the SAP were reported when detected. The GEA analysis met all of the required detection limits in the SAP. The laboratory was unable to meet any of the target detection limits.

3.3.2 Strontium-89/90

Strontium-89/90 analysis was performed on the grab samples and liner composite samples. All of the sample analyses met the required and target detection limits. The FSAP and SAP requested ^{90}Sr, not $^{89/90}Sr$, be reported. The 222-S Laboratory only performs the latter analysis. Since the half-life for ^{89}Sr is approximately 51 days and ^{89}Sr has not been produced at Hanford for years, $^{89/90}Sr$ is essentially ^{90}Sr. There were no notable issues with the batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.3.3 Tritium

The ^{3}H analysis by liquid scintillation counting (LSC) was performed on a water leach of all grab samples and liner composite samples. This method only measured the ^{3}H in the samples that could be dissolved in water. This analysis achieved the required and target detection limits in the

FSAP. There were no notable issues with the batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.3.4 Selenium-79

The ^{79}Se analysis by LSC was performed on the grab samples and liner composite samples. The analysis achieved the target detection limit in the FSAP. No required detection limit was listed. The analysis achieved the target detection limit. No standard is currently available for ^{79}Se, and a cold carrier is used to monitor recovery and is measured gravimetrically. The ^{14}C LSC curve is used to determine the ^{79}Se results since their energies are similar. Since both ^{63}Ni and ^{79}Se use a single digestion batch that is equally split prior to the separation step, the maximum tracer/carrier recovery is 50%.

Batch 24055: The preparation blank demonstrated a positive result below the quantitation limit, as did the four samples in the batch. All results had very large counting uncertainties and were below the target detection limit. Because of these factors, reanalysis was not required. The associated positive results have been flagged with a “B”.

3.3.5 Carbon-14

The ^{14}C analysis by LSC was performed on a water leach of the grab samples and liner composite samples. 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 batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.3.6 Nickel-63

The ^{63}Ni analysis by LSC was performed on the grab samples and liner composite samples. The analysis achieved the required and target detection limits in the FSAP. Since both ^{63}Ni and ^{79}Se use a single digestion batch that is equally split prior to the separation step, the maximum trace/carrier recovery is 50%. There were no notable issues with the batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.3.7 Iodine-129

Analysis for ^{129}I by low energy GEA was performed on an iodine-specific fusion digest of all grab samples and liner composite samples. The required and target detection limits in the SAP were met. There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

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

Analysis for ^{241}Am, $^{243/244}$Cm, and ^{242}Cm by alpha energy analysis (AEA) was performed on the grab samples and liner composite samples. For this analysis, there were no notable issues with any batches and all QC requirements in the FSAP, SAP, and QAPP were met. The required and

target detection limits in the SAP were met. The SAP and FSAP requested ^{243}Cm and ^{244}Cm be reported separately. Since it is not possible to resolve these individual isotopes when using AEA, these isotopes have been reported as $^{243/244}$Cm.

3.3.9 Plutonium-238 and Plutonium-239/240

Plutonium isotopic (^{238}Pu and $^{239/240}$Pu) analysis by AEA was performed on the grab samples and liner composite samples. For this analysis, there were no notable issues with any batches and all QC requirements in the FSAP, SAP, and 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 by GC/MS was performed on field samples by purge and trap. Field sampling methods, sample containers, and preservation methods followed SW-846 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. Nine field blanks and six trip blanks 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 met the required holding time. All primary organic constituents are reported. Secondary and unlisted constituents are only reported if the results were above the MDL and had a validation calibration.

The VOA met the target and required detection limits in the SAP. The SAP and FSAP requested m-xylene and p-xylene be reported separately. Since it is not possible to resolve these individual compounds when performing VOA by SW-846 8260C, these compounds have been reported as m+p xylene. The SAP and FSAP request that methanol be reported with this analysis; however, this compound is too polar to be purged and cannot be reported (see Attachment 7). Isobutanol, another poor purger, was reported as a semivolatile organic compound.

Four of the field blanks and four of the trip blanks contained chloroform above the quantification level. Since chloroform is a common chlorination byproduct, the laboratory believes a likely the source of chloroform may be the water used by sampling personnel to make the various blanks.

Four of the field blank and two of the trip blanks contained methylene chloride above or near the quantification level. None of the associated laboratory blanks contained methylene chloride.

The 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 21718, 21719, and 21897: The method blank results for toluene and styrene were above the MDL but below the quantitation limit. Some of the samples contained toluene and styrene at similar levels and have been flagged with at "B". Since all sample and blank results were below the quantitation limit, reanalysis was not required.

Batch 21786: The method blank result for toluene was above the MDL but below the quantitation limit. One of the samples contained toluene at a similar level and has been flagged with at "B". Since the sample and blank results were below the quantitation limit, reanalysis was not required. The percent difference for n-butanol in the CCV was +25%, which exceeds the ±20% difference requirement. This indicates a high bias; however, since all sample results were below the MDL, the data usability was not affected and reanalysis not required.

Batch 21922: The method blank result for toluene was above the MDL but below the quantitation limit. One of the samples contained toluene at a similar level and has been flagged with at "B". Since the sample and blank results were below the quantitation limit, reanalysis was not required. The internal standards for one sample, B26CW9 (S10V001852), were recovered low, ranging from -66% to -78%. This sample was analyzed two additional times using its own MS and MSD with similar results. The MS and MSD (not reported) for the sample exhibited normal internal standard recovery. In addition, the sample's surrogate recoveries, which are adjusted using the internal standards, hovered around 100%. This indicates that there may have been a spiking or sample introduction problem. Since the results for chloroform and methylene chloride were similar in the sample and MS and MSD, the results for these were reported from the original sample analysis.

Batch 21979: The method blank result for styrene was above the MDL but below the quantitation limit. The sample contained styrene at a similar level and has been flagged with a "B". Since the sample and blank results were below the quantitation limit, reanalysis was not required. Styrene is not a primary analyte.

Batch 24659: The method blank result for benzene was above the MDL but below the quantitation limit. The sample contained benzene at a similar level and has been flagged with a "B". Since the sample and blank results were below the quantitation limit, reanalysis was not required.

3.4.2 Semivolatile Organic Analysis

The semivolatile organic analysis (SVOA) by GC/MS was performed on methylene chloride extractions of all grab samples and liner composite samples. All holding times were met.

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

- The adjusted MDLs for cyclohexanone were above the 0.5-mg/kg target detection limit for most samples. This compound obtained detection limits between 0.5 mg/kg and 0.6 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 0.6 mg/kg for this compound.

LCS, MS, and MSD recoveries were compared against the laboratory's SPC limits, as required by SW-846. The use of SPC limits is permitted in the FSAP, SAP, and QAPP.

The SAP and FSAP requested 3-methylphenol and 4-methylpnenol be reported separately. Since it is not possible to resolve these individual compounds when performing SVOA by SW-846 8270C, these compounds have been reported as 3&4 methylphenol.

Batches 22043 and 22254: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batch 22217: The MS recovery for 2,4-dinitrotoluene exceeded the statistical control limit of 55% to 111% at 114%. Since all sample results were below the MDL for this compound, the data usability was not affected

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's NIST 02, *HP Mass Spectral Libraries*. The estimated concentration of compounds identified in 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 5. TICs that were found in the field samples and 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 Area C samples.

Table 2. Analytical Procedures

Analysis	Preparation Method	Analysis Procedure
Inorganic Analyses		
Cyanide	LA-695-103, Rev. J-0 (SW-846 9010C)	LA-695-103, Rev. 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 (solid)	LA-212-105, Rev. H-0 (SW-846 9045D)	LA-212-105, Rev. H-0 (SW-846 9045D)

Analysis	Preparation Method	Analysis Procedure
Mercury – Cold Vapor Atomic Absorption	LA-325-110, Rev. A-0 (SW-846 7471A)	LA-325-110, Rev. A-0 (SW-846 7471A)
Ammonia – IC	LA-544-112, Rev. E-0	LA-533-101, Rev. Q-0
Anions & Organic Acids – IC	LA-504-101, Rev. M-0	LA-533-115, Rev. J-0
Metals – ICP /AES	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-505-161, Rev. J-0-A (SW-846 6010C)
^{99}Tc, ^{126}Sn – ICP/MS	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-506-102, Rev. F-1
^{99}Tc – ICP/MS	08-ATL-078 Vadose Water Digest	LA-506-103, Rev. B-0
Metals – ICP/MS	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-506-102, Rev. F-1 LA-506-103, Rev. B-0 (SW-846 6020A)
Actinides – ICP/MS	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-506-102, Rev. F-1
Radiochemical Analyses		
GEA	Direct	LA-548-121, Rev. I-0
^{90}Sr – Separation/Beta counting (Solid)	LA-544-101, Rev. F-0	LA-220-101, Rev. I-0
^{3}H – LSC	LA-504-101, Rev. M-0	LA-218-111, Rev. H-0
^{14}C – LSC	LA-504-101, Rev. M-0	LA-348-104, Rev. I-0
^{79}Se – Separation/LSC	LA-544-101, Rev. F-0	LA-365-132, Rev. J-0
^{63}Ni – Separation/LSC	LA-544-101, Rev. F-0	LA-285-102, Rev. E-0
^{129}I – Separation/GEA	LA-378-105, Rev. D-0	LA-378-105, Rev. D-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. H-O (SW-846 8260B)
SVOC – GC/MS	LA-523-138, Rev. G-0 (SW-846 3540C)	LA-523-135, Rev. D-0 (SW-846 8270C)

5.0 REFERENCES

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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.

RPP-PLAN-40564, 2009, *Field Sampling and Analysis Plan for Sites P and L at Waste Management Area C,* Rev. 2, Washington River Protection Solutions, Inc., Richland, Washington.

RPP-PLAN-38777, 2009, *Sampling and Analysis Plan for Phase 2 Characterization of Vadose Zone Soil in Waste Management Area C*, Rev. 1, Washington River Protection Solutions, Inc., Richland, Washington.

FEAD CP-15383, 2007 *Common Requirements of the Format for Electronic Analytical Data,* Rev. 8, CH2M Hill, Plateau Remediation Company, Richland, Washington.

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V10-003-141	PAGE 1 OF 1

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8P	DATA TURNAROUND
Harris / Snook	TEMPLETON, AM	373-5589	BERLIN, PC	AIR QUALITY ☐	75 Days / 75 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**		
7680 002	WMA C Sampling for CMS		V10-003		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
TFVS-09-003	TFVZ-10-000004	10' - 12'	n/A	Govt. Vehicle	
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
222-S Lab Operations	n/A		n/A		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~ 4C
HOLDING TIME	14 Days	14 Days
TYPE OF CONTAINER	Gs*	Gs*
NO. OF CONTAINER(S)	5	3
VOLUME	40mL	40mL
SAMPLE ANALYSIS	VOA - 5035/8260 (LOW LEVEL) (TF);	VOA - 5035/8260 (HIGH LEVEL) (TF);

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B26C29	SOIL	8-29-10	0830	/	/

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Dan Harris Dan Harris	8-29-10 1147	RT Stock RT Stock	8.29.10 1147
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

** 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 a 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.

2°C / 2°C / 9 / RK

20100584
S10V00 1920
1921

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

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V10-003-149	PAGE 1 OF 1

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8P	DATA TURNAROUND
Harris / Snook	TEMPLETON, AM	373-5589	BERLIN, PC	AIR QUALITY ☐	75 Days / 75 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**		
7680 006	WMA C Sampling for CMS		V10-003		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
TFUS-09-008	TFUZ-10-000004	92'-94'	n/A	Govt. Vehicle	
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
222-S Lab Operations	n/A		n/A		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool <-7C and >-20C	MEOH/Cool~ 4C
HOLDING TIME	14 Days	14 Days
TYPE OF CONTAINER	Gs*	Gs*
NO. OF CONTAINER(S)	5	3
VOLUME	40mL	40mL
SAMPLE ANALYSIS	VOA - 5035/8260 (LOW LEVEL) (TF);	VOA - 5035/8260 (HIGH LEVEL) (TF);

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME		
B26C37	SOIL	9-1-10	1015	✓	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Dan Harris Dan Harris	9-1-10 1110	RJSteele RJSteele	9-1-10 1110
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

** 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 a 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.

-10U
-9U
RK

GRPH 20100584
SAMH 510V00 2066
2067

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

Appendix 5

Data Validation Supporting Documentation

Appendix A - Chemical Data Validation Checklist

VALIDATION LEVEL:	A	B	(C)	D	E
PROJECT: WMA C			DATA PACKAGE: VSR11-046		
VALIDATOR: Carl Schloesslin		LAB: 222-S Lab		DATE: 5-30-2011	
			SDG: 20100584		
ANALYSES PERFORMED					
SW-846 8260 X		SW-846 8260 (TCLP)	SW-846 8270		SW-846 8270 (TCLP)
SAMPLES/MATRIX Soil samples B26C29 and B26C37					

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:

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:

MB Hits: Toluene 0.22 ug/kg, styrene 0.37 ug/kg

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:

Trans-1,3-dichloropropene and carbon disulfide not represented in the LCSs and MS/MSDs.

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

Internal 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

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:

Comments (attach additional sheets as necessary):

None

Appendix 6

Additional Documentation Requested By Client

Holding Time Report: GC/MS VOA

Sample Group	Sample	Matrix	Method	Prep Method	Sample Date	Received Date	Analysis Date	Missed Holding Time
20100584	S10V001866	SOLID	SW846-8260C	SW-846 5035A	08/26/10 09:00	08/26/10 10:20	08/27/10 17:44	N
20100584	S10V001883	SOLID	SW846-8260C	SW-846 5035A	08/26/10 09:15	08/26/10 10:20	08/27/10 19:12	N
20100584	S10V001900	SOLID	SW846-8260C	SW-846 5035A	08/27/10 13:15	08/27/10 14:37	09/01/10 14:17	N
20100584	S10V001920	SOLID	SW846-8260C	SW-846 5035A	08/29/10 08:30	08/29/10 11:47	09/01/10 15:47	N
20100584	S10V001940	SOLID	SW846-8260C	SW-846 5035A	08/29/10 09:35	08/29/10 11:47	09/01/10 16:16	N
20100584	S10V001960	SOLID	SW846-8260C	SW-846 5035A	08/29/10 10:50	08/29/10 11:47	09/01/10 16:45	N
20100584	S10V002044	SOLID	SW846-8260C	SW-846 5035A	08/31/10 09:35	08/31/10 10:45	09/01/10 17:15	N
20100584	S10V002066	SOLID	SW846-8260C	SW-846 5035A	09/01/10 10:15	09/01/10 11:10	09/01/10 17:45	N
20100584	S10V002499	SOLID	SW846-8260C	SW-846 5035A	09/01/10 17:40	09/01/10 22:00	09/02/10 17:38	N
20100584	S10V002794	SOLID	SW846-8260C	SW-846 5035A	09/01/10 21:00	09/01/10 22:00	09/02/10 19:07	N
20100583	S10V001856	LIQUID	SW846-8260C	SW846-5030C	08/26/10 08:45	08/26/10 10:20	08/27/10 15:15	N
20100583	S10V001846	LIQUID	SW846-8260C	SW846-5030C	08/26/10 09:15	08/26/10 10:20	08/27/10 16:44	N
20100583	S10V001865	LIQUID	SW846-8260C	SW846-5030C	08/27/10 12:30	08/27/10 14:00	08/31/10 18:39	N
20100583	S10V001855	LIQUID	SW846-8260C	SW846-5030C	08/27/10 12:45	08/27/10 14:00	08/31/10 17:10	N
20100583	S10V001857	LIQUID	SW846-8260C	SW846-5030C	08/29/10 07:45	08/29/10 11:47	08/31/10 17:39	N
20100583	S10V001847	LIQUID	SW846-8260C	SW846-5030C	08/29/10 07:50	08/29/10 11:47	08/31/10 14:12	N
20100583	S10V001848	LIQUID	SW846-8260C	SW846-5030C	08/29/10 08:55	08/29/10 12:29	08/31/10 15:41	N
20100583	S10V001849	LIQUID	SW846-8260C	SW846-5030C	08/29/10 10:10	08/29/10 12:31	08/31/10 16:11	N
20100583	S10V001858	LIQUID	SW846-8260C	SW846-5030C	08/31/10 08:35	08/31/10 10:45	09/09/10 16:06	N
20100583	S10V001850	LIQUID	SW846-8260C	SW846-5030C	08/31/10 08:45	08/31/10 10:45	08/31/10 16:40	N
20100583	S10V001859	LIQUID	SW846-8260C	SW846-5030C	09/01/10 09:00	09/01/10 11:10	09/02/10 16:39	N
20100583	S10V001851	LIQUID	SW846-8260C	SW846-5030C	09/01/10 09:15	09/01/10 11:10	09/02/10 14:10	N
20100583	S10V001860	LIQUID	SW846-8260C	SW846-5030C	09/01/10 16:55	09/01/10 22:00	09/02/10 17:08	N
20100583	S10V001852	LIQUID	SW846-8260C	SW846-5030C	09/01/10 17:10	09/01/10 22:00	09/02/10 15:39	N
20100583	S10V001853	LIQUID	SW846-8260C	SW846-5030C	09/01/10 20:00	09/01/10 22:00	09/02/10 16:09	N

LABCORE Completed Batch Report for Batch# 00021897

Analyst: Getz, Andrew

Book#:

Instrument: GCMSD3 (OHURA) for VOA

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

Specification: C Farm WMC 2010-2

Prep Batch:

Batch Comment:

C Farm WMC 2010-2, VOA, Solid, Group 20100584

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	S1009020023		0 0			1,1,1-Trichloroethane	SOLID		<9.2000E-02			0.092	ug/Kg			U
1	BLNK	S1009020023		0 0			1,1,2-Trichloroethane	SOLID		<1.6580E-01			0.1658	ug/Kg			U
1	BLNK	S1009020023		0 0			1,1,2,2-Tetrachloroethane	SOLID		<2.1160E-01			0.2116	ug/Kg			U
1	BLNK	S1009020023		0 0			1,1-Dichloroethene	SOLID		<4.2320E-01			0.4232	ug/Kg			U
1	BLNK	S1009020023		0 0			1,2-Dichloroethane	SOLID		<5.3799E-02			0.053799	ug/Kg			U
1	BLNK	S1009020023		0 0			1-Butanol	SOLID		<1.0292E+01			10.292	ug/Kg			U
1	BLNK	S1009020023		0 0			4-Methyl-2-pentanone	SOLID		<1.7080E+00			1.708	ug/Kg			U
1	BLNK	S1009020023		0 0			Acetone	SOLID		<2.1996E+00			2.1996	ug/Kg			U
1	BLNK	S1009020023		0 0			Benzene	SOLID		<1.4740E-01			0.1474	ug/Kg			U
1	BLNK	S1009020023		0 0			Carbon Disulfide	SOLID		<1.6080E-01			0.1608	ug/Kg			U
1	BLNK	S1009020023		0 0			Carbon Tetrachloride	SOLID		<9.3400E-02			0.0934	ug/Kg			U
1	BLNK	S1009020023		0 0			Chloroform	SOLID		<1.3080E-01			0.1308	ug/Kg			U
1	BLNK	S1009020023		0 0			Chlorobenzene	SOLID		<8.6400E-02			0.0864	ug/Kg			U
1	BLNK	S1009020023		0 0			Ethylbenzene	SOLID		<1.0720E-01			0.1072	ug/Kg			U
1	BLNK	S1009020023		0 0			Xylenes (total)	SOLID		<2.0320E-01			0.2032	ug/Kg			U
1	BLNK	S1009020023		0 0			2-Butanone	SOLID		<1.9644E+00			1.9644	ug/Kg			U
1	BLNK	S1009020023		0 0			Methylene Chloride	SOLID		<6.3999E-02			0.063999	ug/Kg			U
1	BLNK	S1009020023		0 0			Tetrachloroethene	SOLID		<1.0980E-01			0.1098	ug/Kg			U
1	BLNK	S1009020023		0 0			Toluene	SOLID		2.2080E-01			0.080199	ug/Kg			J
1	BLNK	S1009020023		0 0			trans-1,3-Dichloropropene	SOLID		<2.7100E-01			0.271	ug/Kg			U
1	BLNK	S1009020023		0 0			Trichloroethene	SOLID		<1.2100E-01			0.121	ug/Kg			U
1	BLNK	S1009020023		0 0			Vinyl Chloride	SOLID		<1.7340E-01			0.1734	ug/Kg			U
1	BLNK	S1009020023		0 0			cis-Dichloroethylene	SOLID		<1.8160E-01			0.1816	ug/Kg			U
1	BLNK	S1009020023		0 0			trans-Dichloroethylene	SOLID		<3.0300E-01			0.303	ug/Kg			U
1	BLNK	S1009020023		0 0			112Trichloro-122Trifluoroethan	SOLID		<1.1620E-01			0.1162	ug/Kg			U
1	BLNK	S1009020023		0 0			2-Nitropropane	SOLID		<5.8800E-01			0.588	ug/Kg			U
1	BLNK	S1009020023		0 0			Ethyl acetate	SOLID		<5.8720E-01			0.5872	ug/Kg			U
1	BLNK	S1009020023		0 0			Diethyl ether	SOLID		<2.5620E-01			0.2562	ug/Kg			U
1	BLNK	S1009020023		0 0			Trichlorofluoromethane	SOLID		<9.3999E-02			0.093999	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# 00021897

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
1	BLNK	S1009020023		0 0			o-Xylene	SOLID		<9.2000E-02			0.092	ug/Kg			U
1	BLNK	S1009020023		0 0			m,p-Xylene	SOLID		<1.6740E-01			0.1674	ug/Kg			U
1	BLNK	S1009020023		0 0			Styrene	SOLID		3.7140E-01			0.1266	ug/Kg			J
Sample Sequence 2																	
2	LCS	S1009020024		0 0			1,1-Dichloroethene	SOLID	20	1.9069E+01			0.4232	ug/Kg	95.345	% Recovery	
2	LCS	S1009020024		0 0			1-Butanol	SOLID	200	2.3639E+02			10.292	ug/Kg	118.2	% Recovery	
2	LCS	S1009020024		0 0			4-Methyl-2-pentanone	SOLID	100	1.2612E+02			1.708	ug/Kg	126.12	% Recovery	
2	LCS	S1009020024		0 0			Acetone	SOLID	100	1.0900E+02			2.1996	ug/Kg	109	% Recovery	
2	LCS	S1009020024		0 0			Benzene	SOLID	20	2.0576E+01			0.1474	ug/Kg	102.88	% Recovery	
2	LCS	S1009020024		0 0			Chlorobenzene	SOLID	20	2.1160E+01			0.0864	ug/Kg	105.8	% Recovery	
2	LCS	S1009020024		0 0			2-Butanone	SOLID	100	1.1592E+02			1.9644	ug/Kg	115.92	% Recovery	
2	LCS	S1009020024		0 0			Toluene	SOLID	20	2.0614E+01			0.080199	ug/Kg	103.07	% Recovery	
2	LCS	S1009020024		0 0			Trichloroethene	SOLID	20	2.0467E+01			0.121	ug/Kg	102.34	% Recovery	
Sample Sequence 3																	
3	SAMPLE	S10V001900		0 0			1,1,1-Trichloroethane	SOLID	N/A	<8.7452E-02			0.087452	ug/Kg			U
3	SAMPLE	S10V001900		0 0			1,1,2-Trichloroethane	SOLID	N/A	<1.5760E-01			0.1576	ug/Kg			U
3	SAMPLE	S10V001900		0 0			1,1,2,2-Tetrachloroethane	SOLID	N/A	<2.0114E-01			0.20114	ug/Kg			U
3	SAMPLE	S10V001900		0 0			1,1-Dichloroethene	SOLID	N/A	<4.0228E-01			0.40228	ug/Kg			U
3	SAMPLE	S10V001900		0 0			1,2-Dichloroethane	SOLID	N/A	<5.1140E-02			0.05114	ug/Kg			U
3	SAMPLE	S10V001900		0 0			1-Butanol	SOLID	N/A	<9.7833E+00			9.7833	ug/Kg			U
3	SAMPLE	S10V001900		0 0			4-Methyl-2-pentanone	SOLID	N/A	<1.6236E+00			1.6236	ug/Kg			U
3	SAMPLE	S10V001900		0 0			Acetone	SOLID	N/A	<2.0909E+00			2.0909	ug/Kg			U
3	SAMPLE	S10V001900		0 0			Benzene	SOLID	N/A	<1.4011E-01			0.14011	ug/Kg			U
3	SAMPLE	S10V001900		0 0			Carbon Disulfide	SOLID	N/A	<1.5285E-01			0.15285	ug/Kg			U
3	SAMPLE	S10V001900		0 0			Carbon Tetrachloride	SOLID	N/A	<8.8783E-02			0.088783	ug/Kg			U
3	SAMPLE	S10V001900		0 0			Chloroform	SOLID	N/A	<1.2433E-01			0.12433	ug/Kg			U
3	SAMPLE	S10V001900		0 0			Chlorobenzene	SOLID	N/A	<8.2129E-02			0.082129	ug/Kg			U
3	SAMPLE	S10V001900		0 0			Ethylbenzene	SOLID	N/A	<1.0190E-01			0.1019	ug/Kg			U
3	SAMPLE	S10V001900		0 0			Xylenes (total)	SOLID	N/A	<1.9316E-01			0.19316	ug/Kg			U
3	SAMPLE	S10V001900		0 0			2-Butanone	SOLID	N/A	<1.8673E+00			1.8673	ug/Kg			U
3	SAMPLE	S10V001900		0 0			Methylene Chloride	SOLID	N/A	<6.0836E-02			0.060836	ug/Kg			U
3	SAMPLE	S10V001900		0 0			Tetrachloroethene	SOLID	N/A	<1.0437E-01			0.10437	ug/Kg			U
3	SAMPLE	S10V001900		0 0			Toluene	SOLID	N/A	3.8660E-01			0.076235	ug/Kg			BJ
3	SAMPLE	S10V001900		0 0			trans-1,3-Dichloropropene	SOLID	N/A	<2.5760E-01			0.2576	ug/Kg			U
3	SAMPLE	S10V001900		0 0			Trichloroethene	SOLID	N/A	<1.1502E-01			0.11502	ug/Kg			U
3	SAMPLE	S10V001900		0 0			Vinyl Chloride	SOLID	N/A	<1.6483E-01			0.16483	ug/Kg			U
3	SAMPLE	S10V001900		0 0			cis-Dichloroethylene	SOLID	N/A	<1.7262E-01			0.17262	ug/Kg			U
3	SAMPLE	S10V001900		0 0			trans-Dichloroethylene	SOLID	N/A	<2.8802E-01			0.28802	ug/Kg			U
3	SAMPLE	S10V001900		0 0			112Trichloro-122Trifluoroethan	SOLID	N/A	<1.1046E-01			0.11046	ug/Kg			U
3	SAMPLE	S10V001900		0 0			2-Nitropropane	SOLID	N/A	<5.5894E-01			0.55894	ug/Kg			U

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LABCORE Completed Batch Report for Batch# 00021897

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
3	SAMPLE	S10V001900		0 0			Ethyl acetate	SOLID	N/A	<5.5817E-01			0.55817	ug/Kg			U
3	SAMPLE	S10V001900		0 0			Diethyl ether	SOLID	N/A	<2.4354E-01			0.24354	ug/Kg			U
3	SAMPLE	S10V001900		0 0			Trichlorofluoromethane	SOLID	N/A	<8.9353E-02			0.089353	ug/Kg			U
3	SAMPLE	S10V001900		0 0			o-Xylene	SOLID	N/A	<8.7452E-02			0.087452	ug/Kg			U
3	SAMPLE	S10V001900		0 0			m,p-Xylene	SOLID	N/A	<1.5912E-01			0.15912	ug/Kg			U
3	SAMPLE	S10V001900		0 0			4-Bromofluorobenzene	SOLID	19.0114	1.8607E+01			0.12624	ug/Kg	97.873	% Recovery	
3	SAMPLE	S10V001900		0 0			Dibromofluoromethane	SOLID	19.0114	2.1198E+01			0.17186	ug/Kg	111.5	% Recovery	
3	SAMPLE	S10V001900		0 0			1,2-Dichloroethane-d4	SOLID	19.0114	2.1380E+01			0.18213	ug/Kg	112.46	% Recovery	
3	SAMPLE	S10V001900		0 0			Toluene-d8	SOLID	19.0114	1.9151E+01			0.16293	ug/Kg	100.73	% Recovery	
3	SAMPLE	S10V001900		0 0			Styrene	SOLID	N/A	3.3310E-01			0.12034	ug/Kg			BJ
Sample Sequence 4																	
4	MS	S1009020026	S10V001900	0 0			1,1-Dichloroethene	SOLID	18.90359	1.7295E+01			0.4	ug/Kg	91.491	% Recovery	
4	MS	S1009020026	S10V001900	0 0			1-Butanol	SOLID	189.0359	2.0762E+02			9.7278	ug/Kg	109.83	% Recovery	
4	MS	S1009020026	S10V001900	0 0			4-Methyl-2-pentanone	SOLID	94.51795	1.0789E+02			1.6144	ug/Kg	114.15	% Recovery	
4	MS	S1009020026	S10V001900	0 0			Acetone	SOLID	94.51795	9.7565E+01			2.079	ug/Kg	103.22	% Recovery	
4	MS	S1009020026	S10V001900	0 0			Benzene	SOLID	18.90359	1.8160E+01			0.13932	ug/Kg	96.066	% Recovery	
4	MS	S1009020026	S10V001900	0 0			Chlorobenzene	SOLID	18.90359	1.8657E+01			0.081663	ug/Kg	98.696	% Recovery	
4	MS	S1009020026	S10V001900	0 0			2-Butanone	SOLID	94.51795	1.0180E+02			1.8567	ug/Kg	107.7	% Recovery	
4	MS	S1009020026	S10V001900	0 0			Toluene	SOLID	18.90359	1.8507E+01			0.075803	ug/Kg	95.857	% Recovery	
4	MS	S1009020026	S10V001900	0 0			Trichloroethene	SOLID	18.90359	1.8516E+01			0.11437	ug/Kg	97.95	% Recovery	
Sample Sequence 5																	
5	MSD	S1009020027	S10V001900	0 0			1,1-Dichloroethene	SOLID	19.64636	1.8138E+01			0.41572	ug/Kg	92.322	% Recovery	
															0.90418	% RPD	
5	MSD	S1009020027	S10V001900	0 0			1-Butanol	SOLID	196.4636	1.6165E+02			10.11	ug/Kg	82.28	% Recovery	
															28.681	% RPD	
5	MSD	S1009020027	S10V001900	0 0			4-Methyl-2-pentanone	SOLID	98.23182	1.2046E+02			1.6778	ug/Kg	122.63	% Recovery	
															7.1628	% RPD	
5	MSD	S1009020027	S10V001900	0 0			Acetone	SOLID	98.23182	9.8782E+01			2.1607	ug/Kg	100.56	% Recovery	
															2.6107	% RPD	
5	MSD	S1009020027	S10V001900	0 0			Benzene	SOLID	19.64636	1.9784E+01			0.14479	ug/Kg	100.7	% Recovery	
															4.7102	% RPD	
5	MSD	S1009020027	S10V001900	0 0			Chlorobenzene	SOLID	19.64636	2.0229E+01			0.084872	ug/Kg	102.97	% Recovery	
															4.2387	% RPD	
5	MSD	S1009020027	S10V001900	0 0			2-Butanone	SOLID	98.23182	1.0648E+02			1.9297	ug/Kg	108.4	% Recovery	
															0.64785	% RPD	
5	MSD	S1009020027	S10V001900	0 0			Toluene	SOLID	19.64636	2.0359E+01			0.078781	ug/Kg	101.66	% Recovery	
															5.8759	% RPD	
5	MSD	S1009020027	S10V001900	0 0			Trichloroethene	SOLID	19.64636	1.9529E+01			0.11886	ug/Kg	99.403	% Recovery	
															1.4725	% RPD	
Sample Sequence 6																	
6	SAMPLE	S10V001920		0 0			1,1,1-Trichloroethane	SOLID	N/A	<8.4714E-02			0.084714	ug/Kg			U
6	SAMPLE	S10V001920		0 0			1,1,2-Trichloroethane	SOLID	N/A	<1.5267E-01			0.15267	ug/Kg			U

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LABCORE Completed Batch Report for Batch# 00021897

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
6	SAMPLE	S10V001920		0 0			1,1,2,2-Tetrachloroethane	SOLID	N/A	<1.9484E-01			0.19484	ug/Kg			U
6	SAMPLE	S10V001920		0 0			1,1-Dichloroethene	SOLID	N/A	<3.8969E-01			0.38969	ug/Kg			U
6	SAMPLE	S10V001920		0 0			1,2-Dichloroethane	SOLID	N/A	<4.9539E-02			0.049539	ug/Kg			U
6	SAMPLE	S10V001920		0 0			1-Butanol	SOLID	N/A	<9.4770E+00			9.477	ug/Kg			U
6	SAMPLE	S10V001920		0 0			4-Methyl-2-pentanone	SOLID	N/A	<1.5727E+00			1.5727	ug/Kg			U
6	SAMPLE	S10V001920		0 0			Acetone	SOLID	N/A	<2.0254E+00			2.0254	ug/Kg			U
6	SAMPLE	S10V001920		0 0			Benzene	SOLID	N/A	<1.3573E-01			0.13573	ug/Kg			U
6	SAMPLE	S10V001920		0 0			Carbon Disulfide	SOLID	N/A	<1.4807E-01			0.14807	ug/Kg			U
6	SAMPLE	S10V001920		0 0			Carbon Tetrachloride	SOLID	N/A	<8.6003E-02			0.086003	ug/Kg			U
6	SAMPLE	S10V001920		0 0			Chloroform	SOLID	N/A	<1.2044E-01			0.12044	ug/Kg			U
6	SAMPLE	S10V001920		0 0			Chlorobenzene	SOLID	N/A	<7.9558E-02			0.079558	ug/Kg			U
6	SAMPLE	S10V001920		0 0			Ethylbenzene	SOLID	N/A	<9.8710E-02			0.09871	ug/Kg			U
6	SAMPLE	S10V001920		0 0			Xylenes (total)	SOLID	N/A	<1.8711E-01			0.18711	ug/Kg			U
6	SAMPLE	S10V001920		0 0			2-Butanone	SOLID	N/A	<1.8088E+00			1.8088	ug/Kg			U
6	SAMPLE	S10V001920		0 0			Methylene Chloride	SOLID	N/A	<5.8931E-02			0.058931	ug/Kg			U
6	SAMPLE	S10V001920		0 0			Tetrachloroethene	SOLID	N/A	<1.0110E-01			0.1011	ug/Kg			U
6	SAMPLE	S10V001920		0 0			Toluene	SOLID	N/A	5.1950E-01			0.073848	ug/Kg			BJ
6	SAMPLE	S10V001920		0 0			trans-1,3-Dichloropropene	SOLID	N/A	<2.4954E-01			0.24954	ug/Kg			U
6	SAMPLE	S10V001920		0 0			Trichloroethene	SOLID	N/A	<1.1142E-01			0.11142	ug/Kg			U
6	SAMPLE	S10V001920		0 0			Vinyl Chloride	SOLID	N/A	<1.5967E-01			0.15967	ug/Kg			U
6	SAMPLE	S10V001920		0 0			cis-Dichloroethylene	SOLID	N/A	<1.6722E-01			0.16722	ug/Kg			U
6	SAMPLE	S10V001920		0 0			trans-Dichloroethylene	SOLID	N/A	<2.7900E-01			0.279	ug/Kg			U
6	SAMPLE	S10V001920		0 0			112Trichloro-122Trifluoroethan	SOLID	N/A	<1.0700E-01			0.107	ug/Kg			U
6	SAMPLE	S10V001920		0 0			2-Nitropropane	SOLID	N/A	<5.4144E-01			0.54144	ug/Kg			U
6	SAMPLE	S10V001920		0 0			Ethyl acetate	SOLID	N/A	<5.4070E-01			0.5407	ug/Kg			U
6	SAMPLE	S10V001920		0 0			Diethyl ether	SOLID	N/A	<2.3591E-01			0.23591	ug/Kg			U
6	SAMPLE	S10V001920		0 0			Trichlorofluoromethane	SOLID	N/A	<8.6556E-02			0.086556	ug/Kg			U
6	SAMPLE	S10V001920		0 0			o-Xylene	SOLID	N/A	<8.4714E-02			0.084714	ug/Kg			U
6	SAMPLE	S10V001920		0 0			m,p-Xylene	SOLID	N/A	<1.5414E-01			0.15414	ug/Kg			U
6	SAMPLE	S10V001920		0 0			4-Bromofluorobenzene	SOLID	18.4162	1.8542E+01			0.12228	ug/Kg	100.68	% Recovery	
6	SAMPLE	S10V001920		0 0			Dibromofluoromethane	SOLID	18.4162	1.9844E+01			0.16648	ug/Kg	107.75	% Recovery	
6	SAMPLE	S10V001920		0 0			1,2-Dichloroethane-d4	SOLID	18.4162	2.0143E+01			0.17643	ug/Kg	109.38	% Recovery	
6	SAMPLE	S10V001920		0 0			Toluene-d8	SOLID	18.4162	1.8984E+01			0.15783	ug/Kg	103.08	% Recovery	
6	SAMPLE	S10V001920		0 0			Styrene	SOLID	N/A	3.1840E-01			0.11657	ug/Kg			BJ
Sample Sequence 7																	
7	SAMPLE	S10V001940		0 0			1,1,1-Trichloroethane	SOLID	N/A	<1.0748E-01			0.10748	ug/Kg			U
7	SAMPLE	S10V001940		0 0			1,1,2-Trichloroethane	SOLID	N/A	<1.9369E-01			0.19369	ug/Kg			U
7	SAMPLE	S10V001940		0 0			1,1,2,2-Tetrachloroethane	SOLID	N/A	<2.4720E-01			0.2472	ug/Kg			U
7	SAMPLE	S10V001940		0 0			1,1-Dichloroethene	SOLID	N/A	<4.9439E-01			0.49439	ug/Kg			U
7	SAMPLE	S10V001940		0 0			1,2-Dichloroethane	SOLID	N/A	<6.2850E-02			0.06285	ug/Kg			U

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LABCORE Completed Batch Report for Batch# 00021897

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
7	SAMPLE	S10V001940		0 0			1-Butanol	SOLID	N/A	<1.2023E+01			12.023	ug/Kg			U
7	SAMPLE	S10V001940		0 0			4-Methyl-2-pentanone	SOLID	N/A	<1.9953E+00			1.9953	ug/Kg			U
7	SAMPLE	S10V001940		0 0			Acetone	SOLID	N/A	<2.5696E+00			2.5696	ug/Kg			U
7	SAMPLE	S10V001940		0 0			Benzene	SOLID	N/A	<1.7220E-01			0.1722	ug/Kg			U
7	SAMPLE	S10V001940		0 0			Carbon Disulfide	SOLID	N/A	<1.8785E-01			0.18785	ug/Kg			U
7	SAMPLE	S10V001940		0 0			Carbon Tetrachloride	SOLID	N/A	<1.0911E-01			0.10911	ug/Kg			U
7	SAMPLE	S10V001940		0 0			Chloroform	SOLID	N/A	<1.5280E-01			0.1528	ug/Kg			U
7	SAMPLE	S10V001940		0 0			Chlorobenzene	SOLID	N/A	<1.0093E-01			0.10093	ug/Kg			U
7	SAMPLE	S10V001940		0 0			Ethylbenzene	SOLID	N/A	<1.2523E-01			0.12523	ug/Kg			U
7	SAMPLE	S10V001940		0 0			Xylenes (total)	SOLID	N/A	<2.3738E-01			0.23738	ug/Kg			U
7	SAMPLE	S10V001940		0 0			2-Butanone	SOLID	N/A	<2.2949E+00			2.2949	ug/Kg			U
7	SAMPLE	S10V001940		0 0			Methylene Chloride	SOLID	N/A	<7.4766E-02			0.074766	ug/Kg			U
7	SAMPLE	S10V001940		0 0			Tetrachloroethene	SOLID	N/A	<1.2827E-01			0.12827	ug/Kg			U
7	SAMPLE	S10V001940		0 0			Toluene	SOLID	N/A	6.0100E-01			0.093691	ug/Kg			BJ
7	SAMPLE	S10V001940		0 0			trans-1,3-Dichloropropene	SOLID	N/A	<3.1659E-01			0.31659	ug/Kg			U
7	SAMPLE	S10V001940		0 0			Trichloroethene	SOLID	N/A	<1.4136E-01			0.14136	ug/Kg			U
7	SAMPLE	S10V001940		0 0			Vinyl Chloride	SOLID	N/A	<2.0257E-01			0.20257	ug/Kg			U
7	SAMPLE	S10V001940		0 0			cis-Dichloroethylene	SOLID	N/A	<2.1215E-01			0.21215	ug/Kg			U
7	SAMPLE	S10V001940		0 0			trans-Dichloroethylene	SOLID	N/A	<3.5397E-01			0.35397	ug/Kg			U
7	SAMPLE	S10V001940		0 0			112Trichloro-122Trifluoroethan	SOLID	N/A	<1.3575E-01			0.13575	ug/Kg			U
7	SAMPLE	S10V001940		0 0			2-Nitropropane	SOLID	N/A	<6.8692E-01			0.68692	ug/Kg			U
7	SAMPLE	S10V001940		0 0			Ethyl acetate	SOLID	N/A	<6.8598E-01			0.68598	ug/Kg			U
7	SAMPLE	S10V001940		0 0			Diethyl ether	SOLID	N/A	<2.9930E-01			0.2993	ug/Kg			U
7	SAMPLE	S10V001940		0 0			Trichlorofluoromethane	SOLID	N/A	<1.0981E-01			0.10981	ug/Kg			U
7	SAMPLE	S10V001940		0 0			o-Xylene	SOLID	N/A	<1.0748E-01			0.10748	ug/Kg			U
7	SAMPLE	S10V001940		0 0			m,p-Xylene	SOLID	N/A	<1.9556E-01			0.19556	ug/Kg			U
7	SAMPLE	S10V001940		0 0			4-Bromofluorobenzene	SOLID	23.36448	2.4282E+01			0.15514	ug/Kg	103.93	% Recovery	
7	SAMPLE	S10V001940		0 0			Dibromofluoromethane	SOLID	23.36448	2.6005E+01			0.21121	ug/Kg	111.3	% Recovery	
7	SAMPLE	S10V001940		0 0			1,2-Dichloroethane-d4	SOLID	23.36448	2.7294E+01			0.22383	ug/Kg	116.82	% Recovery	
7	SAMPLE	S10V001940		0 0			Toluene-d8	SOLID	23.36448	2.4467E+01			0.20023	ug/Kg	104.72	% Recovery	
7	SAMPLE	S10V001940		0 0			Styrene	SOLID	N/A	2.7290E-01			0.1479	ug/Kg			BJ
7	SAMPLE	S10V001940		0 0			Unknown Hydrocarbon 1-1	SOLID		6.3239639				ug/Kg			JT
7	SAMPLE	S10V001940		0 0			Unknown Hydrocarbon 2-3	SOLID		8.4727667				ug/Kg			JT
7	SAMPLE	S10V001940		0 0			Unknown Hydrocarbon 3-4	SOLID		8.0549682				ug/Kg			JT
7	SAMPLE	S10V001940		0 0			Unknown-2	SOLID		2.436768				ug/Kg			JT
Sample Sequence 8																	
8	SAMPLE	S10V001960		0 0			1,1,1-Trichloroethane	SOLID	N/A	<9.7457E-02			0.097457	ug/Kg			U
8	SAMPLE	S10V001960		0 0			1,1,2-Trichloroethane	SOLID	N/A	<1.7564E-01			0.17564	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# 00021897

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
8	SAMPLE	S10V001960		0 0			1,1,2,2-Tetrachloroethane	SOLID	N/A	<2.2415E-01			0.22415	ug/Kg			U
8	SAMPLE	S10V001960		0 0			1,1-Dichloroethene	SOLID	N/A	<4.4830E-01			0.4483	ug/Kg			U
8	SAMPLE	S10V001960		0 0			1,2-Dichloroethane	SOLID	N/A	<5.6991E-02			0.056991	ug/Kg			U
8	SAMPLE	S10V001960		0 0			1-Butanol	SOLID	N/A	<1.0903E+01			10.903	ug/Kg			U
8	SAMPLE	S10V001960		0 0			4-Methyl-2-pentanone	SOLID	N/A	<1.8093E+00			1.8093	ug/Kg			U
8	SAMPLE	S10V001960		0 0			Acetone	SOLID	N/A	<2.3301E+00			2.3301	ug/Kg			U
8	SAMPLE	S10V001960		0 0			Benzene	SOLID	N/A	<1.5614E-01			0.15614	ug/Kg			U
8	SAMPLE	S10V001960		0 0			Carbon Disulfide	SOLID	N/A	<1.7034E-01			0.17034	ug/Kg			U
8	SAMPLE	S10V001960		0 0			Carbon Tetrachloride	SOLID	N/A	<9.8940E-02			0.09894	ug/Kg			U
8	SAMPLE	S10V001960		0 0			Chloroform	SOLID	N/A	<1.3856E-01			0.13856	ug/Kg			U
8	SAMPLE	S10V001960		0 0			Chlorobenzene	SOLID	N/A	<9.1525E-02			0.091525	ug/Kg			U
8	SAMPLE	S10V001960		0 0			Ethylbenzene	SOLID	N/A	<1.1356E-01			0.11356	ug/Kg			U
8	SAMPLE	S10V001960		0 0			Xylenes (total)	SOLID	N/A	<2.1525E-01			0.21525	ug/Kg			U
8	SAMPLE	S10V001960		0 0			2-Butanone	SOLID	N/A	<2.0809E+00			2.0809	ug/Kg			U
8	SAMPLE	S10V001960		0 0			Methylene Chloride	SOLID	N/A	<6.7796E-02			0.067796	ug/Kg			U
8	SAMPLE	S10V001960		0 0			Tetrachloroethene	SOLID	N/A	<1.1631E-01			0.11631	ug/Kg			U
8	SAMPLE	S10V001960		0 0			Toluene	SOLID	N/A	4.2140E-01			0.084957	ug/Kg			BJ
8	SAMPLE	S10V001960		0 0			trans-1,3-Dichloropropene	SOLID	N/A	<2.8708E-01			0.28708	ug/Kg			U
8	SAMPLE	S10V001960		0 0			Trichloroethene	SOLID	N/A	<1.2818E-01			0.12818	ug/Kg			U
8	SAMPLE	S10V001960		0 0			Vinyl Chloride	SOLID	N/A	<1.8369E-01			0.18369	ug/Kg			U
8	SAMPLE	S10V001960		0 0			cis-Dichloroethylene	SOLID	N/A	<1.9237E-01			0.19237	ug/Kg			U
8	SAMPLE	S10V001960		0 0			trans-Dichloroethylene	SOLID	N/A	<3.2097E-01			0.32097	ug/Kg			U
8	SAMPLE	S10V001960		0 0			112Trichloro-122Trifluoroethan	SOLID	N/A	<1.2309E-01			0.12309	ug/Kg			U
8	SAMPLE	S10V001960		0 0			2-Nitropropane	SOLID	N/A	<6.2288E-01			0.62288	ug/Kg			U
8	SAMPLE	S10V001960		0 0			Ethyl acetate	SOLID	N/A	<6.2203E-01			0.62203	ug/Kg			U
8	SAMPLE	S10V001960		0 0			Diethyl ether	SOLID	N/A	<2.7140E-01			0.2714	ug/Kg			U
8	SAMPLE	S10V001960		0 0			Trichlorofluoromethane	SOLID	N/A	<9.9576E-02			0.099576	ug/Kg			U
8	SAMPLE	S10V001960		0 0			o-Xylene	SOLID	N/A	<9.7457E-02			0.097457	ug/Kg			U
8	SAMPLE	S10V001960		0 0			m,p-Xylene	SOLID	N/A	<1.7733E-01			0.17733	ug/Kg			U
8	SAMPLE	S10V001960		0 0			4-Bromofluorobenzene	SOLID	21.18644	2.3000E+01			0.14068	ug/Kg	108.56	% Recovery	
8	SAMPLE	S10V001960		0 0			Dibromofluoromethane	SOLID	21.18644	2.3936E+01			0.19152	ug/Kg	112.98	% Recovery	
8	SAMPLE	S10V001960		0 0			1,2-Dichloroethane-d4	SOLID	21.18644	2.5798E+01			0.20297	ug/Kg	121.77	% Recovery	
8	SAMPLE	S10V001960		0 0			Toluene-d8	SOLID	21.18644	2.2697E+01			0.18157	ug/Kg	107.13	% Recovery	
8	SAMPLE	S10V001960		0 0			Styrene	SOLID	N/A	3.5350E-01			0.13411	ug/Kg			BJ
8	SAMPLE	S10V001960		0 0			Unknown Hydrocarbon 1-1	SOLID		5.4924708				ug/Kg			JT
8	SAMPLE	S10V001960		0 0			Unknown Hydrocarbon 2-2	SOLID		7.7970599				ug/Kg			JT
8	SAMPLE	S10V001960		0 0			Unknown Hydrocarbon 3-3	SOLID		6.3112862				ug/Kg			JT

Sample Sequence 9

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

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LABCORE Completed Batch Report for Batch# 00021897

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
9	SAMPLE	S10V002044		0 0			1,1,1-Trichloroethane	SOLID	N/A	<8.7286E-02			0.087286	ug/Kg			U
9	SAMPLE	S10V002044		0 0			1,1,2-Trichloroethane	SOLID	N/A	<1.5730E-01			0.1573	ug/Kg			U
9	SAMPLE	S10V002044		0 0			1,1,2,2-Tetrachloroethane	SOLID	N/A	<2.0076E-01			0.20076	ug/Kg			U
9	SAMPLE	S10V002044		0 0			1,1-Dichloroethene	SOLID	N/A	<4.0152E-01			0.40152	ug/Kg			U
9	SAMPLE	S10V002044		0 0			1,2-Dichloroethane	SOLID	N/A	<5.1043E-02			0.051043	ug/Kg			U
9	SAMPLE	S10V002044		0 0			1-Butanol	SOLID	N/A	<9.7647E+00			9.7647	ug/Kg			U
9	SAMPLE	S10V002044		0 0			4-Methyl-2-pentanone	SOLID	N/A	<1.6205E+00			1.6205	ug/Kg			U
9	SAMPLE	S10V002044		0 0			Acetone	SOLID	N/A	<2.0869E+00			2.0869	ug/Kg			U
9	SAMPLE	S10V002044		0 0			Benzene	SOLID	N/A	<1.3985E-01			0.13985	ug/Kg			U
9	SAMPLE	S10V002044		0 0			Carbon Disulfide	SOLID	N/A	<1.5256E-01			0.15256	ug/Kg			U
9	SAMPLE	S10V002044		0 0			Carbon Tetrachloride	SOLID	N/A	<8.8614E-02			0.088614	ug/Kg			U
9	SAMPLE	S10V002044		0 0			Chloroform	SOLID	N/A	<1.2410E-01			0.1241	ug/Kg			U
9	SAMPLE	S10V002044		0 0			Chlorobenzene	SOLID	N/A	<8.1973E-02			0.081973	ug/Kg			U
9	SAMPLE	S10V002044		0 0			Ethylbenzene	SOLID	N/A	<1.0171E-01			0.10171	ug/Kg			U
9	SAMPLE	S10V002044		0 0			Xylenes (total)	SOLID	N/A	<1.9279E-01			0.19279	ug/Kg			U
9	SAMPLE	S10V002044		0 0			2-Butanone	SOLID	N/A	<1.8638E+00			1.8638	ug/Kg			U
9	SAMPLE	S10V002044		0 0			Methylene Chloride	SOLID	N/A	<6.0721E-02			0.060721	ug/Kg			U
9	SAMPLE	S10V002044		0 0			Tetrachloroethene	SOLID	N/A	<1.0417E-01			0.10417	ug/Kg			U
9	SAMPLE	S10V002044		0 0			Toluene	SOLID	N/A	3.7390E-01			0.076091	ug/Kg			BJ
9	SAMPLE	S10V002044		0 0			trans-1,3-Dichloropropene	SOLID	N/A	<2.5712E-01			0.25712	ug/Kg			U
9	SAMPLE	S10V002044		0 0			Trichloroethene	SOLID	N/A	<1.1480E-01			0.1148	ug/Kg			U
9	SAMPLE	S10V002044		0 0			Vinyl Chloride	SOLID	N/A	<1.6452E-01			0.16452	ug/Kg			U
9	SAMPLE	S10V002044		0 0			cis-Dichloroethylene	SOLID	N/A	<1.7230E-01			0.1723	ug/Kg			U
9	SAMPLE	S10V002044		0 0			trans-Dichloroethylene	SOLID	N/A	<2.8748E-01			0.28748	ug/Kg			U
9	SAMPLE	S10V002044		0 0			112Trichloro-122Trifluoroethan	SOLID	N/A	<1.1025E-01			0.11025	ug/Kg			U
9	SAMPLE	S10V002044		0 0			2-Nitropropane	SOLID	N/A	<5.5787E-01			0.55787	ug/Kg			U
9	SAMPLE	S10V002044		0 0			Ethyl acetate	SOLID	N/A	<5.5712E-01			0.55712	ug/Kg			U
9	SAMPLE	S10V002044		0 0			Diethyl ether	SOLID	N/A	<2.4307E-01			0.24307	ug/Kg			U
9	SAMPLE	S10V002044		0 0			Trichlorofluoromethane	SOLID	N/A	<8.9184E-02			0.089184	ug/Kg			U
9	SAMPLE	S10V002044		0 0			o-Xylene	SOLID	N/A	<8.7286E-02			0.087286	ug/Kg			U
9	SAMPLE	S10V002044		0 0			m,p-Xylene	SOLID	N/A	<1.5882E-01			0.15882	ug/Kg			U
9	SAMPLE	S10V002044		0 0			4-Bromofluorobenzene	SOLID	18.97533	1.9753E+01			0.126	ug/Kg	104.1	% Recovery	
9	SAMPLE	S10V002044		0 0			Dibromofluoromethane	SOLID	18.97533	2.1823E+01			0.17154	ug/Kg	115.01	% Recovery	
9	SAMPLE	S10V002044		0 0			1,2-Dichloroethane-d4	SOLID	18.97533	2.4182E+01			0.18178	ug/Kg	127.44	% Recovery	
9	SAMPLE	S10V002044		0 0			Toluene-d8	SOLID	18.97533	1.9446E+01			0.16262	ug/Kg	102.48	% Recovery	
9	SAMPLE	S10V002044		0 0			Styrene	SOLID	N/A	3.4050E-01			0.12011	ug/Kg			BJ
9	SAMPLE	S10V002044		0 0			Unknown-1	SOLID		2.1577152				ug/Kg			JT
Sample Sequence 10																	
10	SAMPLE	S10V002066		0 0			1,1,1-Trichloroethane	SOLID	N/A	<9.9567E-02			0.099567	ug/Kg			U
10	SAMPLE	S10V002066		0 0			1,1,2-Trichloroethane	SOLID	N/A	<1.7944E-01			0.17944	ug/Kg			U

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LABCORE Completed Batch Report for Batch# 00021897

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
10	SAMPLE	S10V002066		0 0			1,1,2,2-Tetrachloroethane	SOLID	N/A	<2.2900E-01			0.229	ug/Kg			U
10	SAMPLE	S10V002066		0 0			1,1-Dichloroethene	SOLID	N/A	<4.5801E-01			0.45801	ug/Kg			U
10	SAMPLE	S10V002066		0 0			1,2-Dichloroethane	SOLID	N/A	<5.8225E-02			0.058225	ug/Kg			U
10	SAMPLE	S10V002066		0 0			1-Butanol	SOLID	N/A	<1.1139E+01			11.139	ug/Kg			U
10	SAMPLE	S10V002066		0 0			4-Methyl-2-pentanone	SOLID	N/A	<1.8485E+00			1.8485	ug/Kg			U
10	SAMPLE	S10V002066		0 0			Acetone	SOLID	N/A	<2.3805E+00			2.3805	ug/Kg			U
10	SAMPLE	S10V002066		0 0			Benzene	SOLID	N/A	<1.5952E-01			0.15952	ug/Kg			U
10	SAMPLE	S10V002066		0 0			Carbon Disulfide	SOLID	N/A	<1.7402E-01			0.17402	ug/Kg			U
10	SAMPLE	S10V002066		0 0			Carbon Tetrachloride	SOLID	N/A	<1.0108E-01			0.10108	ug/Kg			U
10	SAMPLE	S10V002066		0 0			Chloroform	SOLID	N/A	<1.4156E-01			0.14156	ug/Kg			U
10	SAMPLE	S10V002066		0 0			Chlorobenzene	SOLID	N/A	<9.3506E-02			0.093506	ug/Kg			U
10	SAMPLE	S10V002066		0 0			Ethylbenzene	SOLID	N/A	<1.1602E-01			0.11602	ug/Kg			U
10	SAMPLE	S10V002066		0 0			Xylenes (total)	SOLID	N/A	<2.1991E-01			0.21991	ug/Kg			U
10	SAMPLE	S10V002066		0 0			2-Butanone	SOLID	N/A	<2.1260E+00			2.126	ug/Kg			U
10	SAMPLE	S10V002066		0 0			Methylene Chloride	SOLID	N/A	<6.9264E-02			0.069264	ug/Kg			U
10	SAMPLE	S10V002066		0 0			Tetrachloroethene	SOLID	N/A	<1.1883E-01			0.11883	ug/Kg			U
10	SAMPLE	S10V002066		0 0			Toluene	SOLID	N/A	4.2680E-01			0.086796	ug/Kg			BJ
10	SAMPLE	S10V002066		0 0			trans-1,3-Dichloropropene	SOLID	N/A	<2.9329E-01			0.29329	ug/Kg			U
10	SAMPLE	S10V002066		0 0			Trichloroethene	SOLID	N/A	<1.3095E-01			0.13095	ug/Kg			U
10	SAMPLE	S10V002066		0 0			Vinyl Chloride	SOLID	N/A	<1.8766E-01			0.18766	ug/Kg			U
10	SAMPLE	S10V002066		0 0			cis-Dichloroethylene	SOLID	N/A	<1.9654E-01			0.19654	ug/Kg			U
10	SAMPLE	S10V002066		0 0			trans-Dichloroethylene	SOLID	N/A	<3.2792E-01			0.32792	ug/Kg			U
10	SAMPLE	S10V002066		0 0			112Trichloro-122Trifluoroethan	SOLID	N/A	<1.2576E-01			0.12576	ug/Kg			U
10	SAMPLE	S10V002066		0 0			2-Nitropropane	SOLID	N/A	<6.3636E-01			0.63636	ug/Kg			U
10	SAMPLE	S10V002066		0 0			Ethyl acetate	SOLID	N/A	<6.3550E-01			0.6355	ug/Kg			U
10	SAMPLE	S10V002066		0 0			Diethyl ether	SOLID	N/A	<2.7727E-01			0.27727	ug/Kg			U
10	SAMPLE	S10V002066		0 0			Trichlorofluoromethane	SOLID	N/A	<1.0173E-01			0.10173	ug/Kg			U
10	SAMPLE	S10V002066		0 0			o-Xylene	SOLID	N/A	<9.9567E-02			0.099567	ug/Kg			U
10	SAMPLE	S10V002066		0 0			m,p-Xylene	SOLID	N/A	<1.8117E-01			0.18117	ug/Kg			U
10	SAMPLE	S10V002066		0 0			4-Bromofluorobenzene	SOLID	21.64502	2.2117E+01			0.14372	ug/Kg	102.18	% Recovery	
10	SAMPLE	S10V002066		0 0			Dibromofluoromethane	SOLID	21.64502	2.4244E+01			0.19567	ug/Kg	112.01	% Recovery	
10	SAMPLE	S10V002066		0 0			1,2-Dichloroethane-d4	SOLID	21.64502	2.6239E+01			0.20736	ug/Kg	121.22	% Recovery	
10	SAMPLE	S10V002066		0 0			Toluene-d8	SOLID	21.64502	2.2365E+01			0.1855	ug/Kg	103.33	% Recovery	
10	SAMPLE	S10V002066		0 0			Unknown-1	SOLID		4.2379434				ug/Kg			JT
10	SAMPLE	S10V002066		0 0			Unknown-2	SOLID		2.5010371				ug/Kg			JT
10	SAMPLE	S10V002066		0 0			Unknown-3	SOLID		2.2809385				ug/Kg			JT

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# 00021897

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00021897

Reviewer Signature **Date**

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

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LABCORE Completed Batch Report for Batch# 00021897

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1009020023	BLNK				
2	S1009020024	LCS				
3	S10V001900	SAMPLE		20100584	B26C27	C Farm WMC 2010-2
4	S1009020026	MS	S10V001900			
5	S1009020027	MSD	S10V001900			
6	S10V001920	SAMPLE		20100584	B26C29	C Farm WMC 2010-2
7	S10V001940	SAMPLE		20100584	B26C31	C Farm WMC 2010-2
8	S10V001960	SAMPLE		20100584	B26C33	C Farm WMC 2010-2
9	S10V002044	SAMPLE		20100584	B26C35	C Farm WMC 2010-2
10	S10V002066	SAMPLE		20100584	B26C37	C Farm WMC 2010-2

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

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

Date: 30 May 2011
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: WMA C
Subject: Semivolatile Organics - Sample Data Group (SDG) 20100584

INTRODUCTION

This memorandum presents the results of data validation for SDG 20100584 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
B26C30	8/29/2010	Soil	C	8270C
B26C38	9/01/2010	Soil	C	8270C

Data validation was conducted in accordance with the CHPRC validation statement of work and the Field Sampling and Analysis Plan for Waste Management Area C, RPP-PLAN-40564, Rev. 2 (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 validation.

Field Blanks

No field blanks were submitted for validation.

Equipment Blanks

No equipment blanks were submitted for validation.

- **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%.

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 batches, only seven 8270C MS/MSD analytes were reported. Reported analytes not represented in the MS/MSDs were cyclohexanone, isobutanol, n-nitrosomorpholine, pyridine, tributyl phosphate, 2-ethoxyethanol, 2,4,5-trichlorophenol, 2,4,6-trichlorophenol, bis(2-ethylhexyl)phthalate, butylbenzylphthalate, di-n-butylphthalate, di-n-octylphthalate, 2-methylphenol, 3&4-methylphenol, total methylphenols, 2-nitrophenol, hexachlorobutadiene, hexachloroethane and 1,2-dichlorobenzene. All associated sample results for these analytes for both samples *except* bis(2-ethylhexyl)phthalate for sample B26C38 were non-detects and should be qualified as estimates and flagged "UJ." The bis(2-ethylhexyl)phthalate result for sample B26C38 was a detect and should be qualified as an estimate and flagged "J."

For batch 22254, the MS and MSD recoveries for 1,2,4-trichlorobenzene, acenaphthene, 4-chloro-3-methylphenol, 2-chlorophenol and n-nitroso-di-n-dipropylamine were below the lower acceptance limits. The 1,2,4-trichlorobenzene, acenaphthene, fluoranthene, naphthalene, 4-chloro-3-methylphenol, 2-chlorophenol and n-nitroso-di-n-dipropylamine results for sample B26C30 were non-detects and should be qualified as estimates and flagged "UJ."

Laboratory Control Samples (LCSs)

All LCS recoveries were acceptable with the following exceptions.

Only seven 8270C LCS analytes were reported. Reported analytes not represented in the LCSs were cyclohexanone, isobutanol, n-nitrosomorpholine, pyridine, tributyl phosphate, 2-ethoxyethanol, 2,4,5-trichlorophenol, 2,4,6-trichlorophenol, bis(2-ethylhexyl)phthalate, butylbenzylphthalate, di-n-butylphthalate, di-n-octylphthalate, 2-methylphenol, 3&4-methylphenol, total methylphenols, 2-nitrophenol, hexachlorobutadiene, hexachloroethane and 1,2-dichlorobenzene. All associated sample results for these analytes for both samples *except* bis(2-ethylhexyl)phthalate for sample B26C38 were non-detects and should be qualified as estimates and flagged "UJ." The bis(2-ethylhexyl)phthalate result for sample B26C38 was a detect and should be qualified as an estimate and flagged "J."

For batch 22254, the LCS recoveries for 1,2,4-trichlorobenzene, acenaphthene, 4-chloro-3-methylphenol, 2-chlorophenol and n-nitroso-di-n-dipropylamine were below the lower acceptance limits. The 1,2,4-trichlorobenzene, acenaphthene, fluoranthene, naphthalene, 4-chloro-3-methylphenol, 2-chlorophenol and n-nitroso-di-n-dipropylamine results for sample B26C30 were non-detects 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%. When duplicate RPDs exceed the limits and have associated results <5X the SAP 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 validation.

Field Split Samples

No field splits were submitted for validation.

- **Detection Limits**

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

All reported sample MDLs were below the RDLs.

- **Completeness**

SDG 20100584 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

GRP-GD-003, Rev. 0, Change 0, *Data Validation for Chemical Analyses*, August 2010

RPP-PLAN-40564, Rev. 2, *Field Sampling and Analysis Plan for Waste Management Area C*, December 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, but 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 RL. 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.

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

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

- **N** — The analysis indicates the presence of an analyte that has been tentatively identified.

- **NJ** — The analysis indicates the presence of an analyte that has been tentatively identified and the associated numerical value represents its approximate concentration.

- **NJ+** — The analysis indicates the presence of an analyte that has been tentatively identified. The associated value is estimated with a suspected positive bias due to a quality control deficiency identified during data validation.

- **NJ-** — The analysis indicates the presence of an analyte that has been tentatively identified. The associated value is estimated with a suspected negative bias due to a quality control deficiency identified during data validation.

- **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: 20100584	Reviewer: AQA	Project: WMA C	Page 1 of 1
Analyte(s)	**DV Flag**	**Samples Affected**	**Reason**
cyclohexanone isobutanol n-nitrosomorpholine pyridine tributyl phosphate 2-ethoxyethanol 2,4,5-trichlorophenol 2,4,6-trichlorophenol butylbenzylphthalate di-n-butylphthalate di-n-octylphthalate 2-methylphenol 3&4-methylphenol total methylphenols 2-nitrophenol hexachlorobutadiene hexachloroethane 1,2-dichlorobenzene	UJ	B26C30, B26C38	Non-represented MS/MSD and LCS data
bis(2-ethylhexyl)phthalate	UJ	B26C30	Lab blank contamination and non-represented MS/MSD and LCS data
bis(2-ethylhexyl)phthalate	J	B26C38	Lab blank contamination and non-represented MS/MSD and LCS data
1,2,4-trichlorobenze acenaphthene fluoranthene naphthalene 4-chloro-3-methylphenol 2-chlorophenol n-nitroso-di-n-dipropylamine	UJ	B26C30	Low LCS, MS and MSD recoveries

Comments: None

Appendix 3

Annotated Laboratory Reports

Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C30
Sample Depth: 14-16

LS
5-30-2011

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V001946			%WATERA	%WATER-APD		%	n/a	n/a	4.910	n/a	n/a	n/a	n/a	0.01000	n/a	
S10V001946			57-12-5	Cyanide		ug/g	99.7	<0.0370	<2.64	n/a	n/a	n/a	n/a	2.64	n/a	U
S10V001946			7439-97-6	Mercury		ug/g	96.3	<1.00E-04	<9.14E-03	n/a	n/a	n/a	n/a	9.14E-03	n/a	U
S10V001946			PH	pH		unitless	n/a	n/a	9.71	n/a	n/a	n/a	n/a	0.0100	n/a	
S10V001946			12597-04-5	Sulfide		ug/g	82.8	<0.180	12.7	n/a	n/a	n/a	n/a	7.03	n/a	B
S10V001948			13966-00-2	Potassium-40		uCi/g	n/a	n/a	9.70E-06	1.11E-05	n/a	n/a	n/a	7.18E-06	47.56	
S10V001948			10198-40-0	Cobalt-60		uCi/g	99.1	<2.73E-07	<3.54E-07	<3.54E-07	n/a	n/a	n/a	3.54E-07	n/a	U
S10V001948			14234-35-6	Antimony-125		uCi/g	n/a	<7.34E-07	<9.18E-07	<8.55E-07	n/a	n/a	n/a	9.18E-07	n/a	U
S10V001948			10045-97-3	Cesium-137		uCi/g	101	<3.64E-07	<4.56E-07	<4.19E-07	n/a	n/a	n/a	4.56E-07	n/a	U
S10V001948			14683-23-9	Europium-152		uCi/g	n/a	<1.35E-06	<1.82E-06	<1.56E-06	n/a	n/a	n/a	1.82E-06	n/a	U
S10V001948			15585-10-1	Europium-154		uCi/g	n/a	<8.57E-07	<1.22E-06	<1.09E-06	n/a	n/a	n/a	1.22E-06	n/a	U
S10V001948			14391-16-3	Europium-155		uCi/g	n/a	<4.62E-07	<5.93E-07	<5.36E-07	n/a	n/a	n/a	5.93E-07	n/a	U
S10V001948			14274-82-9	Thorium-228		uCi/g	n/a	<8.13E-06	<1.08E-05	<9.98E-06	n/a	n/a	n/a	1.08E-05	n/a	U
S10V001948			15065-10-8	Thorium-234		uCi/g	n/a	<2.85E-06	<3.55E-06	<3.42E-06	n/a	n/a	n/a	3.55E-06	n/a	U
S10V001948			15046-84-1	Iodine-129		uCi/g	111	<1.83E-07	<2.23E-07	n/a	n/a	n/a	n/a	2.23E-07	n/a	U
S10V001949		WV	14133-76-7	Technetium-99		ug/g	110	<4.00E-06	<4.01E-06	n/a	n/a	n/a	n/a	4.01E-06	n/a	U
S10V001950		W	14762-75-5	Carbon-14		uCi/g	91.6	<1.40E-06	<1.29E-06	n/a	n/a	n/a	n/a	1.29E-06	n/a	U
S10V001950		W	10028-17-8	Tritium		uCi/g	92.9	<3.75E-07	<5.10E-05	n/a	n/a	n/a	n/a	5.10E-05	n/a	U
S10V001951		A	7440-36-0	Antimony		ug/g	102	<2.00E-04	0.111	n/a	n/a	n/a	n/a	9.70E-03	n/a	J
S10V001952		O	120-82-1	1,2,4-Trichlorobenzene	UJ	ug/kg	60.1	<77.4	<77.3	n/a	n/a	n/a	n/a	77.3	n/a	U
S10V001952		O	95-50-1	1,2-Dichlorobenzene	UJ	ug/kg	n/a	<101	<101	n/a	n/a	n/a	n/a	101	n/a	U
S10V001952		O	121-14-2	2,4-Dinitrotoluene		ug/kg	77.8	<38.1	<38.1	n/a	n/a	n/a	n/a	38.1	n/a	U
S10V001952		O	95-95-4	2,4,5-Trichlorophenol	UJ	ug/kg	n/a	<44.0	<44.0	n/a	n/a	n/a	n/a	44.0	n/a	U
S10V001952		O	88-06-2	2,4,6-Trichlorophenol	UJ	ug/kg	n/a	<49.5	<49.5	n/a	n/a	n/a	n/a	49.5	n/a	U
S10V001952		O	95-48-7	2-Methylphenol	UJ	ug/kg	n/a	<57.5	<57.5	n/a	n/a	n/a	n/a	57.5	n/a	U
S10V001952		O	88-75-5	2-Nitrophenol	UJ	ug/kg	n/a	<53.7	<53.7	n/a	n/a	n/a	n/a	53.7	n/a	U
S10V001952		O	65794-96-9	3 &4 Methylphenol	UJ	ug/kg	n/a	<51.4	<51.4	n/a	n/a	n/a	n/a	51.4	n/a	U
S10V001952		O	83-32-9	Acenaphthene	UJ	ug/kg	68.0	<17.6	<17.6	n/a	n/a	n/a	n/a	17.6	n/a	U
S10V001952		O	56-55-3	Benzo(a)anthracene		ug/kg	n/a	<37.8	<37.8	n/a	n/a	n/a	n/a	37.8	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
M - RPD Outside Range
N - MS/MSD Outside Range
C - Blank Contamination
B - Blank Contamination
B - Estimated
J - Estimated
T - MS/MSD Outside Range

Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C30
Sample Depth: 14-16

LS
5-30-2011

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V001952		O	205-99-2	Benzo(b)fluoranthene		ug/kg	n/a	<48.9	<48.9	n/a	n/a	n/a	n/a	48.9	n/a	U
S10V001952		O	50-32-8	Benzo(a)pyrene		ug/kg	n/a	<41.2	<41.2	n/a	n/a	n/a	n/a	41.2	n/a	U
S10V001952		O	117-81-7	Bis(2-ethylhexyl) phthalate	UJ	ug/kg	n/a	<590	<590	n/a	n/a	n/a	n/a	590	n/a	U
S10V001952		O	207-08-9	Benzo(k)fluoranthene		ug/kg	n/a	<39.1	<39.1	n/a	n/a	n/a	n/a	39.1	n/a	U
S10V001952		O	85-68-7	Butylbenzylphthalate	UJ	ug/kg	n/a	<50.0	<50.0	n/a	n/a	n/a	n/a	50.0	n/a	U
S10V001952		O	59-50-7	4-Chloro-3-methylphenol	UJ	ug/kg	62.7	<43.2	<43.2	n/a	n/a	n/a	n/a	43.2	n/a	U
S10V001952		O	95-57-8	2-Chlorophenol	UJ	ug/kg	68.0	<66.5	<66.4	n/a	n/a	n/a	n/a	66.4	n/a	U
S10V001952		O	218-01-9	Chrysene		ug/kg	n/a	<81.4	<81.3	n/a	n/a	n/a	n/a	81.3	n/a	U
S10V001952		O	53-70-3	Dibenz[a,h]anthracene		ug/kg	n/a	<51.1	<51.1	n/a	n/a	n/a	n/a	51.1	n/a	U
S10V001952		O	84-74-2	Di-n-butylphthalate	UJ	ug/kg	n/a	<562	<562	n/a	n/a	n/a	n/a	562	n/a	U
S10V001952		O	117-84-0	Di-n-octylphthalate	UJ	ug/kg	n/a	<47.7	<47.7	n/a	n/a	n/a	n/a	47.7	n/a	U
S10V001952		O	621-64-7	N-Nitroso-di-n-dipropylamine	UJ	ug/kg	63.8	<58.1	<58.1	n/a	n/a	n/a	n/a	58.1	n/a	U
S10V001952		O	206-44-0	Fluoranthene	UJ	ug/kg	n/a	<35.4	<35.4	n/a	n/a	n/a	n/a	35.4	n/a	U
S10V001952		O	87-68-3	Hexachlorobutadiene	UJ	ug/kg	n/a	<69.7	<69.6	n/a	n/a	n/a	n/a	69.6	n/a	U
S10V001952		O	67-72-1	Hexachloroethane	UJ	ug/kg	n/a	<112	<112	n/a	n/a	n/a	n/a	112	n/a	U
S10V001952		O	193-39-5	Indeno(1,2,3-cd)pyrene		ug/kg	n/a	<51.0	<51.0	n/a	n/a	n/a	n/a	51.0	n/a	U
S10V001952		O	91-20-3	Naphthalene	UJ	ug/kg	n/a	<62.6	<62.5	n/a	n/a	n/a	n/a	62.5	n/a	U
S10V001952		O	98-95-3	Nitrobenzene		ug/kg	n/a	<64.6	<64.5	n/a	n/a	n/a	n/a	64.5	n/a	U
S10V001952		O	129-00-0	Pyrene		ug/kg	86.3	<62.9	<62.8	n/a	n/a	n/a	n/a	62.8	n/a	U
S10V001952		O	110-86-1	Pyridine	UJ	ug/kg	n/a	<65.0	<64.9	n/a	n/a	n/a	n/a	64.9	n/a	U
S10V001952		O	126-73-8	Tributyl phosphate	UJ	ug/kg	n/a	<108	<108	n/a	n/a	n/a	n/a	108	n/a	U
S10V001952		O	128-37-0	BHT		ug/kg	n/a	<236	<235	n/a	n/a	n/a	n/a	235	n/a	U
S10V001952		O	110-80-5	2-Ethoxyethanol	UJ	ug/kg	n/a	<182	<182	n/a	n/a	n/a	n/a	182	n/a	U
S10V001952		O	1319-77-3	Total Methylphenols	UJ	ug/kg	n/a	<107	<107	n/a	n/a	n/a	n/a	107	n/a	U
S10V001952		O	108-94-1	Cyclohexanone	UJ	ug/kg	n/a	<558	<558	n/a	n/a	n/a	n/a	558	n/a	U
S10V001952		O	59-89-2	N-Nitrosomorpholine	UJ	ug/kg	n/a	<191	<191	n/a	n/a	n/a	n/a	191	n/a	U
S10V001952		O	78-83-1	Isobutanol	UJ	ug/kg	n/a	<460	<460	n/a	n/a	n/a	n/a	460	n/a	U
~~S10V001953~~		~~W~~	~~16984-48-8~~	~~Fluoride~~		~~ug/g~~	~~101~~	~~<1.61E-03~~	~~1.50~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.0161~~	~~n/a~~	
~~S10V001953~~		~~W~~	~~GLYCOLAT~~	~~Glycolate~~		~~ug/g~~	~~99.6~~	~~<9.37E-03~~	~~<0.0937~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.0937~~	~~n/a~~	~~U~~

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
M - RPD Outside Range
N - MS/MSD Outside Range
C - Blank Contamination
B - Blank Contamination
B - Estimated
J - Estimated
T - MS/MSD Outside Range

Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C38
Sample Depth: 116-118

LS
5-30-2011

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002505			%WATERA	%WATER-APD		%	n/a	n/a	3.190	n/a	n/a	n/a	n/a	0.01000	n/a	
S10V002505			57-12-5	Cyanide		ug/g	89.7	<0.0370	<2.66	n/a	n/a	n/a	n/a	2.66	n/a	U
S10V002505			7439-97-6	Mercury		ug/g	87.7	<1.00E-04	<9.26E-03	n/a	n/a	n/a	n/a	9.26E-03	n/a	U
S10V002505			PH	pH		unitless	n/a	n/a	9.29	n/a	n/a	n/a	n/a	0.0100	n/a	
S10V002505			12597-04-5	Sulfide		ug/g	92.5	<0.180	8.75	n/a	n/a	n/a	n/a	7.16	n/a	B
S10V002507			13966-00-2	Potassium-40		uCi/g	n/a	n/a	1.40E-05	n/a	n/a	n/a	n/a	5.83E-06	28.54	
S10V002507			10198-40-0	Cobalt-60		uCi/g	99.1	<2.73E-07	<3.13E-07	n/a	n/a	n/a	n/a	3.13E-07	n/a	U
S10V002507			14234-35-6	Antimony-125		uCi/g	n/a	<7.34E-07	<7.89E-07	n/a	n/a	n/a	n/a	7.89E-07	n/a	U
S10V002507			10045-97-3	Cesium-137		uCi/g	101	<3.64E-07	<3.67E-07	n/a	n/a	n/a	n/a	3.67E-07	n/a	U
S10V002507			14683-23-9	Europium-152		uCi/g	n/a	<1.35E-06	<1.51E-06	n/a	n/a	n/a	n/a	1.51E-06	n/a	U
S10V002507			15585-10-1	Europium-154		uCi/g	n/a	<8.57E-07	<9.72E-07	n/a	n/a	n/a	n/a	9.72E-07	n/a	U
S10V002507			14391-16-3	Europium-155		uCi/g	n/a	<4.62E-07	<4.80E-07	n/a	n/a	n/a	n/a	4.80E-07	n/a	U
S10V002507			15092-94-1	Lead-212		uCi/g	n/a	n/a	6.69E-07	n/a	n/a	n/a	n/a	4.52E-07	31.92	
S10V002507			15067-28-4	Lead-214		uCi/g	n/a	n/a	6.44E-07	n/a	n/a	n/a	n/a	7.48E-07	45.90	U
S10V002507			14274-82-9	Thorium-228		uCi/g	n/a	<8.13E-06	<9.24E-06	n/a	n/a	n/a	n/a	9.24E-06	n/a	U
S10V002507			15065-10-8	Thorium-234		uCi/g	n/a	<2.85E-06	<3.16E-06	n/a	n/a	n/a	n/a	3.16E-06	n/a	U
S10V002507			15046-84-1	Iodine-129		uCi/g	113	<1.93E-07	<1.53E-07	n/a	n/a	n/a	n/a	1.53E-07	n/a	U
S10V002508		WV	14133-76-7	Technetium-99		ug/g	110	<4.00E-06	<3.86E-06	n/a	n/a	n/a	n/a	3.86E-06	n/a	U
S10V002509		W	14762-75-5	Carbon-14		uCi/g	91.6	<1.40E-06	<1.33E-06	n/a	n/a	n/a	n/a	1.33E-06	n/a	U
S10V002509		W	10028-17-8	Tritium		uCi/g	92.9	<3.75E-07	8.92E-05	n/a	n/a	n/a	n/a	5.18E-05	88.485	
S10V002510		A	7440-36-0	Antimony		ug/g	102	<2.00E-04	0.157	n/a	n/a	n/a	n/a	9.72E-03	n/a	J
S10V002511		O	120-82-1	1,2,4-Trichlorobenzene		ug/kg	77.1	<77.4	<76.4	n/a	n/a	n/a	n/a	76.4	n/a	U
S10V002511		O	95-50-1	1,2-Dichlorobenzene	UJ	ug/kg	n/a	<101	<99.4	n/a	n/a	n/a	n/a	99.4	n/a	U
S10V002511		O	121-14-2	2,4-Dinitrotoluene		ug/kg	108	<38.1	<37.6	n/a	n/a	n/a	n/a	37.6	n/a	UT
S10V002511		O	95-95-4	2,4,5-Trichlorophenol	UJ	ug/kg	n/a	<44.0	<43.4	n/a	n/a	n/a	n/a	43.4	n/a	U
S10V002511		O	88-06-2	2,4,6-Trichlorophenol	UJ	ug/kg	n/a	<49.5	<48.9	n/a	n/a	n/a	n/a	48.9	n/a	U
S10V002511		O	95-48-7	2-Methylphenol	UJ	ug/kg	n/a	<57.5	<56.8	n/a	n/a	n/a	n/a	56.8	n/a	U
S10V002511		O	88-75-5	2-Nitrophenol	UJ	ug/kg	n/a	<53.7	<53.0	n/a	n/a	n/a	n/a	53.0	n/a	U
S10V002511		O	65794-96-9	3 &4 Methylphenol	UJ	ug/kg	n/a	<51.4	<50.7	n/a	n/a	n/a	n/a	50.7	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
M - RPD Outside Range
N - MS/MSD Outside Range
C - Blank Contamination
B - Blank Contamination
B - Estimated
J - Estimated
T - MS/MSD Outside Range

Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C38
Sample Depth: 116-118

LS
5-30-2011

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002511		O	83-32-9	Acenaphthene		ug/kg	92.7	<17.6	<17.4	n/a	n/a	n/a	n/a	17.4	n/a	U
S10V002511		O	56-55-3	Benzo(a)anthracene		ug/kg	n/a	<37.8	<37.3	n/a	n/a	n/a	n/a	37.3	n/a	U
S10V002511		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
S10V002511		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
S10V002511		O	117-81-7	Bis(2-ethylhexyl) phthalate	J	ug/kg	n/a	<590	5.62E+03	n/a	n/a	n/a	n/a	583	n/a	J
S10V002511		O	207-08-9	Benzo(k)fluoranthene		ug/kg	n/a	<39.1	<38.6	n/a	n/a	n/a	n/a	38.6	n/a	U
S10V002511		O	85-68-7	Butylbenzylphthalate	UJ	ug/kg	n/a	<50.0	<49.4	n/a	n/a	n/a	n/a	49.4	n/a	U
S10V002511		O	59-50-7	4-Chloro-3-methylphenol		ug/kg	85.6	<43.2	<42.7	n/a	n/a	n/a	n/a	42.7	n/a	U
S10V002511		O	95-57-8	2-Chlorophenol		ug/kg	82.5	<66.5	<65.7	n/a	n/a	n/a	n/a	65.7	n/a	U
S10V002511		O	218-01-9	Chrysene		ug/kg	n/a	<81.4	<80.4	n/a	n/a	n/a	n/a	80.4	n/a	U
S10V002511		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
S10V002511		O	84-74-2	Di-n-butylphthalate	UJ	ug/kg	n/a	<562	<555	n/a	n/a	n/a	n/a	555	n/a	U
S10V002511		O	117-84-0	Di-n-octylphthalate	UJ	ug/kg	n/a	<47.7	<47.1	n/a	n/a	n/a	n/a	47.1	n/a	U
S10V002511		O	621-64-7	N-Nitroso-di-n-dipropylamine		ug/kg	75.1	<58.1	<57.4	n/a	n/a	n/a	n/a	57.4	n/a	U
S10V002511		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
S10V002511		O	87-68-3	Hexachlorobutadiene	UJ	ug/kg	n/a	<69.7	<68.8	n/a	n/a	n/a	n/a	68.8	n/a	U
S10V002511		O	67-72-1	Hexachloroethane	UJ	ug/kg	n/a	<112	<110	n/a	n/a	n/a	n/a	110	n/a	U
S10V002511		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
S10V002511		O	91-20-3	Naphthalene		ug/kg	n/a	<62.6	<61.8	n/a	n/a	n/a	n/a	61.8	n/a	U
S10V002511		O	98-95-3	Nitrobenzene		ug/kg	n/a	<64.6	<63.8	n/a	n/a	n/a	n/a	63.8	n/a	U
S10V002511		O	129-00-0	Pyrene		ug/kg	105	<62.9	<62.1	n/a	n/a	n/a	n/a	62.1	n/a	U
S10V002511		O	110-86-1	Pyridine	UJ	ug/kg	n/a	<65.0	<64.2	n/a	n/a	n/a	n/a	64.2	n/a	U
S10V002511		O	126-73-8	Tributyl phosphate	UJ	ug/kg	n/a	<108	<106	n/a	n/a	n/a	n/a	106	n/a	U
S10V002511		O	128-37-0	BHT		ug/kg	n/a	<236	<233	n/a	n/a	n/a	n/a	233	n/a	U
S10V002511		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
S10V002511		O	1319-77-3	Total Methylphenols	UJ	ug/kg	n/a	<107	<105	n/a	n/a	n/a	n/a	105	n/a	U
S10V002511		O	108-94-1	Cyclohexanone	UJ	ug/kg	n/a	<558	<551	n/a	n/a	n/a	n/a	551	n/a	U
S10V002511		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
S10V002511		O	78-83-1	Isobutanol	UJ	ug/kg	n/a	<460	<454	n/a	n/a	n/a	n/a	454	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
M - RPD Outside Range
N - MS/MSD Outside Range
C - Blank Contamination
B - Blank Contamination
B - Estimated
J - Estimated
T - MS/MSD 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 HOLE C7680 IN SUPPORT OF RCRA SOIL CHARACTERIZATION

1.0 INTRODUCTION

This final report presents the results for the samples taken from Waste Management Area C between August 26, 2010 and September 1, 2010. 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-38777, *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); SW-846, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*; 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 other 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	Additional Organic Analyses QC Results
Attachment 5	Tentatively Identified Compounds (TIC) for Organic Analyses
Attachment 6	Geological Report
Attachment 7	Characterization Change Notices (CCN) and Correspondence
Attachment 8	Receipt Paperwork

2.0 SAMPLE RECEIPT AND BREAKDOWN

2.1 SAMPLE RECEIPT

A total of eight core intervals and two surface grab samples from core hole C7680 along with nine field blanks and six trip blanks were received by the 222-S Laboratory between August 26, 2010 and September 1, 2010. The samples were delivered in a cooler with ice or, in the case of the volatile organic soil samples, in a freezer. The temperatures of the temperature blanks were measured and recorded on the sample receipt check list and/or the chain of custody form.

The chain of custody requested that conductivity be analyzed on the soil samples. Since this analysis was not listed in the SAP or FSAP, it was not performed. The client has indicated that

this analysis may be performed later after a CCN is issued to cover the change to the FSAP (see Attachment 7).

2.2 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. The VOA samples were made from the shoe section of each core interval following SW-846 5035. 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 Attachment 6. Provided sufficient samples existed, the composite for each core interval was analyzed as described in the SAP and FSAP. One core interval, I002, had less than full recovery (see Attachment 2 and Attachment 8).

WRPS shipped subsamples of the composites to Test America Laboratories, Inc. (TAL) in St. Louis, Missouri and Knoxville, Tennessee to be analyzed for dibutyl and monobutyl phosphate, total petroleum hydrocarbons (diesel and gasoline range), ethylene glycol, chlorinated pesticides, and polychlorinated biphenyls (Aroclors and congeners). TAL subsequently subcontracted the monobutyl and dibutyl phosphate analyses to Southwest Research Institute. The results of these analyses will be released in the final WRPS report.

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 5. 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 (MDA) 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 SW-846 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 standard water digest.

"WV" indicates samples that were prepared by a Vadose 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 from FEAD CP-15383, *Common Requirements of the Format for Electronic Analytical Data,* that are defined as follows:

> "B" for organic or radiochemistry results is used to indicate that the analyte was detected in the method or preparation blank and in the sample.
>
> "B" for inorganic results is used to indicate that the reported result should be considered an estimate because it is below the quantitation limit. The "B" flag is applied to sample concentrations that are greater than the MDL but less than the quantitation limit.
>
> "C" for inorganic results 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 or equal to 20% of the reported sample result.
>
> "J" for organic results is used to indicate 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.
>
> "T" for GC/MS results is used to indicate the matrix spike (MS) recovery or matrix spike duplicate (MSD) recovery is outside control limits.
>
> "U" for all results is used to indicate that the reported result is less than the calculated detection limit.
>
> "N" for all but GC/MS is used to indicate that the MS recovery or MSD recovery was outside of the specified range in the QAPP or SAP.
>
> "N" for GC/MS is used to indicate a TIC which has been named.
>
> "M" for inorganic results is used to indicate that the relative percent difference (RPD) between the sample and the duplicate is greater than 30%.

Manual calculations using rounded results from the Data Summary Report (Attachment 1) 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 1 to 10 g of sample was digested depending on the analysis being performed. The digestate was then filtered and diluted to a final volume. This digestion was used for all radiochemical analyses except ^{3}H, ^{14}C, and ^{129}I. This digestion is a leach of the acid soluble species only.

3.1.2 SW-846 3050B - Acid Digestion-Heating Block

This acid digestion follows SW-846 3050B using a heating block and nitric and hydrochloric acids. An aliquot of approximately 5 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) analyses. 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. A separate digestion for antimony was prepared using additional hydrochloric acid, as recommended in SW-846.

3.1.3 Water Digestion

A water digestion or leach was prepared for the anions by ion chromatography, ^{14}C, and ^{3}H 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.

3.1.4 Vadose Water Digestion

A 70-g sample of soil was leached using a ratio of one part water to one part soil. To maintain a one-to-one ratio, the amount of water added to the sample was adjusted based on the percent moisture of the soil. The slurries were placed on a shaker table for about 1 hour. They were then transferred to a centrifuge tube and centrifuged at 4,000 rpm for 30 minutes. The leachates were filtered using a disposable vacuum filtration system. The filtrates were transferred to a clean bottle and then analyzed for ^{99}Tc by ICP/MS analysis.

3.2 INORGANIC ANALYSES

3.2.1 Cyanide

The cyanide analysis by distillation and spectrophotometry was performed on the grab samples and liner composite samples. All analyses met the SW-846 holding time of 14 days. There was no required reporting limit in the SAP for cyanide. The target detection limit was 0.5 µg/g, which is lower than what the current laboratory procedure (lachet micro-distillation) is reporting as reached. There were no notable quality control (QC) issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.2.2 Sulfide

Sulfide analysis by distillation and ion selective electrode was performed on the grab samples and liner composite samples. All analyses met the SW-846 holding time of 7 days. There was no required reporting limit in the SAP for sulfide. The target detection limit was 5 µg/g. All sample results had adjusted MDLs of approximately 7 µg/g. There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.2.3 pH Analysis

The pH analysis was performed on the grab samples and 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 after the water leach was performed. The sampling to analysis time varied from 19 to 25 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 variation in time has no apparent effect on the results.

3.2.4 Mercury

Analysis for mercury by cold-vapor/atomic absorption was performed on the grab samples and liner composite samples. All results met the QC requirements in the FSAP, SAP, and QAPP. All analyses met the holding time of 28 days. This analysis met the required and target detection limits.

3.2.5 Ion Chromatography – Ammonium

Analysis for ammonium was performed using a distillation preparation of the grab samples and the liner composite samples. There is no regulatory holding time limit promulgated for ammonium in soil. The SAP lists an administrative holding time of 7 days. The laboratory believes that after distillation and preservation, the holding time is 28 days, based on U.S. Environmental Protection Agency drinking water and waste water holding times for preserved samples. All samples met these holding times. However, sample B26C26 did not produce usable results and is discussed below in batch 21960. These analyses met the target detection limit listed in the SAP. There was no required reporting limit in the SAP or FSAP for ammonium.

Batch 21732: Ammonium was detected in the preparation blanks at a level below the quantitation limit and above the MDL. Ammonium was also detected in the samples above the quantitation limit but at more than 5 times the level of the blank; therefore, these results have not been flagged with a “C”.

Batch 21960: This batch experienced a major analytical error that was not discovered for several months. During the final review of this batch, which occurred several months after the analysis, it was discovered that for sample B26C26, it appeared that the spike standard was added to both the sample and MS. All the samples for core hole C7680 were reanalyzed months past the holding, and it was obvious from the results that most of the original ammonium had dissipated and results were unusable. These issues were discussed with the client and it was agreed that no result should be reported for sample B26C26 (see Attachment 7). The seven remaining sample results in the original batch were reported. Ammonium was detected in the preparation blanks at a level above the quantitation limit. Ammonium was also detected in three of the samples above the quantitation limit but at more than 5 times the level of the blank. All results have not been flagged with a “C”.

3.2.6 Ion Chromatography – Anions and Small Organic Acids

Ion chromatography analysis was performed on all grab samples and liner composite samples. The laboratory met all of the required and target detection limits. All analyses were within the applicable SW-846 holding times. The sample spikes used for the standard water digestions are predigestion spikes.

Batch 21990: The result for chloride in the preparation blank was slightly above the MDL and below the quantitation limit. All sample results were above the quantitation limit and were greater than 5 times the blank; therefore, no "C" flags were applied.

3.2.7 Inductively Coupled Plasma/Atomic Emission Spectroscopy

The ICP/AES analysis was performed on an acid-digest (SW-846 3050B) of all grab samples and liner composite samples. The ICP/AES analysis was unable to obtain the required detection limit for antimony, arsenic, cadmium, lead, selenium, silver, and thallium for the soil sample. These elements have been reported from separate ICP/MS analyses. Total uranium has not been reported by the ICP/AES analysis since it cannot meet the required detection limits in the SAP. The isotopic uranium analysis by ICP/MS met the required detection limit for ^{238}U, which is essentially total uranium. The overall data usability was not affected. For all other metals reported by ICP/AES, all target and required detection limits were met. SW-846 lists the holding times for ICP/AES metals as 6 months. All analyses met the holding times. All primary metal constituents are reported. Secondary constituents are only reported if the results were above the MDL and had a valid calibration.

Batch 23817: The interference check standard-A produced positive results for phosphorous, neodymium, and manganese, which are not contained in this standard. This could indicate a positive interference. However, since in the interference check standard-AB (ICSAB) phosphorous and manganese were recovered at 100% and 99%, there appears to be no positive interference. The ICSAB also produced a result above the quantitation limit for neodymium. This indicates that spectral interference was occurring. Neodymium results in the sample were not reported due to the high probability that they were the result of this interference. A low level of iron was detected in the preparation blank, but reanalysis was not required since these levels were less than 20% of the lowest sample result.

The MS recoveries for aluminum, calcium, iron, magnesium, potassium, manganese, phosphorous, and titanium exceeded the ±25% requirement in the FSAP and SAP. Since the sample results for these elements exceeded the MS level by more than four times, this criterion does not apply.

The MS recovery for barium, sodium, silicon, strontium, and zirconium exceeded the ±25% requirement in the SAP and FSAP. These results have been flagged with an "N". The exact cause of these failures is unknown. Matrix interference is suspected for barium and zirconium since these commonly fail. However, since all duplicate results were higher than the sample results, analytical error cannot be ruled out. These results were discussed with the client and reported "as is" (see Attachment 7).

The RPD between the sample and the duplicate exceeded the ±30% requirement in the SAP for sodium, chromium, and strontium. These results have been flagged with an "M". The exact cause of these failures is unknown. Matrix interference is suspected; however, since all duplicate results were higher than the sample results, analytical error cannot be ruled out. These results were discussed with the client and reported "as is" (see Attachment 7).

The RPD between the sample and the duplicate exceeded the ±30% requirement in the SAP for silicon. The laboratory believes this was due to matrix interference. Reanalysis was not required since this is secondary element. It should be noted that silicon is not listed with other elements in SW-846 3050B, section 1.1, under "Scope and Application" for the method and does not perform consistently when using this digest. The silicon results have been flagged with an "M".

The method blank contained a low level of calcium and iron. Since the adjusted blank results were less than 20% of the lowest sample result, reanalysis was not required and no qualifier flag was applied.

3.2.8 Inductively Coupled Plasma/Mass Spectroscopy

The ICP/MS actinide and trace metal analyses were performed on the standard SW-846 3050 acid digestion of all grab samples and liner composite samples. The ICP/MS ^{126}Sn and ^{99}Tc analysis was performed on the sample digest without the addition of hydrochloric acid. Hydrochloric acid is not used for ^{99}Tc analysis because of the potential formation of a ZnCl ion pair with mass 99. ICP/MS trace metal analysis for antimony was perform on the SW-846 3050 digest with additional hydrochloric acid, which is required to keep antimony in the solution. In addition to these acid digests, ICP/MS ^{99}Tc analysis was performed on a vadose water digest of all solid samples.

Direct is the most accurate type of calibration; however, standard material is not commercially available for all of the isotopes of interest. Concentrations of those isotopes without available standards are estimated based on the instrument's mass-response curve, which is generated by using the intensity/concentration relationship for the available isotope standards. Results estimated in this manner are designated "semi-quantitative."

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 SAP lists the holding time for isotopic analytes as 6 months. All samples were analyzed within the holding time.

Because there is no available source for ^{126}Sn, ^{117}Sn is used to monitor the chemical recovery for this analysis. Though not specifically requested in the SAP, ^{117}Sn is reported for the laboratory control sample (LCS) and MS in order to demonstrate method accuracy and presence of possible matrix interference.

All sample results for ^{126}Sn were above the MDL and below the quantitation limit with one exception. Based on this, the laboratory suspects that a low level isobaric interference is present in these samples at mass 126. The laboratory believes the most likely suspect is ^{126}Te, but there are other possible candidates. One sample result was above the quantitation level for ^{126}Sn. Users of this data should be aware that all positive ^{126}Sn results in the report may be due to isobaric interference. The laboratory is currently evaluating how to quantify the possible isobaric interferences for ^{126}Sn.

Batch 24040: The MS for ^{117}Sn was recovered below the ±25% requirement at 53%. Similar results have been observed in other batches; this appears to be a matrix interference issue. This batch was not reanalyzed, but others have been with no improvement. Tin results should be considered biased low at these levels. All samples in the batch have been flagged with an "N". The laboratory is investigating changing the acid mixture used to perform low level ^{126}Sn analysis in hopes of improving spike recoveries. Tin-126 was detected in two of the three continuing calibration blanks at slightly above the MDL. Since all results were below the quantification level, reanalysis was not required. The affected results have been flagged with a "B".

3.2.8.2 Technetium-99 (Vadose Water Digest)

The required and target detection limits listed in the SAP for ^{99}Tc were met. The SAP lists a holding time of 6 months for isotopic analytes. All analyses met this holding time. There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.2.8.3 Actinides

The required and target detection limits were met for all isotopes and in all samples. The SAP lists the holding time for isotopic analytes as 6 months. All samples were analyzed within the holding time.

Batch 23367: The closing low level standard (LLS) for ^{235}U exceeded the ±30% limit at 169%. Since all ^{235}U results were at least 17 times the LLS level, the data usability was not affected. The preparation blank result for ^{236}U was slightly above the MDL. The samples had similar results that should be considered equivalent to the blank. The affected results have been flagged with a "B".

Batch 23808: One LLS for ^{232}Th exceeded the ±30% limit at 133%. Since all ^{232}Th results were at least 130 times the LLS level, the data quality was not affected. The preparation blank result for ^{230}Th was slightly above the MDL. The samples had similar results that should be considered equivalent to the blank. The affected results have been flagged with a "B".

3.2.8.4 Trace Metals

Antimony, arsenic, cadmium, lead, selenium, silver, and thallium were analyzed by ICP/MS to obtain the required detection limits in the SAP. Except for the required detection limit for selenium, all required detection limits were met or the sample results were above the quantitation limit and the sample detection limit criteria do not apply. All target detection limits were met. The required detection limit for selenium was approximately an order of magnitude below the detection limit obtained by ICP/MS. The laboratory does not anticipate reaching this detection

limit for future projects. The adjusted MDL for selenium was approximately 0.27 µg/g. SW-846 lists the holding time for metals as 6 months. All samples were analyzed within the holding time.

Batch 24457: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batch 22891: The LLS recoveries for antimony exceeded the ±30% limit at 177% and 166%. This would indicate a high bias for sample results near the LLS level. Since all sample results were below the RDL, the data usability was not affected.

Batch 24435: The closing LLS recovery for selenium exceeded the ±30% limit at 131%, which is believed to be due to carryover from the continuing calibration verification (CCV) standard, and impact on the data usability is minimal. The cadmium RPD exceeded the required ±30 in the FSAP and SAP at 31%. Since the sample result was below the quantitation limit, this criterion does not apply.

3.3 RADIOCHEMICAL ANALYSIS

The holding time listed in the SAP for radioactive isotopes is 6 months. The FSAP lists the holding time as "none." SW-846 does not address holding times for radiochemical analytes. All radiochemical analyses met the 6-month holding time listed in the SAP. Holding time tables for these analytes have not been included in Attachment 3. With the exception of the ^{14}C and ^{3}H analyses, tracers and spikes are added prior to the digestion.

3.3.1 Gamma Energy Analysis

GEA was performed directly on the grab samples and liner composite samples. The SAP requires the reporting of all isotopes with positive results above the MDA; therefore, isotopes additional to those required in the SAP were reported when detected. The GEA analysis met all of the required detection limits in the SAP. The laboratory was unable to meet any of the target detection limits.

3.3.2 Strontium-89/90

Strontium-89/90 analysis was performed on the grab samples and liner composite samples. All of the sample analyses met the required and target detection limits. The FSAP and SAP requested ^{90}Sr, not $^{89/90}Sr$, be reported. The 222-S Laboratory only performs the latter analysis. Since the half-life for ^{89}Sr is approximately 51 days and ^{89}Sr has not been produced at Hanford for years, $^{89/90}Sr$ is essentially ^{90}Sr. There were no notable issues with the batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.3.3 Tritium

The ^{3}H analysis by liquid scintillation counting (LSC) was performed on a water leach of all grab samples and liner composite samples. This method only measured the ^{3}H in the samples that could be dissolved in water. This analysis achieved the required and target detection limits in the

FSAP. There were no notable issues with the batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.3.4 Selenium-79

The ^{79}Se analysis by LSC was performed on the grab samples and liner composite samples. The analysis achieved the target detection limit in the FSAP. No required detection limit was listed. The analysis achieved the target detection limit. No standard is currently available for ^{79}Se, and a cold carrier is used to monitor recovery and is measured gravimetrically. The ^{14}C LSC curve is used to determine the ^{79}Se results since their energies are similar. Since both ^{63}Ni and ^{79}Se use a single digestion batch that is equally split prior to the separation step, the maximum tracer/carrier recovery is 50%.

Batch 24055: The preparation blank demonstrated a positive result below the quantitation limit, as did the four samples in the batch. All results had very large counting uncertainties and were below the target detection limit. Because of these factors, reanalysis was not required. The associated positive results have been flagged with a “B”.

3.3.5 Carbon-14

The ^{14}C analysis by LSC was performed on a water leach of the grab samples and liner composite samples. 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 batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.3.6 Nickel-63

The ^{63}Ni analysis by LSC was performed on the grab samples and liner composite samples. The analysis achieved the required and target detection limits in the FSAP. Since both ^{63}Ni and ^{79}Se use a single digestion batch that is equally split prior to the separation step, the maximum trace/carrier recovery is 50%. There were no notable issues with the batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.3.7 Iodine-129

Analysis for ^{129}I by low energy GEA was performed on an iodine-specific fusion digest of all grab samples and liner composite samples. The required and target detection limits in the SAP were met. There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

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

Analysis for ^{241}Am, $^{243/244}$Cm, and ^{242}Cm by alpha energy analysis (AEA) was performed on the grab samples and liner composite samples. For this analysis, there were no notable issues with any batches and all QC requirements in the FSAP, SAP, and QAPP were met. The required and

target detection limits in the SAP were met. The SAP and FSAP requested ^{243}Cm and ^{244}Cm be reported separately. Since it is not possible to resolve these individual isotopes when using AEA, these isotopes have been reported as $^{243/244}$Cm.

3.3.9 Plutonium-238 and Plutonium-239/240

Plutonium isotopic (^{238}Pu and $^{239/240}$Pu) analysis by AEA was performed on the grab samples and liner composite samples. For this analysis, there were no notable issues with any batches and all QC requirements in the FSAP, SAP, and 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 by GC/MS was performed on field samples by purge and trap. Field sampling methods, sample containers, and preservation methods followed SW-846 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. Nine field blanks and six trip blanks 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 met the required holding time. All primary organic constituents are reported. Secondary and unlisted constituents are only reported if the results were above the MDL and had a validation calibration.

The VOA met the target and required detection limits in the SAP. The SAP and FSAP requested m-xylene and p-xylene be reported separately. Since it is not possible to resolve these individual compounds when performing VOA by SW-846 8260C, these compounds have been reported as m+p xylene. The SAP and FSAP request that methanol be reported with this analysis; however, this compound is too polar to be purged and cannot be reported (see Attachment 7). Isobutanol, another poor purger, was reported as a semivolatile organic compound.

Four of the field blanks and four of the trip blanks contained chloroform above the quantification level. Since chloroform is a common chlorination byproduct, the laboratory believes a likely the source of chloroform may be the water used by sampling personnel to make the various blanks.

Four of the field blank and two of the trip blanks contained methylene chloride above or near the quantification level. None of the associated laboratory blanks contained methylene chloride.

The 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 21718, 21719, and 21897: The method blank results for toluene and styrene were above the MDL but below the quantitation limit. Some of the samples contained toluene and styrene at similar levels and have been flagged with at "B". Since all sample and blank results were below the quantitation limit, reanalysis was not required.

Batch 21786: The method blank result for toluene was above the MDL but below the quantitation limit. One of the samples contained toluene at a similar level and has been flagged with at "B". Since the sample and blank results were below the quantitation limit, reanalysis was not required. The percent difference for n-butanol in the CCV was +25%, which exceeds the ±20% difference requirement. This indicates a high bias; however, since all sample results were below the MDL, the data usability was not affected and reanalysis not required.

Batch 21922: The method blank result for toluene was above the MDL but below the quantitation limit. One of the samples contained toluene at a similar level and has been flagged with at "B". Since the sample and blank results were below the quantitation limit, reanalysis was not required. The internal standards for one sample, B26CW9 (S10V001852), were recovered low, ranging from -66% to -78%. This sample was analyzed two additional times using its own MS and MSD with similar results. The MS and MSD (not reported) for the sample exhibited normal internal standard recovery. In addition, the sample's surrogate recoveries, which are adjusted using the internal standards, hovered around 100%. This indicates that there may have been a spiking or sample introduction problem. Since the results for chloroform and methylene chloride were similar in the sample and MS and MSD, the results for these were reported from the original sample analysis.

Batch 21979: The method blank result for styrene was above the MDL but below the quantitation limit. The sample contained styrene at a similar level and has been flagged with a "B". Since the sample and blank results were below the quantitation limit, reanalysis was not required. Styrene is not a primary analyte.

Batch 24659: The method blank result for benzene was above the MDL but below the quantitation limit. The sample contained benzene at a similar level and has been flagged with a "B". Since the sample and blank results were below the quantitation limit, reanalysis was not required.

3.4.2 Semivolatile Organic Analysis

The semivolatile organic analysis (SVOA) by GC/MS was performed on methylene chloride extractions of all grab samples and liner composite samples. All holding times were met.

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

- The adjusted MDLs for cyclohexanone were above the 0.5-mg/kg target detection limit for most samples. This compound obtained detection limits between 0.5 mg/kg and 0.6 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 0.6 mg/kg for this compound.

LCS, MS, and MSD recoveries were compared against the laboratory's SPC limits, as required by SW-846. The use of SPC limits is permitted in the FSAP, SAP, and QAPP.

The SAP and FSAP requested 3-methylphenol and 4-methylpnenol be reported separately. Since it is not possible to resolve these individual compounds when performing SVOA by SW-846 8270C, these compounds have been reported as 3&4 methylphenol.

Batches 22043 and 22254: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batch 22217: The MS recovery for 2,4-dinitrotoluene exceeded the statistical control limit of 55% to 111% at 114%. Since all sample results were below the MDL for this compound, the data usability was not affected

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's NIST 02, *HP Mass Spectral Libraries*. The estimated concentration of compounds identified in 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 5. TICs that were found in the field samples and 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 Area C samples.

Table 2. Analytical Procedures

Analysis	Preparation Method	Analysis Procedure
Inorganic Analyses		
Cyanide	LA-695-103, Rev. J-0 (SW-846 9010C)	LA-695-103, Rev. 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 (solid)	LA-212-105, Rev. H-0 (SW-846 9045D)	LA-212-105, Rev. H-0 (SW-846 9045D)

Analysis	Preparation Method	Analysis Procedure
Mercury – Cold Vapor Atomic Absorption	LA-325-110, Rev. A-0 (SW-846 7471A)	LA-325-110, Rev. A-0 (SW-846 7471A)
Ammonia – IC	LA-544-112, Rev. E-0	LA-533-101, Rev. Q-0
Anions & Organic Acids – IC	LA-504-101, Rev. M-0	LA-533-115, Rev. J-0
Metals – ICP /AES	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-505-161, Rev. J-0-A (SW-846 6010C)
^{99}Tc, ^{126}Sn – ICP/MS	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-506-102, Rev. F-1
^{99}Tc – ICP/MS	08-ATL-078 Vadose Water Digest	LA-506-103, Rev. B-0
Metals – ICP/MS	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-506-102, Rev. F-1 LA-506-103, Rev. B-0 (SW-846 6020A)
Actinides – ICP/MS	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-506-102, Rev. F-1
Radiochemical Analyses		
GEA	Direct	LA-548-121, Rev. I-0
^{90}Sr – Separation/Beta counting (Solid)	LA-544-101, Rev. F-0	LA-220-101, Rev. I-0
^{3}H – LSC	LA-504-101, Rev. M-0	LA-218-111, Rev. H-0
^{14}C – LSC	LA-504-101, Rev. M-0	LA-348-104, Rev. I-0
^{79}Se – Separation/LSC	LA-544-101, Rev. F-0	LA-365-132, Rev. J-0
^{63}Ni – Separation/LSC	LA-544-101, Rev. F-0	LA-285-102, Rev. E-0
^{129}I – Separation/GEA	LA-378-105, Rev. D-0	LA-378-105, Rev. D-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. H-O (SW-846 8260B)
SVOC – GC/MS	LA-523-138, Rev. G-0 (SW-846 3540C)	LA-523-135, Rev. D-0 (SW-846 8270C)

5.0 REFERENCES

ATL-MP-1011, 2010, *ATL Quality Assurance Project Plan for 222-S Laboratory*, 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.

RPP-PLAN-40564, 2009, *Field Sampling and Analysis Plan for Sites P and L at Waste Management Area C,* Rev. 2, Washington River Protection Solutions, Inc., Richland, Washington.

RPP-PLAN-38777, 2009, *Sampling and Analysis Plan for Phase 2 Characterization of Vadose Zone Soil in Waste Management Area C*, Rev. 1, Washington River Protection Solutions, Inc., Richland, Washington.

FEAD CP-15383, 2007 *Common Requirements of the Format for Electronic Analytical Data,* Rev. 8, CH2M Hill, Plateau Remediation Company, Richland, Washington.

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V10-003-142	PAGE 1 OF 2
COLLECTOR Harris / Snook	COMPANY CONTACT TEMPLETON, AM	TELEPHONE NO. 373-5589	PROJECT COORDINATOR BERLIN, PC	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION 7680 003	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V10-003	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO. TFUS-09-003	FIELD LOGBOOK NO. TFUZ-10-000004	ACTUAL SAMPLE DEPTH 14'-16'	COA n/A	METHOD OF SHIPMENT Govt. Vehicle	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. n/A		BILL OF LADING/AIR BILL NO. n/A		

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)	PRESERVATION	Cool~4C
		HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	Gs jar/Liners
		NO. OF CONTAINER(S)	3 A,B,C RK
		VOLUME	160g
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B26C30	SOIL	8-29-10	0935	—

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
Dan Harris Dan Harris	8-29-10 1147	RA Steele RA Steele	8.29.10 1147	
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	

GRP# 20100584
SPDV001943 A
1944 B
1945 C

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

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V10-003-142	PAGE 2 OF 2
COLLECTOR Harris / Snook	**COMPANY CONTACT** TEMPLETON, AM	**TELEPHONE NO.** 373-5589	**PROJECT COORDINATOR** BERLIN, PC	**PRICE CODE** 8P **AIR QUALITY** ☐	**DATA TURNAROUND** **75 Days / 75 Days**
SAMPLING LOCATION 7680 003	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V10-003		
ICE CHEST NO. TFVS-09-003	**FIELD LOGBOOK NO.** TFVZ-10-000004	**ACTUAL SAMPLE DEPTH** 14'-16'	**COA** n/A	**METHOD OF SHIPMENT** Govt. Vehicle	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.** n/A		**BILL OF LADING/AIR BILL NO.** n/A		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the sampler will cap remaining liners for shipment to 222-S. Where capping is not possible, the sample shall be put into 500 mL or 250 mL glass bottles with Teflon-lined lids.
(1) Semi-VOA - 8270 Complete (TF); TPH-Gasoline Range - WTPH-G; TPH-Diesel Range - WTPH-D; PCBs - 8082; Pesticides - 8081 (TF); 1668 PCB CONGENER (TCL); ICP Metals - 6010 (SW-846) (TF); Mercury - 7471 - (CV) (TF); 300.7_AMMONIUM (TF); IC Anions - 9056; Sulfide - 9215; Total Cyanide - 9014 (TF); pH (Soil) - 9045; Americium-241 (TF); C-14; CURIUM; GAMMA ENERGY ANALYSIS (TF); H3 - TRITIUM; I129_SEP_GEA (TF); Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Nickel-63 (TF); RADISO_ICPMS (TF); Selenium-79 (TF); Strontium-90; Conductivity - 9050_WE; Percent Solids (TF); Percent Water (TF);

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V10-003-150	PAGE 1 OF 2
COLLECTOR Campbell / Harris	**COMPANY CONTACT** TEMPLETON, AM	**TELEPHONE NO.** 373-5589	**PROJECT COORDINATOR** BERLIN, PC	**PRICE CODE** 8P	**DATA TURNAROUND**
SAMPLING LOCATION 7680 007	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V10-003	**AIR QUALITY** ☐	75 Days / 75 Days
ICE CHEST NO. TFV3-09-003	**FIELD LOGBOOK NO.** TFV2-10-000004	**ACTUAL SAMPLE DEPTH** 116'-118'	**COA** n/a	**METHOD OF SHIPMENT** Govt. Vehicle	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.** n/a		**BILL OF LADING/AIR BILL NO.** n/a		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C
HOLDING TIME	14/40 Days
TYPE OF CONTAINER	Gs jar/Liners
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B26C38	SOIL	9-1-10	1740	✓

20100584
S10V002502
2503
2504

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
Campbell C-pbell	9-1-10 2200	[illegible] Edwards	9/1/10 2200	
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	

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

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V10-003-150	PAGE 2 OF 2
COLLECTOR Campbell / Harris	**COMPANY CONTACT** TEMPLETON, AM	**TELEPHONE NO.** 373-5589	**PROJECT COORDINATOR** BERLIN, PC	**PRICE CODE** 8P **AIR QUALITY** ☐	**DATA TURNAROUND** **75 Days / 75 Days**
SAMPLING LOCATION 7680 007	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V10-003		
ICE CHEST NO. TFVS - 09 - 063	**FIELD LOGBOOK NO.** TFVZ-10-000004	**ACTUAL SAMPLE DEPTH** 116' - 118'	**COA** N/A	**METHOD OF SHIPMENT** Govt. Vehicle	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.** N/A		**BILL OF LADING/AIR BILL NO.** N/A		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the sampler will cap remaining liners for shipment to 222-S. Where capping is not possible, the sample shall be put into 500 mL or 250 mL glass bottles with Teflon-lined lids.
(1) Semi-VOA - 8270 Complete (TF); TPH-Gasoline Range - WTPH-G; TPH-Diesel Range - WTPH-D; PCBs - 8082; Pesticides - 8081 (TF); 1668 PCB CONGENER (TCL); ICP Metals - 6010 (SW-846) (TF); Mercury - 7471 - (CV) (TF); 300.7_AMMONIUM (TF); IC Anions - 9056; Sulfide - 9215; Total Cyanide - 9014 (TF); pH (Soil) - 9045; Americium-241 (TF); C-14; CURIUM; GAMMA ENERGY ANALYSIS (TF); H3 - TRITIUM; I129_SEP_GEA (TF); Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Nickel-63 (TF); RADISO_ICPMS (TF); Selenium-79 (TF); Strontium-90; Conductivity - 9050_WE; Percent Solids (TF); Percent Water (TF);

Appendix 5

Data Validation Supporting Documentation

Appendix A - Chemical Data Validation Checklist

VALIDATION LEVEL:	A	B	(C)	D	E
PROJECT: WMA C			DATA PACKAGE: VSR11-046		
VALIDATOR: Carl Schloesslin		LAB: 222-S Lab		DATE: 5-30-2011	
			SDG: 20100584		
ANALYSES PERFORMED					
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270 X		SW-846 8270 (TCLP)
SAMPLES/MATRIX Soil samples B26C30 and B26C38					

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:

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:

For both batches, 7 spiked LCS and MS/MSD analytes, 19 non-represented analytes

Batch 22254

1,2,4-trichlorobenzene	LCS %R = 60%, MS %R = 53%, MSD %R = 49%
acenaphthene	LCS %R = 68%, MS %R = 64%, MSD %R = 59%
4-chloro-3-methylphenol	LCS %R = 63%, MS %R = 59%, MSD %R = 57%
2-chlorophenol	LCS %R = 68%, MS %R = 61%, MSD %R = 57%
n-nitroso-di-n-dipropylamine	LCS %R = 64%, MS %R = 58%, MSD %R = 54%

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

Internal 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

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:

Comments (attach additional sheets as necessary): None

Appendix 6

Additional Documentation Requested By Client

Holding Time Report: GC/MS SVOA

Sample Group	Sample	Matrix	Method	Prep Method	Sample Date	Received Date	Prep Date	Analysis Date	Missed Holding Time
20100584	S10V001875	SOLID	SW-846-8270D	SW-846 3540C	08/26/10 09:00	08/26/10 10:20	08/28/10 17:00	09/02/10 13:30	N
20100584	S10V001892	SOLID	SW-846-8270D	SW-846 3540C	08/26/10 09:15	08/26/10 10:20	08/28/10 17:00	09/02/10 15:52	N
20100584	S10V001912	SOLID	SW-846-8270D	SW-846 3540C	08/27/10 13:15	08/27/10 14:00	09/07/10 16:02	09/13/10 17:16	N
20100584	S10V001932	SOLID	SW-846-8270D	SW-846 3540C	08/29/10 08:30	08/29/10 11:47	09/07/10 16:02	09/13/10 18:03	N
20100584	S10V001952	SOLID	SW-846-8270D	SW-846 3540C	08/29/10 09:35	08/29/10 11:47	09/07/10 16:02	09/13/10 18:50	N
20100584	S10V001972	SOLID	SW-846-8270D	SW-846 3540C	08/29/10 10:50	08/29/10 11:47	09/07/10 16:02	09/13/10 19:38	N
20100584	S10V002058	SOLID	SW-846-8270D	SW-846 3540C	08/31/10 09:35	08/31/10 10:45	09/07/10 16:02	09/13/10 22:01	N
20100584	S10V002359	SOLID	SW-846-8270D	SW-846 3540C	09/01/10 10:15	09/01/10 11:10	09/13/10 16:05	09/27/10 18:15	N
20100584	S10V002511	SOLID	SW-846-8270D	SW-846 3540C	09/01/10 17:40	09/01/10 22:00	09/13/10 16:05	09/27/10 19:02	N
20100584	S10V002806	SOLID	SW-846-8270D	SW-846 3540C	09/01/10 21:00	09/01/10 22:00	09/13/10 16:05	09/27/10 15:53	N

LABCORE Completed Batch Report for Batch# 00022254

Analyst: Ojanen, Carol

Book#:

Instrument: GCMSD5 (TUVOK) for SVOA

Method: SVOA 222S #2, LA-523-135 Rev/Mod D-0

Specification: C Farm WMC 2010-2

Prep Batch: 00021945

Batch Comment:

C Farm WMC 2010-2 SVOA SOL Group# 20100584, 660

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	S1009070025		0 0	O		1,2,4-Trichlorobenzene	SOLID		<7.7400E+01			77.4	ug/Kg			U
1	BLNK	S1009070025		0 0	O		1,2-Dichlorobenzene	SOLID		<1.0070E+02			100.7	ug/Kg			U
1	BLNK	S1009070025		0 0	O		2,4-Dinitrotoluene	SOLID		<3.8100E+01			38.1	ug/Kg			U
1	BLNK	S1009070025		0 0	O		2,4,5-Trichlorophenol	SOLID		<4.4000E+01			44	ug/Kg			U
1	BLNK	S1009070025		0 0	O		2,4,6-Trichlorophenol	SOLID		<4.9500E+01			49.5	ug/Kg			U
1	BLNK	S1009070025		0 0	O		2-Methylphenol	SOLID		<5.7500E+01			57.5	ug/Kg			U
1	BLNK	S1009070025		0 0	O		2-Nitrophenol	SOLID		<5.3700E+01			53.7	ug/Kg			U
1	BLNK	S1009070025		0 0	O		3 & 4 Methylphenol Total	SOLID		<5.1400E+01			51.4	ug/Kg			U
1	BLNK	S1009070025		0 0	O		Acenaphthene	SOLID		<1.7600E+01			17.6	ug/Kg			U
1	BLNK	S1009070025		0 0	O		Benzo(a)anthracene	SOLID		<3.7800E+01			37.8	ug/Kg			U
1	BLNK	S1009070025		0 0	O		Benzo(b)fluoranthene	SOLID		<4.8900E+01			48.9	ug/Kg			U
1	BLNK	S1009070025		0 0	O		Benzo(a)pyrene	SOLID		<4.1200E+01			41.2	ug/Kg			U
1	BLNK	S1009070025		0 0	O		bis(2-Ethylhexyl)phthalate	SOLID		<5.9020E+02			590.2	ug/Kg			U
1	BLNK	S1009070025		0 0	O		Benzo(k)fluoranthene	SOLID		<3.9100E+01			39.1	ug/Kg			U
1	BLNK	S1009070025		0 0	O		Butylbenzylphthalate	SOLID		<5.0000E+01			50	ug/Kg			U
1	BLNK	S1009070025		0 0	O		4-Chloro-3-methylphenol	SOLID		<4.3200E+01			43.2	ug/Kg			U
1	BLNK	S1009070025		0 0	O		2-Chlorophenol	SOLID		<6.6500E+01			66.5	ug/Kg			U
1	BLNK	S1009070025		0 0	O		Chrysene	SOLID		<8.1400E+01			81.4	ug/Kg			U
1	BLNK	S1009070025		0 0	O		Dibenz(a,h)anthracene	SOLID		<5.1100E+01			51.1	ug/Kg			U
1	BLNK	S1009070025		0 0	O		Di-n-butylphthalate	SOLID		<5.6230E+02			562.3	ug/Kg			U
1	BLNK	S1009070025		0 0	O		Di-n-octylphthalate	SOLID		<4.7700E+01			47.7	ug/Kg			U
1	BLNK	S1009070025		0 0	O		N-Nitrosodipropylamine	SOLID		<5.8100E+01			58.1	ug/Kg			U
1	BLNK	S1009070025		0 0	O		Fluoranthene	SOLID		<3.5400E+01			35.4	ug/Kg			U
1	BLNK	S1009070025		0 0	O		Hexachlorobutadiene	SOLID		<6.9700E+01			69.7	ug/Kg			U
1	BLNK	S1009070025		0 0	O		Hexachloroethane	SOLID		<1.1180E+02			111.8	ug/Kg			U
1	BLNK	S1009070025		0 0	O		Indeno(1,2,3-cd)pyrene	SOLID		<5.1000E+01			51	ug/Kg			U
1	BLNK	S1009070025		0 0	O		Naphthalene	SOLID		<6.2600E+01			62.6	ug/Kg			U
1	BLNK	S1009070025		0 0	O		Nitrobenzene	SOLID		<6.4600E+01			64.6	ug/Kg			U
1	BLNK	S1009070025		0 0	O		Pyrene	SOLID		<6.2900E+01			62.9	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# 00022254

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
1	BLNK	S1009070025		0 0	O		Pyridine	SOLID		<6.5000E+01			65	ug/Kg			U
1	BLNK	S1009070025		0 0	O		Tri-n-butylphosphate	SOLID		<1.0780E+02			107.8	ug/Kg			U
1	BLNK	S1009070025		0 0	O		2,6 bis-4Methylphenol	SOLID		<2.3560E+02			235.6	ug/Kg			U
1	BLNK	S1009070025		0 0	O		2-Ethoxyethanol	SOLID		<1.8240E+02			182.4	ug/Kg			U
1	BLNK	S1009070025		0 0	O		Methylphenols, Total	SOLID		<1.0660E+02			106.6	ug/Kg			U
1	BLNK	S1009070025		0 0	O		Cyclohexanone	SOLID		<5.5810E+02			558.1	ug/Kg			U
1	BLNK	S1009070025		0 0	O		N-Nitrosomorpholine	SOLID		<1.9130E+02			191.3	ug/Kg			U
1	BLNK	S1009070025		0 0	O		Isobutanol	SOLID		<4.6030E+02			460.3	ug/Kg			U
1	BLNK	S1009070025		0 0	O		1,2-Benzenedicarboxyli	SOLID		316.66058				ug/Kg			JNT
1	BLNK	S1009070025		0 0	O		Amylene Hydrate	SOLID		243.60252				ug/Kg			JNT
1	BLNK	S1009070025		0 0	O		Unknown-1	SOLID		346.68623				ug/Kg			JT
1	BLNK	S1009070025		0 0	O		Unknown-2	SOLID		281.78926				ug/Kg			JT
1	BLNK	S1009070025		0 0	O		Unknown-3	SOLID		628.76609				ug/Kg			JT
1	BLNK	S1009070025		0 0	O		Unknown-4	SOLID		330.10996				ug/Kg			JT
Sample Sequence 2																	
2	LCS	S1009070026		0 0	O		1,2,4-Trichlorobenzene	SOLID	2000	1.2011E+03			77.4	ug/Kg	60.055	% Recovery	
2	LCS	S1009070026		0 0	O		2,4-Dinitrotoluene	SOLID	2000	1.5553E+03			38.1	ug/Kg	77.765	% Recovery	
2	LCS	S1009070026		0 0	O		Acenaphthene	SOLID	2000	1.3592E+03			17.6	ug/Kg	67.96	% Recovery	
2	LCS	S1009070026		0 0	O		4-Chloro-3-methylphen ol	SOLID	4000	2.5075E+03			43.2	ug/Kg	62.688	% Recovery	
2	LCS	S1009070026		0 0	O		2-Chlorophenol	SOLID	4000	2.7204E+03			66.5	ug/Kg	68.01	% Recovery	
2	LCS	S1009070026		0 0	O		N-Nitrosodipropylamine	SOLID	2000	1.2754E+03			58.1	ug/Kg	63.77	% Recovery	
2	LCS	S1009070026		0 0	O		Pyrene	SOLID	2000	1.7265E+03			62.9	ug/Kg	86.325	% Recovery	
Sample Sequence 3																	
3	SAMPLE	S10V001912		0 0	O		1,2,4-Trichlorobenzene	SOLID	N/A	<7.7365E+01			77.365	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		1,2-Dichlorobenzene	SOLID	N/A	<1.0065E+02			100.65	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		2,4-Dinitrotoluene	SOLID	N/A	<3.8083E+01			38.083	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		2,4,5-Trichlorophenol	SOLID	N/A	<4.3980E+01			43.98	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		2,4,6-Trichlorophenol	SOLID	N/A	<4.9478E+01			49.478	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		2-Methylphenol	SOLID	N/A	<5.7474E+01			57.474	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		2-Nitrophenol	SOLID	N/A	<5.3676E+01			53.676	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		3 & 4 Methylphenol Total	SOLID	N/A	<5.1377E+01			51.377	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		Acenaphthene	SOLID	N/A	<1.7592E+01			17.592	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		Benzo(a)anthracene	SOLID	N/A	<3.7783E+01			37.783	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		Benzo(b)fluoranthene	SOLID	N/A	<4.8878E+01			48.878	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		Benzo(a)pyrene	SOLID	N/A	<4.1181E+01			41.181	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		bis(2-Ethylhexyl)phthal ate	SOLID	N/A	<5.8993E+02			589.93	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		Benzo(k)fluoranthene	SOLID	N/A	<3.9082E+01			39.082	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		Butylbenzylphthalate	SOLID	N/A	<4.9978E+01			49.978	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		4-Chloro-3-methylphen ol	SOLID	N/A	<4.3181E+01			43.181	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		2-Chlorophenol	SOLID	N/A	<6.6470E+01			66.47	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# 00022254

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
3	SAMPLE	S10V001912		0 0	O		Chrysene	SOLID	N/A	<8.1363E+01			81.363	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		Dibenz(a,h)anthracene	SOLID	N/A	<5.1077E+01			51.077	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		Di-n-butylphthalate	SOLID	N/A	<5.6205E+02			562.05	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		Di-n-octylphthalate	SOLID	N/A	<4.7679E+01			47.679	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		N-Nitrosodipropylamine	SOLID	N/A	<5.8074E+01			58.074	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		Fluoranthene	SOLID	N/A	<3.5384E+01			35.384	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		Hexachlorobutadiene	SOLID	N/A	<6.9669E+01			69.669	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		Hexachloroethane	SOLID	N/A	<1.1175E+02			111.75	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		Indeno(1,2,3-cd)pyrene	SOLID	N/A	<5.0977E+01			50.977	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		Naphthalene	SOLID	N/A	<6.2572E+01			62.572	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		Nitrobenzene	SOLID	N/A	<6.4571E+01			64.571	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		Pyrene	SOLID	N/A	<6.2872E+01			62.872	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		Pyridine	SOLID	N/A	<6.4971E+01			64.971	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		Tri-n-butylphosphate	SOLID	N/A	<1.0775E+02			107.75	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		2,6 bis-4Methylphenol	SOLID	N/A	<2.3549E+02			235.49	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		2-Ethoxyethanol	SOLID	N/A	<1.8232E+02			182.32	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		Methylphenols, Total	SOLID	N/A	<1.0655E+02			106.55	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		Cyclohexanone	SOLID	N/A	<5.5785E+02			557.85	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		N-Nitrosomorpholine	SOLID	N/A	<1.9121E+02			191.21	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		Isobutanol	SOLID	N/A	<4.6009E+02			460.09	ug/Kg			U
3	SAMPLE	S10V001912		0 0	O		2-Fluorobiphenyl	SOLID	1999.1	1.2531E+03				ug/Kg	62.683	% Recovery	
3	SAMPLE	S10V001912		0 0	O		2-Fluorophenol	SOLID	3998.2	2.4138E+03				ug/Kg	60.372	% Recovery	
3	SAMPLE	S10V001912		0 0	O		Nitrobenzene-d5	SOLID	1999.1	1.1566E+03				ug/Kg	57.856	% Recovery	
3	SAMPLE	S10V001912		0 0	O		2,4,6-Tribromophenol	SOLID	3998.2	3.1053E+03				ug/Kg	77.667	% Recovery	
3	SAMPLE	S10V001912		0 0	O		Terphenyl-d14	SOLID	1999.1	1.7155E+03				ug/Kg	85.814	% Recovery	
3	SAMPLE	S10V001912		0 0	O		Phenol-d6	SOLID	3998.2	2.6120E+03				ug/Kg	65.3	% Recovery	
3	SAMPLE	S10V001912		0 0	O		1,2-Benzenedicarboxyli	SOLID		233.0804				ug/Kg			BJNT
3	SAMPLE	S10V001912		0 0	O		Amylene Hydrate	SOLID		206.38				ug/Kg			BJNT
3	SAMPLE	S10V001912		0 0	O		Unknown-1	SOLID		206.40264				ug/Kg			BJT
Sample Sequence 4																	
4	MS	S1009070030	S10V001972	0 0	O		1,2,4-Trichlorobenzene	SOLID	1990.346	1.0620E+03			77.026	ug/Kg	53.358	% Recovery	
4	MS	S1009070030	S10V001972	0 0	O		2,4-Dinitrotoluene	SOLID	1990.346	1.5406E+03			37.916	ug/Kg	77.404	% Recovery	
4	MS	S1009070030	S10V001972	0 0	O		Acenaphthene	SOLID	1990.346	1.2695E+03			17.515	ug/Kg	63.783	% Recovery	
4	MS	S1009070030	S10V001972	0 0	O		4-Chloro-3-methylphen ol	SOLID	3980.693	2.3573E+03			42.991	ug/Kg	59.218	% Recovery	
4	MS	S1009070030	S10V001972	0 0	O		2-Chlorophenol	SOLID	3980.693	2.4330E+03			66.179	ug/Kg	61.12	% Recovery	
4	MS	S1009070030	S10V001972	0 0	O		N-Nitrosodipropylamine	SOLID	1990.346	1.1453E+03			57.82	ug/Kg	57.543	% Recovery	
4	MS	S1009070030	S10V001972	0 0	O		Pyrene	SOLID	1990.346	1.4528E+03			62.596	ug/Kg	72.992	% Recovery	
Sample Sequence 5																	
5	MSD	S1009070031	S10V001972	0 0	O		1,2,4-Trichlorobenzene	SOLID	1996.805	9.8122E+02			77.276	ug/Kg	49.14	% Recovery	
															8.2304	% RPD	
5	MSD	S1009070031	S10V001972	0 0	O		2,4-Dinitrotoluene	SOLID	1996.805	1.4554E+03			38.039	ug/Kg	72.886	% Recovery	
															6.0124	% 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# 00022254

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
5	MSD	S1009070031	S10V001972	0 0	O		Acenaphthene	SOLID	1996.805	1.1686E+03			17.572	ug/Kg	58.523	% Recovery	
															8.6014	% RPD	
5	MSD	S1009070031	S10V001972	0 0	O		4-Chloro-3-methylphenol	SOLID	3993.61	2.2594E+03			43.131	ug/Kg	56.575	% Recovery	
															4.5650	% RPD	
5	MSD	S1009070031	S10V001972	0 0	O		2-Chlorophenol	SOLID	3993.61	2.2737E+03			66.394	ug/Kg	56.933	% Recovery	
															7.0934	% RPD	
5	MSD	S1009070031	S10V001972	0 0	O		N-Nitrosodipropylamine	SOLID	1996.805	1.0705E+03			58.007	ug/Kg	53.611	% Recovery	
															7.0749	% RPD	
5	MSD	S1009070031	S10V001972	0 0	O		Pyrene	SOLID	1996.805	1.4289E+03			62.8	ug/Kg	71.559	% Recovery	
															1.9827	% RPD	
Sample Sequence 6																	
6	SAMPLE	S10V001932		0 0	O		1,2,4-Trichlorobenzene	SOLID	N/A	<7.7296E+01			77.296	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		1,2-Dichlorobenzene	SOLID	N/A	<1.0056E+02			100.56	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		2,4-Dinitrotoluene	SOLID	N/A	<3.8049E+01			38.049	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		2,4,5-Trichlorophenol	SOLID	N/A	<4.3941E+01			43.941	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		2,4,6-Trichlorophenol	SOLID	N/A	<4.9433E+01			49.433	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		2-Methylphenol	SOLID	N/A	<5.7422E+01			57.422	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		2-Nitrophenol	SOLID	N/A	<5.3628E+01			53.628	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		3 & 4 Methylphenol Total	SOLID	N/A	<5.1331E+01			51.331	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		Acenaphthene	SOLID	N/A	<1.7576E+01			17.576	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		Benzo(a)anthracene	SOLID	N/A	<3.7749E+01			37.749	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		Benzo(b)fluoranthene	SOLID	N/A	<4.8834E+01			48.834	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		Benzo(a)pyrene	SOLID	N/A	<4.1144E+01			41.144	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		bis(2-Ethylhexyl)phthalate	SOLID	N/A	<5.8940E+02			589.4	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		Benzo(k)fluoranthene	SOLID	N/A	<3.9047E+01			39.047	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		Butylbenzylphthalate	SOLID	N/A	<4.9933E+01			49.933	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		4-Chloro-3-methylphenol	SOLID	N/A	<4.3142E+01			43.142	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		2-Chlorophenol	SOLID	N/A	<6.6410E+01			66.41	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		Chrysene	SOLID	N/A	<8.1290E+01			81.29	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		Dibenz(a,h)anthracene	SOLID	N/A	<5.1031E+01			51.031	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		Di-n-butylphthalate	SOLID	N/A	<5.6154E+02			561.54	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		Di-n-octylphthalate	SOLID	N/A	<4.7636E+01			47.636	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		N-Nitrosodipropylamine	SOLID	N/A	<5.8022E+01			58.022	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		Fluoranthene	SOLID	N/A	<3.5352E+01			35.352	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		Hexachlorobutadiene	SOLID	N/A	<6.9606E+01			69.606	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		Hexachloroethane	SOLID	N/A	<1.1165E+02			111.65	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		Indeno(1,2,3-cd)pyrene	SOLID	N/A	<5.0931E+01			50.931	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		Naphthalene	SOLID	N/A	<6.2516E+01			62.516	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		Nitrobenzene	SOLID	N/A	<6.4513E+01			64.513	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		Pyrene	SOLID	N/A	<6.2815E+01			62.815	ug/Kg			U

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

* = Rejected Analyte
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LABCORE Completed Batch Report for Batch# 00022254

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
6	SAMPLE	S10V001932		0 0	O		Pyridine	SOLID	N/A	<6.4912E+01			64.912	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		Tri-n-butylphosphate	SOLID	N/A	<1.0765E+02			107.65	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		2,6 bis-4Methylphenol	SOLID	N/A	<2.3528E+02			235.28	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		2-Ethoxyethanol	SOLID	N/A	<1.8215E+02			182.15	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		Methylphenols, Total	SOLID	N/A	<1.0646E+02			106.46	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		Cyclohexanone	SOLID	N/A	<5.5735E+02			557.35	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		N-Nitrosomorpholine	SOLID	N/A	<1.9104E+02			191.04	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		Isobutanol	SOLID	N/A	<4.5968E+02			459.68	ug/Kg			U
6	SAMPLE	S10V001932		0 0	O		2-Fluorobiphenyl	SOLID	1997.303	1.2757E+03				ug/Kg	63.871	% Recovery	
6	SAMPLE	S10V001932		0 0	O		2-Fluorophenol	SOLID	3994.607	2.4412E+03				ug/Kg	61.112	% Recovery	
6	SAMPLE	S10V001932		0 0	O		Nitrobenzene-d5	SOLID	1997.303	1.2120E+03				ug/Kg	60.682	% Recovery	
6	SAMPLE	S10V001932		0 0	O		2,4,6-Tribromophenol	SOLID	3994.607	3.0870E+03				ug/Kg	77.279	% Recovery	
6	SAMPLE	S10V001932		0 0	O		Terphenyl-d14	SOLID	1997.303	1.9167E+03				ug/Kg	95.964	% Recovery	
6	SAMPLE	S10V001932		0 0	O		Phenol-d6	SOLID	3994.607	2.6250E+03				ug/Kg	65.7	% Recovery	
6	SAMPLE	S10V001932		0 0	O		Amylene Hydrate	SOLID		227.85695				ug/Kg			BJNT
6	SAMPLE	S10V001932		0 0	O		Unknown-1	SOLID		944.10005				ug/Kg			BJT
6	SAMPLE	S10V001932		0 0	O		Unknown-2	SOLID		561.58406				ug/Kg			BJT
Sample Sequence 7																	
7	SAMPLE	S10V001952		0 0	O		1,2,4-Trichlorobenzene	SOLID	N/A	<7.7334E+01			77.334	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		1,2-Dichlorobenzene	SOLID	N/A	<1.0061E+02			100.61	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		2,4-Dinitrotoluene	SOLID	N/A	<3.8068E+01			38.068	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		2,4,5-Trichlorophenol	SOLID	N/A	<4.3963E+01			43.963	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		2,4,6-Trichlorophenol	SOLID	N/A	<4.9458E+01			49.458	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		2-Methylphenol	SOLID	N/A	<5.7451E+01			57.451	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		2-Nitrophenol	SOLID	N/A	<5.3654E+01			53.654	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		3 & 4 Methylphenol Total	SOLID	N/A	<5.1356E+01			51.356	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		Acenaphthene	SOLID	N/A	<1.7585E+01			17.585	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		Benzo(a)anthracene	SOLID	N/A	<3.7768E+01			37.768	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		Benzo(b)fluoranthene	SOLID	N/A	<4.8858E+01			48.858	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		Benzo(a)pyrene	SOLID	N/A	<4.1165E+01			41.165	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		bis(2-Ethylhexyl)phthalate	SOLID	N/A	<5.8970E+02			589.7	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		Benzo(k)fluoranthene	SOLID	N/A	<3.9067E+01			39.067	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		Butylbenzylphthalate	SOLID	N/A	<4.9958E+01			49.958	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		4-Chloro-3-methylphenol	SOLID	N/A	<4.3163E+01			43.163	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		2-Chlorophenol	SOLID	N/A	<6.6444E+01			66.444	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		Chrysene	SOLID	N/A	<8.1331E+01			81.331	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		Dibenz(a,h)anthracene	SOLID	N/A	<5.1057E+01			51.057	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		Di-n-butylphthalate	SOLID	N/A	<5.6182E+02			561.82	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		Di-n-octylphthalate	SOLID	N/A	<4.7659E+01			47.659	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		N-Nitrosodipropylamine	SOLID	N/A	<5.8051E+01			58.051	ug/Kg			U

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LABCORE Completed Batch Report for Batch# 00022254

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
7	SAMPLE	S10V001952		0 0	O		Fluoranthene	SOLID	N/A	<3.5370E+01			35.37	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		Hexachlorobutadiene	SOLID	N/A	<6.9641E+01			69.641	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		Hexachloroethane	SOLID	N/A	<1.1170E+02			111.7	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		Indeno(1,2,3-cd)pyrene	SOLID	N/A	<5.0957E+01			50.957	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		Naphthalene	SOLID	N/A	<6.2547E+01			62.547	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		Nitrobenzene	SOLID	N/A	<6.4545E+01			64.545	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		Pyrene	SOLID	N/A	<6.2847E+01			62.847	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		Pyridine	SOLID	N/A	<6.4945E+01			64.945	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		Tri-n-butylphosphate	SOLID	N/A	<1.0771E+02			107.71	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		2,6 bis-4Methylphenol	SOLID	N/A	<2.3540E+02			235.4	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		2-Ethoxyethanol	SOLID	N/A	<1.8224E+02			182.24	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		Methylphenols, Total	SOLID	N/A	<1.0651E+02			106.51	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		Cyclohexanone	SOLID	N/A	<5.5763E+02			557.63	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		N-Nitrosomorpholine	SOLID	N/A	<1.9114E+02			191.14	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		Isobutanol	SOLID	N/A	<4.5991E+02			459.91	ug/Kg			U
7	SAMPLE	S10V001952		0 0	O		2-Fluorobiphenyl	SOLID	1998.301	1.4851E+03				ug/Kg	74.318	% Recovery	
7	SAMPLE	S10V001952		0 0	O		2-Fluorophenol	SOLID	3996.602	3.1113E+03				ug/Kg	77.849	% Recovery	
7	SAMPLE	S10V001952		0 0	O		Nitrobenzene-d5	SOLID	1998.301	1.3134E+03				ug/Kg	65.726	% Recovery	
7	SAMPLE	S10V001952		0 0	O		2,4,6-Tribromophenol	SOLID	3996.602	3.2590E+03				ug/Kg	81.544	% Recovery	
7	SAMPLE	S10V001952		0 0	O		Terphenyl-d14	SOLID	1998.301	2.0394E+03				ug/Kg	102.06	% Recovery	
7	SAMPLE	S10V001952		0 0	O		Phenol-d6	SOLID	3996.602	3.3081E+03				ug/Kg	82.8	% Recovery	
7	SAMPLE	S10V001952		0 0	O		1,2-Benzenedicarboxyli	SOLID		230.38226				ug/Kg			BJNT
7	SAMPLE	S10V001952		0 0	O		Amylene Hydrate	SOLID		256.51171				ug/Kg			BJNT
7	SAMPLE	S10V001952		0 0	O		Unknown-1	SOLID		258.96332				ug/Kg			BJT
7	SAMPLE	S10V001952		0 0	O		Unknown-2	SOLID		793.38428				ug/Kg			BJT
7	SAMPLE	S10V001952		0 0	O		Unknown-3	SOLID		454.47759				ug/Kg			BJT
Sample Sequence 8																	
8	SAMPLE	S10V001972		0 0	O		1,2,4-Trichlorobenzene	SOLID	N/A	<7.7176E+01			77.176	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		1,2-Dichlorobenzene	SOLID	N/A	<1.0041E+02			100.41	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		2,4-Dinitrotoluene	SOLID	N/A	<3.7990E+01			37.99	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		2,4,5-Trichlorophenol	SOLID	N/A	<4.3873E+01			43.873	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		2,4,6-Trichlorophenol	SOLID	N/A	<4.9357E+01			49.357	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		2-Methylphenol	SOLID	N/A	<5.7334E+01			57.334	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		2-Nitrophenol	SOLID	N/A	<5.3545E+01			53.545	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		3 & 4 Methylphenol Total	SOLID	N/A	<5.1251E+01			51.251	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		Acenaphthene	SOLID	N/A	<1.7549E+01			17.549	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		Benzo(a)anthracene	SOLID	N/A	<3.7691E+01			37.691	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		Benzo(b)fluoranthene	SOLID	N/A	<4.8759E+01			48.759	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		Benzo(a)pyrene	SOLID	N/A	<4.1081E+01			41.081	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		bis(2-Ethylhexyl)phthalate	SOLID	N/A	<5.8849E+02			588.49	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		Benzo(k)fluoranthene	SOLID	N/A	<3.8987E+01			38.987	ug/Kg			U

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LABCORE Completed Batch Report for Batch# 00022254

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
8	SAMPLE	S10V001972		0 0	O		Butylbenzylphthalate	SOLID	N/A	<4.9855E+01			49.855	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		4-Chloro-3-methylphenol	SOLID	N/A	<4.3075E+01			43.075	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		2-Chlorophenol	SOLID	N/A	<6.6308E+01			66.308	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		Chrysene	SOLID	N/A	<8.1165E+01			81.165	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		Dibenz(a,h)anthracene	SOLID	N/A	<5.0952E+01			50.952	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		Di-n-butylphthalate	SOLID	N/A	<5.6067E+02			560.67	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		Di-n-octylphthalate	SOLID	N/A	<4.7562E+01			47.562	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		N-Nitrosodipropylamine	SOLID	N/A	<5.7932E+01			57.932	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		Fluoranthene	SOLID	N/A	<3.5298E+01			35.298	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		Hexachlorobutadiene	SOLID	N/A	<6.9498E+01			69.498	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		Hexachloroethane	SOLID	N/A	<1.1148E+02			111.48	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		Indeno(1,2,3-cd)pyrene	SOLID	N/A	<5.0853E+01			50.853	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		Naphthalene	SOLID	N/A	<6.2419E+01			62.419	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		Nitrobenzene	SOLID	N/A	<6.4413E+01			64.413	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		Pyrene	SOLID	N/A	<6.2718E+01			62.718	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		Pyridine	SOLID	N/A	<6.4812E+01			64.812	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		Tri-n-butylphosphate	SOLID	N/A	<1.0749E+02			107.49	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		2,6 bis-4Methylphenol	SOLID	N/A	<2.3492E+02			234.92	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		2-Ethoxyethanol	SOLID	N/A	<1.8187E+02			181.87	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		Methylphenols, Total	SOLID	N/A	<1.0629E+02			106.29	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		Cyclohexanone	SOLID	N/A	<5.5649E+02			556.49	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		N-Nitrosomorpholine	SOLID	N/A	<1.9075E+02			190.75	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		Isobutanol	SOLID	N/A	<4.5897E+02			458.97	ug/Kg			U
8	SAMPLE	S10V001972		0 0	O		2-Fluorobiphenyl	SOLID	1994.216	1.2566E+03				ug/Kg	63.012	% Recovery	
8	SAMPLE	S10V001972		0 0	O		2-Fluorophenol	SOLID	3988.433	2.4325E+03				ug/Kg	60.989	% Recovery	
8	SAMPLE	S10V001972		0 0	O		Nitrobenzene-d5	SOLID	1994.216	1.1871E+03				ug/Kg	59.527	% Recovery	
8	SAMPLE	S10V001972		0 0	O		2,4,6-Tribromophenol	SOLID	3988.433	2.8940E+03				ug/Kg	72.56	% Recovery	
8	SAMPLE	S10V001972		0 0	O		Terphenyl-d14	SOLID	1994.216	1.5537E+03				ug/Kg	77.91	% Recovery	
8	SAMPLE	S10V001972		0 0	O		Phenol-d6	SOLID	3988.433	2.6398E+03				ug/Kg	66.2	% Recovery	
8	SAMPLE	S10V001972		0 0	O		1,2-Benzenedicarboxyli	SOLID		182.04272				ug/Kg			BJNT
8	SAMPLE	S10V001972		0 0	O		Unknown-1	SOLID		243.06443				ug/Kg			BJT
8	SAMPLE	S10V001972		0 0	O		Unknown-2	SOLID		237.62991				ug/Kg			JT
Sample Sequence 9																	
9	SAMPLE	S10V002058		0 0	O		1,2,4-Trichlorobenzene	SOLID	N/A	<7.7392E+01			77.392	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		1,2-Dichlorobenzene	SOLID	N/A	<1.0069E+02			100.69	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		2,4-Dinitrotoluene	SOLID	N/A	<3.8096E+01			38.096	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		2,4,5-Trichlorophenol	SOLID	N/A	<4.3996E+01			43.996	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		2,4,6-Trichlorophenol	SOLID	N/A	<4.9495E+01			49.495	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		2-Methylphenol	SOLID	N/A	<5.7494E+01			57.494	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		2-Nitrophenol	SOLID	N/A	<5.3695E+01			53.695	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		3 & 4 Methylphenol Total	SOLID	N/A	<5.1395E+01			51.395	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# 00022254

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
9	SAMPLE	S10V002058		0 0	O		Acenaphthene	SOLID	N/A	<1.7598E+01			17.598	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		Benzo(a)anthracene	SOLID	N/A	<3.7796E+01			37.796	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		Benzo(b)fluoranthene	SOLID	N/A	<4.8895E+01			48.895	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		Benzo(a)pyrene	SOLID	N/A	<4.1196E+01			41.196	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		bis(2-Ethylhexyl)phthalate	SOLID	N/A	<5.9014E+02			590.14	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		Benzo(k)fluoranthene	SOLID	N/A	<3.9096E+01			39.096	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		Butylbenzylphthalate	SOLID	N/A	<4.9995E+01			49.995	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		4-Chloro-3-methylphenol	SOLID	N/A	<4.3196E+01			43.196	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		2-Chlorophenol	SOLID	N/A	<6.6493E+01			66.493	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		Chrysene	SOLID	N/A	<8.1392E+01			81.392	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		Dibenz(a,h)anthracene	SOLID	N/A	<5.1095E+01			51.095	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		Di-n-butylphthalate	SOLID	N/A	<5.6224E+02			562.24	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		Di-n-octylphthalate	SOLID	N/A	<4.7695E+01			47.695	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		N-Nitrosodipropylamine	SOLID	N/A	<5.8094E+01			58.094	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		Fluoranthene	SOLID	N/A	<3.5396E+01			35.396	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		Hexachlorobutadiene	SOLID	N/A	<6.9693E+01			69.693	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		Hexachloroethane	SOLID	N/A	<1.1179E+02			111.79	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		Indeno(1,2,3-cd)pyrene	SOLID	N/A	<5.0995E+01			50.995	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		Naphthalene	SOLID	N/A	<6.2594E+01			62.594	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		Nitrobenzene	SOLID	N/A	<6.4594E+01			64.594	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		Pyrene	SOLID	N/A	<6.2894E+01			62.894	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		Pyridine	SOLID	N/A	<6.4993E+01			64.993	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		Tri-n-butylphosphate	SOLID	N/A	<1.0779E+02			107.79	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		2,6 bis-4Methylphenol	SOLID	N/A	<2.3558E+02			235.58	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		2-Ethoxyethanol	SOLID	N/A	<1.8238E+02			182.38	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		Methylphenols, Total	SOLID	N/A	<1.0659E+02			106.59	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		Cyclohexanone	SOLID	N/A	<5.5804E+02			558.04	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		N-Nitrosomorpholine	SOLID	N/A	<1.9128E+02			191.28	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		Isobutanol	SOLID	N/A	<4.6025E+02			460.25	ug/Kg			U
9	SAMPLE	S10V002058		0 0	O		2-Fluorobiphenyl	SOLID	1999.8	1.1660E+03				ug/Kg	58.306	% Recovery	
9	SAMPLE	S10V002058		0 0	O		2-Fluorophenol	SOLID	3999.6	2.2654E+03				ug/Kg	56.641	% Recovery	
9	SAMPLE	S10V002058		0 0	O		Nitrobenzene-d5	SOLID	1999.8	9.9437E+02				ug/Kg	49.723	% Recovery	
9	SAMPLE	S10V002058		0 0	O		2,4,6-Tribromophenol	SOLID	3999.6	2.8352E+03				ug/Kg	70.887	% Recovery	
9	SAMPLE	S10V002058		0 0	O		Terphenyl-d14	SOLID	1999.8	1.7421E+03				ug/Kg	87.114	% Recovery	
9	SAMPLE	S10V002058		0 0	O		Phenol-d6	SOLID	3999.6	2.5106E+03				ug/Kg	62.8	% Recovery	
9	SAMPLE	S10V002058		0 0	O		1,2-Benzenedicarboxyli	SOLID		396.38153				ug/Kg			BJNT
9	SAMPLE	S10V002058		0 0	O		Amylene Hydrate	SOLID		216.46551				ug/Kg			BJNT
9	SAMPLE	S10V002058		0 0	O		Unknown-1	SOLID		219.70428				ug/Kg			BJT
Sample Sequence 10																	
10	SAMPLE	S10V002491		0 0	O		1,2,4-Trichlorobenzene	SOLID	N/A	<7.7119E+01			77.119	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		1,2-Dichlorobenzene	SOLID	N/A	<1.0033E+02			100.33	ug/Kg			U

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LABCORE Completed Batch Report for Batch# 00022254

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
10	SAMPLE	S10V002491		0 0	O		2,4-Dinitrotoluene	SOLID	N/A	<3.7961E+01			37.961	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		2,4,5-Trichlorophenol	SOLID	N/A	<4.3840E+01			43.84	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		2,4,6-Trichlorophenol	SOLID	N/A	<4.9320E+01			49.32	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		2-Methylphenol	SOLID	N/A	<5.7291E+01			57.291	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		2-Nitrophenol	SOLID	N/A	<5.3505E+01			53.505	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		3 & 4 Methylphenol Total	SOLID	N/A	<5.1213E+01			51.213	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		Acenaphthene	SOLID	N/A	<1.7536E+01			17.536	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		Benzo(a)anthracene	SOLID	N/A	<3.7663E+01			37.663	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		Benzo(b)fluoranthene	SOLID	N/A	<4.8722E+01			48.722	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		Benzo(a)pyrene	SOLID	N/A	<4.1050E+01			41.05	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		bis(2-Ethylhexyl)phthalate	SOLID	N/A	<5.8805E+02			588.05	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		Benzo(k)fluoranthene	SOLID	N/A	<3.8958E+01			38.958	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		Butylbenzylphthalate	SOLID	N/A	<4.9818E+01			49.818	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		4-Chloro-3-methylphenol	SOLID	N/A	<4.3043E+01			43.043	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		2-Chlorophenol	SOLID	N/A	<6.6258E+01			66.258	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		Chrysene	SOLID	N/A	<8.1104E+01			81.104	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		Dibenz(a,h)anthracene	SOLID	N/A	<5.0914E+01			50.914	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		Di-n-butylphthalate	SOLID	N/A	<5.6026E+02			560.26	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		Di-n-octylphthalate	SOLID	N/A	<4.7527E+01			47.527	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		N-Nitrosodipropylamine	SOLID	N/A	<5.7889E+01			57.889	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		Fluoranthene	SOLID	N/A	<3.5271E+01			35.271	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		Hexachlorobutadiene	SOLID	N/A	<6.9447E+01			69.447	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		Hexachloroethane	SOLID	N/A	<1.1139E+02			111.39	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		Indeno(1,2,3-cd)pyrene	SOLID	N/A	<5.0815E+01			50.815	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		Naphthalene	SOLID	N/A	<6.2372E+01			62.372	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		Nitrobenzene	SOLID	N/A	<6.4365E+01			64.365	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		Pyrene	SOLID	N/A	<6.2671E+01			62.671	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		Pyridine	SOLID	N/A	<6.4764E+01			64.764	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		Tri-n-butylphosphate	SOLID	N/A	<1.0741E+02			107.41	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		2,6 bis-4Methylphenol	SOLID	N/A	<2.3474E+02			234.74	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		2-Ethoxyethanol	SOLID	N/A	<1.8174E+02			181.74	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		Methylphenols, Total	SOLID	N/A	<1.0621E+02			106.21	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		Cyclohexanone	SOLID	N/A	<5.5607E+02			556.07	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		N-Nitrosomorpholine	SOLID	N/A	<1.9060E+02			190.6	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		Isobutanol	SOLID	N/A	<4.5863E+02			458.63	ug/Kg			U
10	SAMPLE	S10V002491		0 0	O		2-Fluorobiphenyl	SOLID	1992.726	1.2579E+03				ug/Kg	63.125	% Recovery	
10	SAMPLE	S10V002491		0 0	O		2-Fluorophenol	SOLID	3985.453	2.3801E+03				ug/Kg	59.72	% Recovery	
10	SAMPLE	S10V002491		0 0	O		Nitrobenzene-d5	SOLID	1992.726	1.1596E+03				ug/Kg	58.192	% Recovery	
10	SAMPLE	S10V002491		0 0	O		2,4,6-Tribromophenol	SOLID	3985.453	3.0372E+03				ug/Kg	76.207	% Recovery	
10	SAMPLE	S10V002491		0 0	O		Terphenyl-d14	SOLID	1992.726	1.7103E+03				ug/Kg	85.827	% Recovery	

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LABCORE Completed Batch Report for Batch# 00022254

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
10	SAMPLE	S10V002491		0 0	O		Phenol-d6	SOLID	3985.453	2.5871E+03				ug/Kg	64.9	% Recovery	
10	SAMPLE	S10V002491		0 0	O		1,2-Benzenedicarboxyli	SOLID		460.05276				ug/Kg			BJNT
Sample Sequence 11																	
11	MS	S1009070028	S10V002491	0 0	O		1,2,4-Trichlorobenzene	SOLID	1997.503	1.1907E+03			77.303	ug/Kg	59.609	% Recovery	
11	MS	S1009070028	S10V002491	0 0	O		2,4-Dinitrotoluene	SOLID	1997.503	1.5655E+03			38.052	ug/Kg	78.373	% Recovery	
11	MS	S1009070028	S10V002491	0 0	O		Acenaphthene	SOLID	1997.503	1.3425E+03			17.578	ug/Kg	67.209	% Recovery	
11	MS	S1009070028	S10V002491	0 0	O		4-Chloro-3-methylphenol	SOLID	3995.006	2.6160E+03			43.146	ug/Kg	65.482	% Recovery	
11	MS	S1009070028	S10V002491	0 0	O		2-Chlorophenol	SOLID	3995.006	2.8016E+03			66.417	ug/Kg	70.128	% Recovery	
11	MS	S1009070028	S10V002491	0 0	O		N-Nitrosodipropylamine	SOLID	1997.503	1.2256E+03			58.027	ug/Kg	61.357	% Recovery	
11	MS	S1009070028	S10V002491	0 0	O		Pyrene	SOLID	1997.503	1.5153E+03			62.821	ug/Kg	75.86	% Recovery	
Sample Sequence 12																	
12	MSD	S1009070029	S10V002491	0 0	O		1,2,4-Trichlorobenzene	SOLID	1981.767	1.2096E+03			76.694	ug/Kg	61.036	% Recovery	
															2.3656	% RPD	
12	MSD	S1009070029	S10V002491	0 0	O		2,4-Dinitrotoluene	SOLID	1981.767	1.5670E+03			37.753	ug/Kg	79.071	% Recovery	
															0.88666	% RPD	
12	MSD	S1009070029	S10V002491	0 0	O		Acenaphthene	SOLID	1981.767	1.3941E+03			17.44	ug/Kg	70.346	% Recovery	
															4.5611	% RPD	
12	MSD	S1009070029	S10V002491	0 0	O		4-Chloro-3-methylphenol	SOLID	3963.535	2.6574E+03			42.806	ug/Kg	67.046	% Recovery	
															2.3603	% RPD	
12	MSD	S1009070029	S10V002491	0 0	O		2-Chlorophenol	SOLID	3963.535	2.7025E+03			65.894	ug/Kg	68.184	% Recovery	
															2.8110	% RPD	
12	MSD	S1009070029	S10V002491	0 0	O		N-Nitrosodipropylamine	SOLID	1981.767	1.2771E+03			57.57	ug/Kg	64.442	% Recovery	
															4.9046	% RPD	
12	MSD	S1009070029	S10V002491	0 0	O		Pyrene	SOLID	1981.767	1.6015E+03			62.327	ug/Kg	80.812	% Recovery	
															6.3215	% RPD	

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00022254

Reviewer Signature **Date**

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LABCORE Completed Batch Report for Batch# 00022254

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1009070025	BLNK				
2	S1009070026	LCS				
3	S10V001912	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
4	S1009070030	MS	S10V001972			
5	S1009070031	MSD	S10V001972			
6	S10V001932	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
7	S10V001952	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
8	S10V001972	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
9	S10V002058	SAMPLE		20100584	B26C34	C Farm WMC 2010-2
10	S10V002491	SAMPLE		20100660	B26C61	C Farm WMC 2010-2
11	S1009070028	MS	S10V002491			
12	S1009070029	MSD	S10V002491			

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

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22254

FORM 2
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: CFARMWMCH

Level:(low/med) LOW

	CHG SAMPLE NO.	S1 (FBP)#	S2 (2FP)#	S3 (NBZ)#	S4 #	S5 (TBP)#	S6 (TPH)#	S7 #	S8 #	TOT OUT
01	BLANK	70	66	62	70	71	97			0
02	LCS	72	70	70	75	80	99			0
03	S10V002491	63	60	58	65	76	86			0
04	S10V002491MS	70	70	65	74	86	87			0
05	S10V002491MS	70	70	66	75	88	93			0
06	S10V001912	63	60	58	65	78	86			0
07	S10V001932	64	61	61	66	77	96			0
08	S10V001952	74	78	66	83	82	102			0
09	S10V001972	63	61	60	66	72	78			0
10	S10V001972MS	60	63	57	68	79	83			0
11	S10V001972MS	58	56	54	62	74	82			0
12	S10V002058	58	57	50	63	71	87			0
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										

		QC LIMITS
S1 (FBP)	= 2-Fluorobiphenyl	(10-147)
S2 (2FP)	= 2-Fluorophenol	(0-127)
S3 (NBZ)	= Nitrobenzene-d5	(0-125)
S4	= Phenol-d6	(37-125)
S5 (TBP)	= 2,4,6-Tribromophenol	(40-176)
S6 (TPH)	= Terphenyl-d14	(71-175)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

FORM 3
SOIL SEMIVOLATILE LAB CONTROL SAMPLE

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: CFARMWMCH

Matrix Spike - CHG Sample No.: LCS Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
1,2,4-Trichlorobenzene	2000.0		1201.1	60	2-128
2,4-Dinitrotoluene	2000.0		1555.3	78	55-111
Acenaphthene	2000.0		1359.2	68	36-114
4-Chloro-3-Methylphenol	4000.0		2507.5	63	42-103
2-Chlorophenol	4000.0		2720.4	68	28-111
N-Nitroso-di-n-prop.(1)	2000.0		1275.4	64	18-108
Pyrene	2000.0		1726.5	86	64-113

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 7 outside limits

COMMENTS: _____

LABCORE Completed Batch Report for Batch# 00022217

Analyst: Ojanen, Carol

Book#:

Instrument: GCMSD5 (TUVOK) for SVOA

Method: SVOA 222S #2, LA-523-135 Rev/Mod D-0

Specification: C Farm WMC 2010-2

Prep Batch: 00022134

Batch Comment:

C Farm WMC 2010-2 SVOA SOL Group# 20100584

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	S1009130032		0 0	O		1,2,4-Trichlorobenzene	SOLID		<7.7400E+01			77.4	ug/Kg			U
1	BLNK	S1009130032		0 0	O		1,2-Dichlorobenzene	SOLID		<1.0070E+02			100.7	ug/Kg			U
1	BLNK	S1009130032		0 0	O		2,4-Dinitrotoluene	SOLID		<3.8100E+01			38.1	ug/Kg			U
1	BLNK	S1009130032		0 0	O		2,4,5-Trichlorophenol	SOLID		<4.4000E+01			44	ug/Kg			U
1	BLNK	S1009130032		0 0	O		2,4,6-Trichlorophenol	SOLID		<4.9500E+01			49.5	ug/Kg			U
1	BLNK	S1009130032		0 0	O		2-Methylphenol	SOLID		<5.7500E+01			57.5	ug/Kg			U
1	BLNK	S1009130032		0 0	O		2-Nitrophenol	SOLID		<5.3700E+01			53.7	ug/Kg			U
1	BLNK	S1009130032		0 0	O		3 & 4 Methylphenol Total	SOLID		<5.1400E+01			51.4	ug/Kg			U
1	BLNK	S1009130032		0 0	O		Acenaphthene	SOLID		<1.7600E+01			17.6	ug/Kg			U
1	BLNK	S1009130032		0 0	O		Benzo(a)anthracene	SOLID		<3.7800E+01			37.8	ug/Kg			U
1	BLNK	S1009130032		0 0	O		Benzo(b)fluoranthene	SOLID		<4.8900E+01			48.9	ug/Kg			U
1	BLNK	S1009130032		0 0	O		Benzo(a)pyrene	SOLID		<4.1200E+01			41.2	ug/Kg			U
1	BLNK	S1009130032		0 0	O		bis(2-Ethylhexyl)phthalate	SOLID		<5.9020E+02			590.2	ug/Kg			U
1	BLNK	S1009130032		0 0	O		Benzo(k)fluoranthene	SOLID		<3.9100E+01			39.1	ug/Kg			U
1	BLNK	S1009130032		0 0	O		Butylbenzylphthalate	SOLID		<5.0000E+01			50	ug/Kg			U
1	BLNK	S1009130032		0 0	O		4-Chloro-3-methylphenol	SOLID		<4.3200E+01			43.2	ug/Kg			U
1	BLNK	S1009130032		0 0	O		2-Chlorophenol	SOLID		<6.6500E+01			66.5	ug/Kg			U
1	BLNK	S1009130032		0 0	O		Chrysene	SOLID		<8.1400E+01			81.4	ug/Kg			U
1	BLNK	S1009130032		0 0	O		Dibenz(a,h)anthracene	SOLID		<5.1100E+01			51.1	ug/Kg			U
1	BLNK	S1009130032		0 0	O		Di-n-butylphthalate	SOLID		<5.6230E+02			562.3	ug/Kg			U
1	BLNK	S1009130032		0 0	O		Di-n-octylphthalate	SOLID		<4.7700E+01			47.7	ug/Kg			U
1	BLNK	S1009130032		0 0	O		N-Nitrosodipropylamine	SOLID		<5.8100E+01			58.1	ug/Kg			U
1	BLNK	S1009130032		0 0	O		Fluoranthene	SOLID		<3.5400E+01			35.4	ug/Kg			U
1	BLNK	S1009130032		0 0	O		Hexachlorobutadiene	SOLID		<6.9700E+01			69.7	ug/Kg			U
1	BLNK	S1009130032		0 0	O		Hexachloroethane	SOLID		<1.1180E+02			111.8	ug/Kg			U
1	BLNK	S1009130032		0 0	O		Indeno(1,2,3-cd)pyrene	SOLID		<5.1000E+01			51	ug/Kg			U
1	BLNK	S1009130032		0 0	O		Naphthalene	SOLID		<6.2600E+01			62.6	ug/Kg			U
1	BLNK	S1009130032		0 0	O		Nitrobenzene	SOLID		<6.4600E+01			64.6	ug/Kg			U
1	BLNK	S1009130032		0 0	O		Pyrene	SOLID		<6.2900E+01			62.9	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# 00022217

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
1	BLNK	S1009130032		0 0	O		Pyridine	SOLID		<6.5000E+01			65	ug/Kg			U
1	BLNK	S1009130032		0 0	O		Tri-n-butylphosphate	SOLID		<1.0780E+02			107.8	ug/Kg			U
1	BLNK	S1009130032		0 0	O		2,6 bis-4Methylphenol	SOLID		<2.3560E+02			235.6	ug/Kg			U
1	BLNK	S1009130032		0 0	O		2-Ethoxyethanol	SOLID		<1.8240E+02			182.4	ug/Kg			U
1	BLNK	S1009130032		0 0	O		Methylphenols, Total	SOLID		<1.0660E+02			106.6	ug/Kg			U
1	BLNK	S1009130032		0 0	O		Cyclohexanone	SOLID		<5.5810E+02			558.1	ug/Kg			U
1	BLNK	S1009130032		0 0	O		N-Nitrosomorpholine	SOLID		<1.9130E+02			191.3	ug/Kg			U
1	BLNK	S1009130032		0 0	O		Isobutanol	SOLID		<4.6030E+02			460.3	ug/Kg			U
1	BLNK	S1009130032		0 0	O		1,2-Benzenedicarboxyli	SOLID		608.10326				ug/Kg			JNT
1	BLNK	S1009130032		0 0	O		Unknown-1	SOLID		821.7786				ug/Kg			JT
1	BLNK	S1009130032		0 0	O		Unknown-2	SOLID		641.79371				ug/Kg			JT
Sample Sequence 2																	
2	LCS	S1009130033		0 0	O		1,2,4-Trichlorobenzene	SOLID	2000	1.5429E+03			77.4	ug/Kg	77.145	% Recovery	
2	LCS	S1009130033		0 0	O		2,4-Dinitrotoluene	SOLID	2000	2.1558E+03			38.1	ug/Kg	107.79	% Recovery	
2	LCS	S1009130033		0 0	O		Acenaphthene	SOLID	2000	1.8534E+03			17.6	ug/Kg	92.67	% Recovery	
2	LCS	S1009130033		0 0	O		4-Chloro-3-methylphenol	SOLID	4000	3.4224E+03			43.2	ug/Kg	85.56	% Recovery	
2	LCS	S1009130033		0 0	O		2-Chlorophenol	SOLID	4000	3.3010E+03			66.5	ug/Kg	82.525	% Recovery	
2	LCS	S1009130033		0 0	O		N-Nitrosodipropylamine	SOLID	2000	1.5016E+03			58.1	ug/Kg	75.08	% Recovery	
2	LCS	S1009130033		0 0	O		Pyrene	SOLID	2000	2.1093E+03			62.9	ug/Kg	105.46	% Recovery	
Sample Sequence 3																	
3	SAMPLE	S10V002359		0 0	O		1,2,4-Trichlorobenzene	SOLID	N/A	<7.6343E+01			76.343	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		1,2-Dichlorobenzene	SOLID	N/A	<9.9324E+01			99.324	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		2,4-Dinitrotoluene	SOLID	N/A	<3.7580E+01			37.58	ug/Kg			Ub
3	SAMPLE	S10V002359		0 0	O		2,4,5-Trichlorophenol	SOLID	N/A	<4.3399E+01			43.399	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		2,4,6-Trichlorophenol	SOLID	N/A	<4.8824E+01			48.824	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		2-Methylphenol	SOLID	N/A	<5.6714E+01			56.714	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		2-Nitrophenol	SOLID	N/A	<5.2966E+01			52.966	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		3 & 4 Methylphenol Total	SOLID	N/A	<5.0698E+01			50.698	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		Acenaphthene	SOLID	N/A	<1.7360E+01			17.36	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		Benzo(a)anthracene	SOLID	N/A	<3.7284E+01			37.284	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		Benzo(b)fluoranthene	SOLID	N/A	<4.8232E+01			48.232	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		Benzo(a)pyrene	SOLID	N/A	<4.0637E+01			40.637	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		bis(2-Ethylhexyl)phthalate	SOLID	N/A	1.0120E+03			582.14	ug/Kg			J
3	SAMPLE	S10V002359		0 0	O		Benzo(k)fluoranthene	SOLID	N/A	<3.8566E+01			38.566	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		Butylbenzylphthalate	SOLID	N/A	<4.9317E+01			49.317	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		4-Chloro-3-methylphenol	SOLID	N/A	<4.2610E+01			42.61	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		2-Chlorophenol	SOLID	N/A	<6.5592E+01			65.592	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		Chrysene	SOLID	N/A	<8.0288E+01			80.288	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		Dibenz(a,h)anthracene	SOLID	N/A	<5.0402E+01			50.402	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		Di-n-butylphthalate	SOLID	N/A	<5.5462E+02			554.62	ug/Kg			U

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LABCORE Completed Batch Report for Batch# 00022217

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
3	SAMPLE	S10V002359		0 0	O		Di-n-octylphthalate	SOLID	N/A	<4.7048E+01			47.048	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		N-Nitrosodipropylamine	SOLID	N/A	<5.7306E+01			57.306	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		Fluoranthene	SOLID	N/A	<3.4916E+01			34.916	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		Hexachlorobutadiene	SOLID	N/A	<6.8748E+01			68.748	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		Hexachloroethane	SOLID	N/A	<1.1027E+02			110.27	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		Indeno(1,2,3-cd)pyrene	SOLID	N/A	<5.0303E+01			50.303	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		Naphthalene	SOLID	N/A	<6.1745E+01			61.745	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		Nitrobenzene	SOLID	N/A	<6.3718E+01			63.718	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		Pyrene	SOLID	N/A	<6.2041E+01			62.041	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		Pyridine	SOLID	N/A	<6.4112E+01			64.112	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		Tri-n-butylphosphate	SOLID	N/A	<1.0633E+02			106.33	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		2,6 bis-4Methylphenol	SOLID	N/A	<2.3238E+02			232.38	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		2-Ethoxyethanol	SOLID	N/A	<1.7991E+02			179.91	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		Methylphenols, Total	SOLID	N/A	<1.0514E+02			105.14	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		Cyclohexanone	SOLID	N/A	<5.5048E+02			550.48	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		N-Nitrosomorpholine	SOLID	N/A	<1.8869E+02			188.69	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		Isobutanol	SOLID	N/A	<4.5401E+02			454.01	ug/Kg			U
3	SAMPLE	S10V002359		0 0	O		2-Fluorobiphenyl	SOLID	1972.678	1.7651E+03				ug/Kg	89.477	% Recovery	
3	SAMPLE	S10V002359		0 0	O		2-Fluorophenol	SOLID	3945.356	3.0320E+03				ug/Kg	76.85	% Recovery	
3	SAMPLE	S10V002359		0 0	O		Nitrobenzene-d5	SOLID	1972.678	1.4929E+03				ug/Kg	75.679	% Recovery	
3	SAMPLE	S10V002359		0 0	O		2,4,6-Tribromophenol	SOLID	3945.356	4.7660E+03				ug/Kg	120.8	% Recovery	
3	SAMPLE	S10V002359		0 0	O		Terphenyl-d14	SOLID	1972.678	2.0438E+03				ug/Kg	103.61	% Recovery	
3	SAMPLE	S10V002359		0 0	O		Phenol-d6	SOLID	3945.356	3.2747E+03				ug/Kg	83	% Recovery	
3	SAMPLE	S10V002359		0 0	O		1,2-Benzenedicarboxyli	SOLID		710.05063				ug/Kg			BJNT
3	SAMPLE	S10V002359		0 0	O		Unknown Hydrocarbon-3	SOLID		223.33332				ug/Kg			JT
3	SAMPLE	S10V002359		0 0	O		Unknown Hydrocarbon-4	SOLID		330.93172				ug/Kg			JT
3	SAMPLE	S10V002359		0 0	O		Unknown Hydrocarbon-5	SOLID		305.40826				ug/Kg			JT
3	SAMPLE	S10V002359		0 0	O		Unknown Hydrocarbon-6	SOLID		243.85164				ug/Kg			JT
3	SAMPLE	S10V002359		0 0	O		Unknown-1	SOLID		569.48406				ug/Kg			BJT
3	SAMPLE	S10V002359		0 0	O		Unknown-2	SOLID		416.42572				ug/Kg			BJT
Sample Sequence 4																	
4	SAMPLE	S10V002511		0 0	O		1,2,4-Trichlorobenzene	SOLID	N/A	<7.6418E+01			76.418	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		1,2-Dichlorobenzene	SOLID	N/A	<9.9422E+01			99.422	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		2,4-Dinitrotoluene	SOLID	N/A	<3.7617E+01			37.617	ug/Kg			Ub
4	SAMPLE	S10V002511		0 0	O		2,4,5-Trichlorophenol	SOLID	N/A	<4.3442E+01			43.442	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		2,4,6-Trichlorophenol	SOLID	N/A	<4.8872E+01			48.872	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		2-Methylphenol	SOLID	N/A	<5.6770E+01			56.77	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		2-Nitrophenol	SOLID	N/A	<5.3019E+01			53.019	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		3 & 4 Methylphenol Total	SOLID	N/A	<5.0748E+01			50.748	ug/Kg			U

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LABCORE Completed Batch Report for Batch# 00022217

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
4	SAMPLE	S10V002511		0 0	O		Acenaphthene	SOLID	N/A	<1.7377E+01			17.377	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		Benzo(a)anthracene	SOLID	N/A	<3.7320E+01			37.32	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		Benzo(b)fluoranthene	SOLID	N/A	<4.8280E+01			48.28	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		Benzo(a)pyrene	SOLID	N/A	<4.0677E+01			40.677	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		bis(2-Ethylhexyl)phthalate	SOLID	N/A	5.6222E+03			582.71	ug/Kg			J
4	SAMPLE	S10V002511		0 0	O		Benzo(k)fluoranthene	SOLID	N/A	<3.8604E+01			38.604	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		Butylbenzylphthalate	SOLID	N/A	<4.9366E+01			49.366	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		4-Chloro-3-methylphenol	SOLID	N/A	<4.2652E+01			42.652	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		2-Chlorophenol	SOLID	N/A	<6.5656E+01			65.656	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		Chrysene	SOLID	N/A	<8.0367E+01			80.367	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		Dibenz(a,h)anthracene	SOLID	N/A	<5.0452E+01			50.452	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		Di-n-butylphthalate	SOLID	N/A	<5.5517E+02			555.17	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		Di-n-octylphthalate	SOLID	N/A	<4.7095E+01			47.095	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		N-Nitrosodipropylamine	SOLID	N/A	<5.7363E+01			57.363	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		Fluoranthene	SOLID	N/A	<3.4951E+01			34.951	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		Hexachlorobutadiene	SOLID	N/A	<6.8816E+01			68.816	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		Hexachloroethane	SOLID	N/A	<1.1038E+02			110.38	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		Indeno(1,2,3-cd)pyrene	SOLID	N/A	<5.0353E+01			50.353	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		Naphthalene	SOLID	N/A	<6.1806E+01			61.806	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		Nitrobenzene	SOLID	N/A	<6.3780E+01			63.78	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		Pyrene	SOLID	N/A	<6.2102E+01			62.102	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		Pyridine	SOLID	N/A	<6.4175E+01			64.175	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		Tri-n-butylphosphate	SOLID	N/A	<1.0643E+02			106.43	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		2,6 bis-4Methylphenol	SOLID	N/A	<2.3261E+02			232.61	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		2-Ethoxyethanol	SOLID	N/A	<1.8009E+02			180.09	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		Methylphenols, Total	SOLID	N/A	<1.0525E+02			105.25	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		Cyclohexanone	SOLID	N/A	<5.5102E+02			551.02	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		N-Nitrosomorpholine	SOLID	N/A	<1.8887E+02			188.87	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		Isobutanol	SOLID	N/A	<4.5446E+02			454.46	ug/Kg			U
4	SAMPLE	S10V002511		0 0	O		2-Fluorobiphenyl	SOLID	1974.626	2.1743E+03				ug/Kg	110.11	% Recovery	
4	SAMPLE	S10V002511		0 0	O		2-Fluorophenol	SOLID	3949.252	3.7793E+03				ug/Kg	95.697	% Recovery	
4	SAMPLE	S10V002511		0 0	O		Nitrobenzene-d5	SOLID	1974.626	1.9340E+03				ug/Kg	97.943	% Recovery	
4	SAMPLE	S10V002511		0 0	O		2,4,6-Tribromophenol	SOLID	3949.252	5.5522E+03				ug/Kg	140.59	% Recovery	
4	SAMPLE	S10V002511		0 0	O		Terphenyl-d14	SOLID	1974.626	2.2950E+03				ug/Kg	116.22	% Recovery	
4	SAMPLE	S10V002511		0 0	O		Phenol-d6	SOLID	3949.252	4.0447E+03				ug/Kg	102	% Recovery	
4	SAMPLE	S10V002511		0 0	O		1,2-Benzenedicarboxyli	SOLID		977.7916				ug/Kg			BJNT
4	SAMPLE	S10V002511		0 0	O		Tetracosane	SOLID		294.14055				ug/Kg			JNT
4	SAMPLE	S10V002511		0 0	O		Unknown Hydrocarbon-10	SOLID		386.0011				ug/Kg			JT
4	SAMPLE	S10V002511		0 0	O		Unknown Hydrocarbon-11	SOLID		209.1261				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# 00022217

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
4	SAMPLE	S10V002511		0 0	O		Unknown Hydrocarbon-3	SOLID		216.47729				ug/Kg			JT
4	SAMPLE	S10V002511		0 0	O		Unknown Hydrocarbon-4	SOLID		461.55619				ug/Kg			JT
4	SAMPLE	S10V002511		0 0	O		Unknown Hydrocarbon-5	SOLID		439.86066				ug/Kg			JT
4	SAMPLE	S10V002511		0 0	O		Unknown Hydrocarbon-6	SOLID		598.77541				ug/Kg			JT
4	SAMPLE	S10V002511		0 0	O		Unknown Hydrocarbon-7	SOLID		938.48849				ug/Kg			JT
4	SAMPLE	S10V002511		0 0	O		Unknown Hydrocarbon-8	SOLID		939.0137				ug/Kg			JT
4	SAMPLE	S10V002511		0 0	O		Unknown Hydrocarbon-9	SOLID		691.67533				ug/Kg			JT
4	SAMPLE	S10V002511		0 0	O		Unknown-1	SOLID		393.56828				ug/Kg			BJT
4	SAMPLE	S10V002511		0 0	O		Unknown-2	SOLID		320.54682				ug/Kg			BJT
Sample Sequence 5																	
5	SAMPLE	S10V002806		0 0	O		1,2,4-Trichlorobenzene	SOLID	N/A	<7.7176E+01			77.176	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		1,2-Dichlorobenzene	SOLID	N/A	<1.0041E+02			100.41	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		2,4-Dinitrotoluene	SOLID	N/A	<3.7990E+01			37.99	ug/Kg			Ub
5	SAMPLE	S10V002806		0 0	O		2,4,5-Trichlorophenol	SOLID	N/A	<4.3873E+01			43.873	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		2,4,6-Trichlorophenol	SOLID	N/A	<4.9357E+01			49.357	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		2-Methylphenol	SOLID	N/A	<5.7334E+01			57.334	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		2-Nitrophenol	SOLID	N/A	<5.3545E+01			53.545	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		3 & 4 Methylphenol Total	SOLID	N/A	<5.1251E+01			51.251	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		Acenaphthene	SOLID	N/A	<1.7549E+01			17.549	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		Benzo(a)anthracene	SOLID	N/A	<3.7691E+01			37.691	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		Benzo(b)fluoranthene	SOLID	N/A	<4.8759E+01			48.759	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		Benzo(a)pyrene	SOLID	N/A	<4.1081E+01			41.081	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		bis(2-Ethylhexyl)phthalate	SOLID	N/A	<5.8849E+02			588.49	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		Benzo(k)fluoranthene	SOLID	N/A	<3.8987E+01			38.987	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		Butylbenzylphthalate	SOLID	N/A	<4.9855E+01			49.855	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		4-Chloro-3-methylphenol	SOLID	N/A	<4.3075E+01			43.075	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		2-Chlorophenol	SOLID	N/A	<6.6308E+01			66.308	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		Chrysene	SOLID	N/A	<8.1165E+01			81.165	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		Dibenz(a,h)anthracene	SOLID	N/A	<5.0952E+01			50.952	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		Di-n-butylphthalate	SOLID	N/A	<5.6067E+02			560.67	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		Di-n-octylphthalate	SOLID	N/A	<4.7562E+01			47.562	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		N-Nitrosodipropylamine	SOLID	N/A	<5.7932E+01			57.932	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		Fluoranthene	SOLID	N/A	<3.5298E+01			35.298	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		Hexachlorobutadiene	SOLID	N/A	<6.9498E+01			69.498	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		Hexachloroethane	SOLID	N/A	<1.1148E+02			111.48	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		Indeno(1,2,3-cd)pyrene	SOLID	N/A	<5.0853E+01			50.853	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# 00022217

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
5	SAMPLE	S10V002806		0 0	O		Naphthalene	SOLID	N/A	<6.2419E+01			62.419	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		Nitrobenzene	SOLID	N/A	<6.4413E+01			64.413	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		Pyrene	SOLID	N/A	<6.2718E+01			62.718	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		Pyridine	SOLID	N/A	<6.4812E+01			64.812	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		Tri-n-butylphosphate	SOLID	N/A	<1.0749E+02			107.49	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		2,6 bis-4Methylphenol	SOLID	N/A	<2.3492E+02			234.92	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		2-Ethoxyethanol	SOLID	N/A	<1.8187E+02			181.87	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		Methylphenols, Total	SOLID	N/A	<1.0629E+02			106.29	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		Cyclohexanone	SOLID	N/A	<5.5649E+02			556.49	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		N-Nitrosomorpholine	SOLID	N/A	<1.9075E+02			190.75	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		Isobutanol	SOLID	N/A	<4.5897E+02			458.97	ug/Kg			U
5	SAMPLE	S10V002806		0 0	O		2-Fluorobiphenyl	SOLID	1994.216	1.7316E+03				ug/Kg	86.831	% Recovery	
5	SAMPLE	S10V002806		0 0	O		2-Fluorophenol	SOLID	3988.433	2.9564E+03				ug/Kg	74.124	% Recovery	
5	SAMPLE	S10V002806		0 0	O		Nitrobenzene-d5	SOLID	1994.216	1.4895E+03				ug/Kg	74.691	% Recovery	
5	SAMPLE	S10V002806		0 0	O		2,4,6-Tribromophenol	SOLID	3988.433	4.8355E+03				ug/Kg	121.24	% Recovery	
5	SAMPLE	S10V002806		0 0	O		Terphenyl-d14	SOLID	1994.216	2.1870E+03				ug/Kg	109.67	% Recovery	
5	SAMPLE	S10V002806		0 0	O		Phenol-d6	SOLID	3988.433	3.1894E+03				ug/Kg	80	% Recovery	
5	SAMPLE	S10V002806		0 0	O		1,2-Benzenedicarboxyli	SOLID		651.57603				ug/Kg			BJNT
5	SAMPLE	S10V002806		0 0	O		Unknown-1	SOLID		1038.7288				ug/Kg			BJT
5	SAMPLE	S10V002806		0 0	O		Unknown-2	SOLID		655.94482				ug/Kg			BJT
5	SAMPLE	S10V002806		0 0	O		Unknown-3	SOLID		222.01784				ug/Kg			JT
Sample Sequence 6																	
6	MS	S1009130035	S10V002806	0 0	O		1,2,4-Trichlorobenzene	SOLID	1996.107	1.5015E+03			77.249	ug/Kg	75.221	% Recovery	
6	MS	S1009130035	S10V002806	0 0	O		2,4-Dinitrotoluene	SOLID	1996.107	2.2920E+03			38.026	ug/Kg	114.82	% Recovery	
6	MS	S1009130035	S10V002806	0 0	O		Acenaphthene	SOLID	1996.107	1.9380E+03			17.566	ug/Kg	97.089	% Recovery	
6	MS	S1009130035	S10V002806	0 0	O		4-Chloro-3-methylphenol	SOLID	3992.215	3.9864E+03			43.116	ug/Kg	99.854	% Recovery	
6	MS	S1009130035	S10V002806	0 0	O		2-Chlorophenol	SOLID	3992.215	3.2139E+03			66.371	ug/Kg	80.504	% Recovery	
6	MS	S1009130035	S10V002806	0 0	O		N-Nitrosodipropylamine	SOLID	1996.107	1.4921E+03			57.987	ug/Kg	74.751	% Recovery	
6	MS	S1009130035	S10V002806	0 0	O		Pyrene	SOLID	1996.107	2.1990E+03			62.778	ug/Kg	110.16	% Recovery	
Sample Sequence 7																	
7	MSD	S1009130036	S10V002806	0 0	O		1,2,4-Trichlorobenzene	SOLID	1982.16	1.4666E+03			76.71	ug/Kg	73.99	% Recovery	
															1.6500	% RPD	
7	MSD	S1009130036	S10V002806	0 0	O		2,4-Dinitrotoluene	SOLID	1982.16	2.2654E+03			37.76	ug/Kg	114.29	% Recovery	
															0.46266	% RPD	
7	MSD	S1009130036	S10V002806	0 0	O		Acenaphthene	SOLID	1982.16	1.8866E+03			17.443	ug/Kg	95.179	% Recovery	
															1.9868	% RPD	
7	MSD	S1009130036	S10V002806	0 0	O		4-Chloro-3-methylphenol	SOLID	3964.321	3.7064E+03			42.815	ug/Kg	93.494	% Recovery	
															6.5788	% RPD	
7	MSD	S1009130036	S10V002806	0 0	O		2-Chlorophenol	SOLID	3964.321	3.1106E+03			65.907	ug/Kg	78.465	% Recovery	
															2.5653	% RPD	
7	MSD	S1009130036	S10V002806	0 0	O		N-Nitrosodipropylamine	SOLID	1982.16	1.4654E+03			57.582	ug/Kg	73.929	% 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# 00022217

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
															1.1057	% RPD	
7	MSD	S1009130036	S10V002806	0 0	O		Pyrene	SOLID	1982.16	2.1184E+03			62.339	ug/Kg	106.87	% Recovery	
															3.0318	% RPD	

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00022217

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# 00022217

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1009130032	BLNK				
2	S1009130033	LCS				
3	S10V002359	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
4	S10V002511	SAMPLE		20100584	B26C38	C Farm WMC 2010-2
5	S10V002806	SAMPLE		20100584	B26C40	C Farm WMC 2010-2
6	S1009130035	MS	S10V002806			
7	S1009130036	MSD	S10V002806			

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

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

22217

FORM 2
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: CFARMWMCK

Level: (low/med) LOW

	CHG SAMPLE NO.	S1 (FBP) #	S2 (2FP) #	S3 (NBZ) #	S4 #	S5 (TBP) #	S6 (TPH) #	S7 #	S8 #	TOT OUT
01	BLANK	85	75	75	78	111	95			0
02	LCS	89	80	80	84	111	106			0
03	S10V002806	87	74	75	80	121	110			0
04	S10V002806MS	90	78	78	83	121	108			0
05	S10V002806MS	89	76	77	82	117	109			0
06	S10V002359	89	77	76	83	121	104			0
07	S10V002511	110	96	98	102	140	116			0
08										
09										
10										
11										
12										
13										
14										
15										
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27										
28										
29										
30										

		QC LIMITS
S1 (FBP)	= 2-Fluorobiphenyl	(10-147)
S2 (2FP)	= 2-Fluorophenol	(0-127)
S3 (NBZ)	= Nitrobenzene-d5	(0-125)
S4	= Phenol-d6	(37-125)
S5 (TBP)	= 2,4,6-Tribromophenol	(40-176)
S6 (TPH)	= Terphenyl-d14	(71-175)

Column to be used to flag recovery values
* Values outside of contract required QC limits
D Surrogate diluted out

FORM 3
SOIL SEMIVOLATILE LAB CONTROL SAMPLE

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: CFARMWMCK

Matrix Spike - CHG Sample No.: LCS Level:(low/med) LOW

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
1,2,4-Trichlorobenzene	2000.0		1542.9	77	2-128
2,4-Dinitrotoluene	2000.0		2155.8	108	55-111
Acenaphthene	2000.0		1853.4	93	36-114
4-Chloro-3-Methylphenol	4000.0		3422.4	86	42-103
2-Chlorophenol	4000.0		3301.0	82	28-111
N-Nitroso-di-n-prop.(1)	2000.0		1501.6	75	18-108
Pyrene	2000.0		2109.3	105	64-113

(1) N-Nitroso-di-n-propylamine

Column to be used to flag recovery and RPD values with an asterisk
* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 7 outside limits

COMMENTS: _____

Date: 30 May 2011
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: WMA C
Subject: Inorganics - Sample Data Group (SDG) 20100584

INTRODUCTION

This memorandum presents the results of data validation for SDG 20100584 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
B26C30	8/29/2010	Soil	C	See note 1
B26C38	9/01/2010	Soil	C	See note 1

1 – 6010C (ICP-AES), 6020A (ICP-MS), ICP-MS actinides, ICP-MS fission products, ICP-MS Tc-99 Vadose Water Digest, 7471A (CVAA Hg)

Data validation was conducted in accordance with the CHPRC validation statement of work and the Field Sampling and Analysis Plan for Waste Management Area C, RPP-PLAN-40564, Rev. 2 (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. Radionuclides in soil have no holding time. Sample preservation for soil samples requires chilling to <6 degrees Celsius.

The samples were 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 with the following exception. The Ca, Fe, U-236 and Th-230 laboratory blank results were > the MDLs. The Ca and Fe results for samples B26C30 and B26C38 were >5X the laboratory blank results and should not be qualified. The U-236 and Th-230 results for samples B26C30 and B26C38 were non-detects and should not be qualified.

Trip Blanks

No trip blanks were submitted for validation.

Field Blanks

No field blanks were submitted for validation.

Equipment Blanks

No equipment blanks were submitted for validation.

- **Accuracy**

Accuracy is evaluated by reviewing matrix spike sample results and laboratory control sample results. According to the SAP, the matrix spike sample accuracy limits are 75% to 125% and the laboratory control sample accuracy limits are 80% to 120%. 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.

The MS recovery for Ba was > the upper acceptance limit and no associated post spike recovery was reported. The Ba results for samples B26C30 and B26C38 were detects and should be qualified as estimates and flagged "J+."

The MS recoveries for Na, Si and Sr were > the upper acceptance limit and the associated post spike recoveries were acceptable. The Na, Si and Sr results for samples B26C30 and B26C38 were detects and should be qualified as estimates and flagged "J."

The MS recovery for Zr was < the lower acceptance limit and the associated post spike recovery was acceptable. The Zr results for samples B26C30 and B26C38 were detects and should be qualified as estimates and flagged "J."

The MS recovery for Sn-117 was < the lower acceptance limit and the associated post spike recovery was acceptable. The Sn-117 results for samples B26C30 and B26C38 were non-detects

and should be qualified as estimates and flagged "UJ." The Sn-126 results for samples B26C30 and B26C38 were detects and should be qualified as estimates and flagged "J."

Laboratory Control Samples (LCSs)

All LCS recoveries were acceptable.

- **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 soil duplicate RPDs exceed the limits and have associated results <5X the SAP required detection limits with differences <2X the required 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 with the following exceptions. The Cr and Na RPDs were above the acceptance limit. The Cr and Na results for samples B26C30 and B26C38 were detects and should be qualified as estimates and flagged "J."

Field Duplicate Samples

No field duplicates were submitted for validation.

Field Split Samples

No field splits were submitted for validation.

- **Detection Limits**

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

All reported sample MDLs with associated non-detected sample results were below the RDLs.

- **Completeness**

SDG 20100584 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

GRP-GD-003, Rev. 0, Change 0, *Data Validation for Chemical Analyses*, August 2010.

RPP-PLAN-40564, Rev. 2, *Field Sampling and Analysis Plan for Waste Management Area C*, December 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, but 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 RL. 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.

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

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

- **N** — The analysis indicates the presence of an analyte that has been tentatively identified.

- **NJ** — The analysis indicates the presence of an analyte that has been tentatively identified and the associated numerical value represents its approximate concentration.

- **NJ+** — The analysis indicates the presence of an analyte that has been tentatively identified. The associated value is estimated with a suspected positive bias due to a quality control deficiency identified during data validation.

- **NJ-** — The analysis indicates the presence of an analyte that has been tentatively identified. The associated value is estimated with a suspected negative bias due to a quality control deficiency identified during data validation.

- **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: 20100584	Reviewer: AQA	Project: WMA C	Page 1 of 1
Analyte(s)	**DV Flag**	**Samples Affected**	**Reason**
Ba	J+	B26C30, B26C38	High MS recovery
Si, Sr	J	B26C30, B26C38	High MS recovery
Zr, Sn-126	J	B26C30, B26C38	Low MS recovery
Sn-117	UJ	B26C30, B26C38	Low MS recovery
Na	J	B26C30, B26C38	High MS recovery & poor lab duplicate precision
Cr	J	B26C30, B26C38	Poor lab duplicate precision

Comments: None

Appendix 3

Annotated Laboratory Reports

Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C30
Sample Depth: 14-16

LS
5-30-2011

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V001946			%WATERA	%WATER-APD	%	n/a	n/a	4.910	n/a	n/a	n/a	n/a	0.01000	n/a	
S10V001946			57-12-5	Cyanide	ug/g	99.7	<0.0370	<2.64	n/a	n/a	n/a	n/a	2.64	n/a	U
S10V001946			7439-97-6	Mercury	ug/g	96.3	<1.00E-04	<9.14E-03	n/a	n/a	n/a	n/a	9.14E-03	n/a	U
S10V001946			PH	pH	unitless	n/a	n/a	9.71	n/a	n/a	n/a	n/a	0.0100	n/a	
S10V001946			12597-04-5	Sulfide	ug/g	82.8	<0.180	12.7	n/a	n/a	n/a	n/a	7.03	n/a	B
S10V001948			13966-00-2	Potassium-40	uCi/g	n/a	n/a	9.70E-06	1.11E-05	n/a	n/a	n/a	7.18E-06	47.56	
S10V001948			10198-40-0	Cobalt-60	uCi/g	99.1	<2.73E-07	<3.54E-07	<3.54E-07	n/a	n/a	n/a	3.54E-07	n/a	U
S10V001948			14234-35-6	Antimony-125	uCi/g	n/a	<7.34E-07	<9.18E-07	<8.55E-07	n/a	n/a	n/a	9.18E-07	n/a	U
S10V001948			10045-97-3	Cesium-137	uCi/g	101	<3.64E-07	<4.56E-07	<4.19E-07	n/a	n/a	n/a	4.56E-07	n/a	U
S10V001948			14683-23-9	Europium-152	uCi/g	n/a	<1.35E-06	<1.82E-06	<1.56E-06	n/a	n/a	n/a	1.82E-06	n/a	U
S10V001948			15585-10-1	Europium-154	uCi/g	n/a	<8.57E-07	<1.22E-06	<1.09E-06	n/a	n/a	n/a	1.22E-06	n/a	U
S10V001948			14391-16-3	Europium-155	uCi/g	n/a	<4.62E-07	<5.93E-07	<5.36E-07	n/a	n/a	n/a	5.93E-07	n/a	U
S10V001948			14274-82-9	Thorium-228	uCi/g	n/a	<8.13E-06	<1.08E-05	<9.98E-06	n/a	n/a	n/a	1.08E-05	n/a	U
S10V001948			15065-10-8	Thorium-234	uCi/g	n/a	<2.85E-06	<3.55E-06	<3.42E-06	n/a	n/a	n/a	3.55E-06	n/a	U
S10V001948			15046-84-1	Iodine-129	uCi/g	111	<1.83E-07	<2.23E-07	n/a	n/a	n/a	n/a	2.23E-07	n/a	U
S10V001949		WV	14133-76-7	Technetium-99	ug/g	110	<4.00E-06	<4.01E-06	n/a	n/a	n/a	n/a	4.01E-06	n/a	U
S10V001950		W	14762-75-5	Carbon-14	uCi/g	91.6	<1.40E-06	<1.29E-06	n/a	n/a	n/a	n/a	1.29E-06	n/a	U
S10V001950		W	10028-17-8	Tritium	uCi/g	92.9	<3.75E-07	<5.10E-05	n/a	n/a	n/a	n/a	5.10E-05	n/a	U
S10V001951		A	7440-36-0	Antimony	ug/g	102	<2.00E-04	0.111	n/a	n/a	n/a	n/a	9.70E-03	n/a	J
S10V001952		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	60.1	<77.4	<77.3	n/a	n/a	n/a	n/a	77.3	n/a	U
S10V001952		O	95-50-1	1,2-Dichlorobenzene	ug/kg	n/a	<101	<101	n/a	n/a	n/a	n/a	101	n/a	U
S10V001952		O	121-14-2	2,4-Dinitrotoluene	ug/kg	77.8	<38.1	<38.1	n/a	n/a	n/a	n/a	38.1	n/a	U
S10V001952		O	95-95-4	2,4,5-Trichlorophenol	ug/kg	n/a	<44.0	<44.0	n/a	n/a	n/a	n/a	44.0	n/a	U
S10V001952		O	88-06-2	2,4,6-Trichlorophenol	ug/kg	n/a	<49.5	<49.5	n/a	n/a	n/a	n/a	49.5	n/a	U
S10V001952		O	95-48-7	2-Methylphenol	ug/kg	n/a	<57.5	<57.5	n/a	n/a	n/a	n/a	57.5	n/a	U
S10V001952		O	88-75-5	2-Nitrophenol	ug/kg	n/a	<53.7	<53.7	n/a	n/a	n/a	n/a	53.7	n/a	U
S10V001952		O	65794-96-9	3 &4 Methylphenol	ug/kg	n/a	<51.4	<51.4	n/a	n/a	n/a	n/a	51.4	n/a	U
S10V001952		O	83-32-9	Acenaphthene	ug/kg	68.0	<17.6	<17.6	n/a	n/a	n/a	n/a	17.6	n/a	U
S10V001952		O	56-55-3	Benzo(a)anthracene	ug/kg	n/a	<37.8	<37.8	n/a	n/a	n/a	n/a	37.8	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
M - RPD Outside Range
N - MS/MSD Outside Range
C - Blank Contamination
B - Blank Contamination
B - Estimated
J - Estimated
T - MS/MSD Outside Range

Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C30
Sample Depth: 14-16

LS
5-30-2011

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V001953		W	71-50-1	Acetate		ug/g	97.2	<6.04E-03	0.520	n/a	n/a	n/a	n/a	0.0604	n/a	B
S10V001953		W	FORMATE	Formate		ug/g	101	<4.67E-03	0.731	n/a	n/a	n/a	n/a	0.0467	n/a	B
S10V001953		W	16887-00-6	Chloride		ug/g	99.4	0.0107	2.09	n/a	n/a	n/a	n/a	0.0998	n/a	
S10V001953		W	14797-65-0	Nitrite		ug/g	100	<0.0192	1.12	n/a	n/a	n/a	n/a	0.192	n/a	B
S10V001953		W	14808-79-8	Sulfate		ug/g	101	<0.0187	43.9	n/a	n/a	n/a	n/a	0.187	n/a	
S10V001953		W	338-70-5	Oxalate		ug/g	101	<0.0231	<0.231	n/a	n/a	n/a	n/a	0.231	n/a	U
S10V001953		W	24959-67-9	Bromide		ug/g	98.4	<0.0580	<0.580	n/a	n/a	n/a	n/a	0.580	n/a	U
S10V001953		W	14797-55-8	Nitrate		ug/g	99.2	<0.0208	7.74	n/a	n/a	n/a	n/a	0.208	n/a	
S10V001953		W	14265-44-2	Phosphate		ug/g	99.0	<0.0167	1.18	n/a	n/a	n/a	n/a	0.167	n/a	B
S10V001954		A	7429-90-5	Aluminum		ug/g	98.0	<0.0300	6.93E+03	n/a	n/a	n/a	n/a	2.95	n/a	
S10V001954		A	7440-39-3	Barium	J+	ug/g	88.6	<3.00E-03	89.7	n/a	n/a	n/a	n/a	0.295	n/a	
S10V001954		A	7440-41-7	Beryllium		ug/g	89.5	<1.00E-03	0.136	n/a	n/a	n/a	n/a	0.0984	n/a	B
S10V001954		A	7440-70-2	Calcium		ug/g	89.6	0.101	8.94E+03	n/a	n/a	n/a	n/a	4.92	n/a	
S10V001954		A	7440-45-1	Cerium		ug/g	92.7	<0.0300	22.2	n/a	n/a	n/a	n/a	2.95	n/a	BN
S10V001954		A	7440-48-4	Cobalt		ug/g	80.7	<0.0100	10.3	n/a	n/a	n/a	n/a	0.984	n/a	
S10V001954		A	7440-47-3	Chromium	J	ug/g	80.7	<5.00E-03	26.8	n/a	n/a	n/a	n/a	0.492	n/a	M
S10V001954		A	7440-50-8	Copper		ug/g	90.0	<5.00E-03	11.2	n/a	n/a	n/a	n/a	0.492	n/a	
S10V001954		A	7439-89-6	Iron		ug/g	83.3	0.0115	2.68E+04	n/a	n/a	n/a	n/a	0.492	n/a	
S10V001954		A	7440-09-7	Potassium		ug/g	94.0	<0.500	792	n/a	n/a	n/a	n/a	49.2	n/a	
S10V001954		A	7439-91-0	Lanthanum		ug/g	90.2	<3.00E-03	9.31	n/a	n/a	n/a	n/a	0.295	n/a	
S10V001954		A	7439-93-2	Lithium		ug/g	88.9	<3.00E-03	6.80	n/a	n/a	n/a	n/a	0.295	n/a	
S10V001954		A	7439-95-4	Magnesium		ug/g	96.8	<0.0500	4.43E+03	n/a	n/a	n/a	n/a	4.92	n/a	
S10V001954		A	7439-96-5	Manganese		ug/g	80.2	<3.00E-03	424	n/a	n/a	n/a	n/a	0.295	n/a	
S10V001954		A	7439-98-7	Molybdenum		ug/g	82.2	<0.0200	<1.97	n/a	n/a	n/a	n/a	1.97	n/a	U
S10V001954		A	7440-23-5	Sodium	J	ug/g	87.1	<0.100	569	n/a	n/a	n/a	n/a	9.84	n/a	M
S10V001954		A	7440-02-0	Nickel		ug/g	98.9	<0.0200	18.3	n/a	n/a	n/a	n/a	1.97	n/a	B
S10V001954		A	7723-14-0	Phosphorus		ug/g	81.1	<0.0500	748	n/a	n/a	n/a	n/a	4.92	n/a	
S10V001954		A	7704-34-9	Sulfur		ug/g	81.2	<0.100	73.1	n/a	n/a	n/a	n/a	9.84	n/a	B
S10V001954		A	7440-21-3	Silicon	J	ug/g	94.7	<0.0300	82.6	n/a	n/a	n/a	n/a	2.95	n/a	NM

NA = Not Analyzed, ND = Not Detected

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B - Blank Contamination
B - Estimated
J - Estimated
T - MS/MSD Outside Range

Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C30
Sample Depth: 14-16

LS
5-30-2011

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V001954	A	7440-24-6	Strontium J	ug/g	88.7	<3.00E-03	35.1	n/a	n/a	n/a	n/a	0.295	n/a	NM
S10V001954	A	7440-32-6	Titanium	ug/g	82.5	<5.00E-03	1.98E+03	n/a	n/a	n/a	n/a	0.492	n/a	
S10V001954	A	7440-62-2	Vanadium	ug/g	84.5	<5.00E-03	75.1	n/a	n/a	n/a	n/a	0.492	n/a	
S10V001954	A	7440-65-5	Yttrium	ug/g	82.8	<2.00E-03	9.43	n/a	n/a	n/a	n/a	0.197	n/a	
S10V001954	A	7440-66-6	Zinc	ug/g	81.5	<5.00E-03	42.8	n/a	n/a	n/a	n/a	0.492	n/a	
S10V001954	A	7440-67-7	Zirconium J	ug/g	99.0	<5.00E-03	18.7	n/a	n/a	n/a	n/a	0.492	n/a	N
S10V001954	A	14269-63-7	Thorium-230	ug/g	n/a	4.16E-06	<2.80E-05	n/a	n/a	n/a	n/a	2.80E-05	n/a	U
S10V001954	A	TH-232	Thorium-232	ug/g	107	<2.00E-04	3.22	n/a	n/a	n/a	n/a	2.00E-03	n/a	
S10V001954	A	13968-55-3	Uranium-233	ug/g	n/a	<4.00E-06	1.41E-04	n/a	n/a	n/a	n/a	3.94E-05	n/a	
S10V001954	A	13966-29-5	Uranium-234	ug/g	n/a	<2.00E-06	<1.97E-05	n/a	n/a	n/a	n/a	1.97E-05	n/a	U
S10V001954	A	15117-96-1	Uranium-235	ug/g	97.2	<4.00E-06	3.29E-03	n/a	n/a	n/a	n/a	3.94E-05	n/a	
S10V001954	A	13982-70-2	Uranium-236	ug/g	n/a	1.62E-06	<1.57E-05	n/a	n/a	n/a	n/a	1.57E-05	n/a	U
S10V001954	A	13994-20-2	Neptunium-237	ug/g	100	<4.00E-05	<3.94E-04	n/a	n/a	n/a	n/a	3.94E-04	n/a	U
S10V001954	A	U-238	Uranium-238	ug/g	106	<2.00E-04	0.504	n/a	n/a	n/a	n/a	1.97E-03	n/a	
S10V001954	A	7440-22-4	Silver	ug/g	119	<4.00E-04	0.0618	n/a	n/a	n/a	n/a	3.94E-03	n/a	
S10V001954	A	7440-38-2	Arsenic	ug/g	106	<8.40E-03	2.95	n/a	n/a	n/a	n/a	0.0827	n/a	
S10V001954	A	7440-43-9	Cadmium	ug/g	107	<1.80E-03	0.0661	n/a	n/a	n/a	n/a	0.0118	n/a	B
S10V001954	A	7439-92-1	Lead	ug/g	99.4	<3.00E-03	3.37	n/a	n/a	n/a	n/a	0.0295	n/a	
S10V001954	A	7782-49-2	Selenium	ug/g	104	<0.0270	0.602	n/a	n/a	n/a	n/a	0.266	n/a	B
S10V001954	A	7440-28-0	Thallium	ug/g	98.8	<4.00E-04	0.0774	n/a	n/a	n/a	n/a	7.87E-03	n/a	B
~~S10V001955~~	~~S~~	~~14798-03-9~~	~~Ammonium~~	~~ug/g~~	~~92.3~~	~~1.43~~	~~19.9~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.467~~	~~n/a~~	~~C~~
S10V001956	A	14133-76-7	Technetium-99	ug/g	109	<3.00E-05	<2.95E-04	n/a	n/a	n/a	n/a	2.95E-04	n/a	U
S10V001956	A	SN-117	Tin-117 UJ	ug/g	108	<1.00E-03	<9.85E-03	n/a	n/a	n/a	n/a	9.85E-03	n/a	UN
S10V001956	A	15832-50-5	Tin-126 J	ug/g	n/a	<2.00E-05	3.15E-04	n/a	n/a	n/a	n/a	1.97E-04	n/a	BN
~~S10V001957~~	~~E~~	~~CM-243/244~~	~~Curium-243/244~~	~~uCi/g~~	~~n/a~~	~~<2.10E-07~~	~~<2.22E-07~~	~~<2.05E-07~~	~~n/a~~	~~n/a~~	~~n/a~~	~~2.22E-07~~	~~n/a~~	~~U~~
S10V001957	E	14596-10-2	Americium-241	uCi/g	93.7	<5.25E-07	<5.55E-07	<5.12E-07	n/a	n/a	n/a	5.55E-07	n/a	U
S10V001957	E	15510-73-3	Curium-242	uCi/g	n/a	<2.10E-07	<2.22E-07	<2.05E-07	n/a	n/a	n/a	2.22E-07	n/a	U
S10V001957	E	PU-239/240	Plutonium-239/240	uCi/g	97.1	<6.08E-07	<3.40E-07	<3.45E-07	n/a	n/a	n/a	3.40E-07	n/a	U
~~S10V001957~~	~~E~~	~~13981-16-3~~	~~Plutonium-238~~	~~uCi/g~~	~~n/a~~	~~<6.08E-07~~	~~<3.40E-07~~	~~<3.45E-07~~	~~n/a~~	~~n/a~~	~~n/a~~	~~3.40E-07~~	~~n/a~~	~~U~~

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
M - RPD Outside Range
N - MS/MSD Outside Range
C - Blank Contamination
B - Blank Contamination
B - Estimated
J - Estimated
T - MS/MSD Outside Range

Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C38
Sample Depth: 116-118

LS
5-30-2011

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002505			%WATERA	%WATER-APD	%	n/a	n/a	3.190	n/a	n/a	n/a	n/a	0.01000	n/a	
S10V002505			57-12-5	Cyanide	ug/g	89.7	<0.0370	<2.66	n/a	n/a	n/a	n/a	2.66	n/a	U
S10V002505			7439-97-6	Mercury	ug/g	87.7	<1.00E-04	<9.26E-03	n/a	n/a	n/a	n/a	9.26E-03	n/a	U
S10V002505			PH	pH	unitless	n/a	n/a	9.29	n/a	n/a	n/a	n/a	0.0100	n/a	
S10V002505			12597-04-5	Sulfide	ug/g	92.5	<0.180	8.75	n/a	n/a	n/a	n/a	7.16	n/a	B
S10V002507			13966-00-2	Potassium-40	uCi/g	n/a	n/a	1.40E-05	n/a	n/a	n/a	n/a	5.83E-06	28.54	
S10V002507			10198-40-0	Cobalt-60	uCi/g	99.1	<2.73E-07	<3.13E-07	n/a	n/a	n/a	n/a	3.13E-07	n/a	U
S10V002507			14234-35-6	Antimony-125	uCi/g	n/a	<7.34E-07	<7.89E-07	n/a	n/a	n/a	n/a	7.89E-07	n/a	U
S10V002507			10045-97-3	Cesium-137	uCi/g	101	<3.64E-07	<3.67E-07	n/a	n/a	n/a	n/a	3.67E-07	n/a	U
S10V002507			14683-23-9	Europium-152	uCi/g	n/a	<1.35E-06	<1.51E-06	n/a	n/a	n/a	n/a	1.51E-06	n/a	U
S10V002507			15585-10-1	Europium-154	uCi/g	n/a	<8.57E-07	<9.72E-07	n/a	n/a	n/a	n/a	9.72E-07	n/a	U
S10V002507			14391-16-3	Europium-155	uCi/g	n/a	<4.62E-07	<4.80E-07	n/a	n/a	n/a	n/a	4.80E-07	n/a	U
S10V002507			15092-94-1	Lead-212	uCi/g	n/a	n/a	6.69E-07	n/a	n/a	n/a	n/a	4.52E-07	31.92	
S10V002507			15067-28-4	Lead-214	uCi/g	n/a	n/a	6.44E-07	n/a	n/a	n/a	n/a	7.48E-07	45.90	U
S10V002507			14274-82-9	Thorium-228	uCi/g	n/a	<8.13E-06	<9.24E-06	n/a	n/a	n/a	n/a	9.24E-06	n/a	U
S10V002507			15065-10-8	Thorium-234	uCi/g	n/a	<2.85E-06	<3.16E-06	n/a	n/a	n/a	n/a	3.16E-06	n/a	U
S10V002507			15046-84-1	Iodine-129	uCi/g	113	<1.93E-07	<1.53E-07	n/a	n/a	n/a	n/a	1.53E-07	n/a	U
S10V002508		WV	14133-76-7	Technetium-99	ug/g	110	<4.00E-06	<3.86E-06	n/a	n/a	n/a	n/a	3.86E-06	n/a	U
S10V002509		W	14762-75-5	Carbon-14	uCi/g	91.6	<1.40E-06	<1.33E-06	n/a	n/a	n/a	n/a	1.33E-06	n/a	U
S10V002509		W	10028-17-8	Tritium	uCi/g	92.9	<3.75E-07	8.92E-05	n/a	n/a	n/a	n/a	5.18E-05	88.485	
S10V002510		A	7440-36-0	Antimony	ug/g	102	<2.00E-04	0.157	n/a	n/a	n/a	n/a	9.72E-03	n/a	J
S10V002511		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	77.1	<77.4	<76.4	n/a	n/a	n/a	n/a	76.4	n/a	U
S10V002511		O	95-50-1	1,2-Dichlorobenzene	ug/kg	n/a	<101	<99.4	n/a	n/a	n/a	n/a	99.4	n/a	U
S10V002511		O	121-14-2	2,4-Dinitrotoluene	ug/kg	108	<38.1	<37.6	n/a	n/a	n/a	n/a	37.6	n/a	UT
S10V002511		O	95-95-4	2,4,5-Trichlorophenol	ug/kg	n/a	<44.0	<43.4	n/a	n/a	n/a	n/a	43.4	n/a	U
S10V002511		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
S10V002511		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
S10V002511		O	88-75-5	2-Nitrophenol	ug/kg	n/a	<53.7	<53.0	n/a	n/a	n/a	n/a	53.0	n/a	U
S10V002511		O	65794-96-9	3 &4 Methylphenol	ug/kg	n/a	<51.4	<50.7	n/a	n/a	n/a	n/a	50.7	n/a	U

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N - MS/MSD Outside Range
C - Blank Contamination
B - Blank Contamination
B - Estimated
J - Estimated
T - MS/MSD Outside Range

Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C38
Sample Depth: 116-118

LS
5-30-2011

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002512		W	16984-48-8	Fluoride		ug/g	101	<1.61E-03	0.648	n/a	n/a	n/a	n/a	0.0161	n/a	
S10V002512		W	GLYCOLAT	Glycolate		ug/g	99.6	<9.37E-03	<0.0937	n/a	n/a	n/a	n/a	0.0937	n/a	U
S10V002512		W	71-50-1	Acetate		ug/g	97.2	<6.04E-03	0.196	n/a	n/a	n/a	n/a	0.0604	n/a	B
S10V002512		W	FORMATE	Formate		ug/g	101	<4.67E-03	0.144	n/a	n/a	n/a	n/a	0.0467	n/a	B
S10V002512		W	16887-00-6	Chloride		ug/g	99.4	0.0107	2.09	n/a	n/a	n/a	n/a	0.0998	n/a	
S10V002512		W	14797-65-0	Nitrite		ug/g	100	<0.0192	0.437	n/a	n/a	n/a	n/a	0.192	n/a	B
S10V002512		W	14808-79-8	Sulfate		ug/g	101	<0.0187	42.3	n/a	n/a	n/a	n/a	0.187	n/a	
S10V002512		W	338-70-5	Oxalate		ug/g	101	<0.0231	<0.231	n/a	n/a	n/a	n/a	0.231	n/a	U
S10V002512		W	24959-67-9	Bromide		ug/g	98.4	<0.0580	<0.580	n/a	n/a	n/a	n/a	0.580	n/a	U
S10V002512		W	14797-55-8	Nitrate		ug/g	99.2	<0.0208	5.90	n/a	n/a	n/a	n/a	0.208	n/a	
S10V002512		W	14265-44-2	Phosphate		ug/g	99.0	<0.0167	0.344	n/a	n/a	n/a	n/a	0.167	n/a	B
S10V002513		A	7429-90-5	Aluminum		ug/g	98.0	<0.0300	6.18E+03	n/a	n/a	n/a	n/a	2.96	n/a	
S10V002513		A	7440-39-3	Barium	J+	ug/g	88.6	<3.00E-03	58.6	n/a	n/a	n/a	n/a	0.296	n/a	
S10V002513		A	7440-41-7	Beryllium		ug/g	89.5	<1.00E-03	0.176	n/a	n/a	n/a	n/a	0.0986	n/a	B
S10V002513		A	7440-70-2	Calcium		ug/g	89.6	0.101	7.67E+03	n/a	n/a	n/a	n/a	4.93	n/a	
S10V002513		A	7440-45-1	Cerium		ug/g	92.7	<0.0300	19.1	n/a	n/a	n/a	n/a	2.96	n/a	BN
S10V002513		A	7440-48-4	Cobalt		ug/g	80.7	<0.0100	5.74	n/a	n/a	n/a	n/a	0.986	n/a	B
S10V002513		A	7440-47-3	Chromium	J	ug/g	80.7	<5.00E-03	17.3	n/a	n/a	n/a	n/a	0.493	n/a	M
S10V002513		A	7440-50-8	Copper		ug/g	90.0	<5.00E-03	9.04	n/a	n/a	n/a	n/a	0.493	n/a	
S10V002513		A	7439-89-6	Iron		ug/g	83.3	0.0115	1.60E+04	n/a	n/a	n/a	n/a	0.493	n/a	
S10V002513		A	7440-09-7	Potassium		ug/g	94.0	<0.500	923	n/a	n/a	n/a	n/a	49.3	n/a	
S10V002513		A	7439-91-0	Lanthanum		ug/g	90.2	<3.00E-03	8.53	n/a	n/a	n/a	n/a	0.296	n/a	
S10V002513		A	7439-93-2	Lithium		ug/g	88.9	<3.00E-03	8.66	n/a	n/a	n/a	n/a	0.296	n/a	
S10V002513		A	7439-95-4	Magnesium		ug/g	96.8	<0.0500	4.70E+03	n/a	n/a	n/a	n/a	4.93	n/a	
S10V002513		A	7439-96-5	Manganese		ug/g	80.2	<3.00E-03	267	n/a	n/a	n/a	n/a	0.296	n/a	
S10V002513		A	7439-98-7	Molybdenum		ug/g	82.2	<0.0200	<1.97	n/a	n/a	n/a	n/a	1.97	n/a	U
S10V002513		A	7440-23-5	Sodium	J	ug/g	87.1	<0.100	140	n/a	n/a	n/a	n/a	9.86	n/a	M
S10V002513		A	7440-02-0	Nickel		ug/g	98.9	<0.0200	14.7	n/a	n/a	n/a	n/a	1.97	n/a	B
S10V002513		A	7723-14-0	Phosphorus		ug/g	81.1	<0.0500	483	n/a	n/a	n/a	n/a	4.93	n/a	

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C - Blank Contamination
B - Blank Contamination
B - Estimated
J - Estimated
T - MS/MSD Outside Range

Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C38
Sample Depth: 116-118

LS
5-30-2011

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002513		A	7704-34-9	Sulfur		ug/g	81.2	<0.100	62.8	n/a	n/a	n/a	n/a	9.86	n/a	B
S10V002513		A	7440-21-3	Silicon	J	ug/g	94.7	<0.0300	72.8	n/a	n/a	n/a	n/a	2.96	n/a	NM
S10V002513		A	7440-24-6	Strontium	J	ug/g	88.7	<3.00E-03	29.4	n/a	n/a	n/a	n/a	0.296	n/a	NM
S10V002513		A	7440-32-6	Titanium		ug/g	82.5	<5.00E-03	795	n/a	n/a	n/a	n/a	0.493	n/a	
S10V002513		A	7440-62-2	Vanadium		ug/g	84.5	<5.00E-03	31.0	n/a	n/a	n/a	n/a	0.493	n/a	
S10V002513		A	7440-65-5	Yttrium		ug/g	82.8	<2.00E-03	5.53	n/a	n/a	n/a	n/a	0.197	n/a	
S10V002513		A	7440-66-6	Zinc		ug/g	81.5	<5.00E-03	32.0	n/a	n/a	n/a	n/a	0.493	n/a	
S10V002513		A	7440-67-7	Zirconium	J	ug/g	99.0	<5.00E-03	6.47	n/a	n/a	n/a	n/a	0.493	n/a	N
S10V002513		A	14269-63-7	Thorium-230		ug/g	n/a	4.16E-06	<2.78E-05	n/a	n/a	n/a	n/a	2.78E-05	n/a	U
S10V002513		A	TH-232	Thorium-232		ug/g	107	<2.00E-04	4.18	n/a	n/a	n/a	n/a	1.99E-03	n/a	
S10V002513		A	13968-55-3	Uranium-233		ug/g	n/a	<4.00E-06	1.74E-04	n/a	n/a	n/a	n/a	3.94E-05	n/a	
S10V002513		A	13966-29-5	Uranium-234		ug/g	n/a	<2.00E-06	4.23E-05	n/a	n/a	n/a	n/a	1.97E-05	n/a	
S10V002513		A	15117-96-1	Uranium-235		ug/g	97.2	<4.00E-06	3.12E-03	n/a	n/a	n/a	n/a	3.94E-05	n/a	
S10V002513		A	13982-70-2	Uranium-236		ug/g	n/a	1.62E-06	<1.58E-05	n/a	n/a	n/a	n/a	1.58E-05	n/a	U
S10V002513		A	13994-20-2	Neptunium-237		ug/g	100	<4.00E-05	<3.94E-04	n/a	n/a	n/a	n/a	3.94E-04	n/a	U
S10V002513		A	U-238	Uranium-238		ug/g	106	<2.00E-04	0.414	n/a	n/a	n/a	n/a	1.97E-03	n/a	
S10V002513		A	7440-22-4	Silver		ug/g	119	<4.00E-04	0.0443	n/a	n/a	n/a	n/a	3.94E-03	n/a	
S10V002513		A	7440-38-2	Arsenic		ug/g	106	<8.40E-03	3.47	n/a	n/a	n/a	n/a	0.0828	n/a	
S10V002513		A	7440-43-9	Cadmium		ug/g	107	<1.80E-03	0.0631	n/a	n/a	n/a	n/a	0.0118	n/a	B
S10V002513		A	7439-92-1	Lead		ug/g	99.4	<3.00E-03	3.79	n/a	n/a	n/a	n/a	0.0296	n/a	
S10V002513		A	7782-49-2	Selenium		ug/g	104	<0.0270	0.469	n/a	n/a	n/a	n/a	0.266	n/a	B
S10V002513		A	7440-28-0	Thallium		ug/g	98.8	<4.00E-04	0.0541	n/a	n/a	n/a	n/a	7.89E-03	n/a	B
~~S10V002514~~		~~S~~	~~14798-03-9~~	~~Ammonium~~		~~ug/g~~	~~92.3~~	~~1.43~~	~~2.10~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.476~~	~~n/a~~	~~CB~~
S10V002515		A	14133-76-7	Technetium-99		ug/g	109	<3.00E-05	<2.99E-04	n/a	n/a	n/a	n/a	2.99E-04	n/a	U
S10V002515		A	SN-117	Tin-117	UJ	ug/g	108	<1.00E-03	<9.95E-03	n/a	n/a	n/a	n/a	9.95E-03	n/a	UN
S10V002515		A	15832-50-5	Tin-126	J	ug/g	n/a	<2.00E-05	3.38E-04	n/a	n/a	n/a	n/a	1.99E-04	n/a	BN
~~S10V002516~~		~~E~~	~~CM-243/244~~	~~Curium-243/244~~		~~uCi/g~~	~~n/a~~	~~<2.10E-07~~	~~<1.66E-07~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~1.66E-07~~	~~n/a~~	~~U~~
S10V002516		E	14596-10-2	Americium-241		uCi/g	93.7	<5.25E-07	<4.16E-07	n/a	n/a	n/a	n/a	4.16E-07	n/a	U
~~S10V002516~~		~~E~~	~~15510-73-3~~	~~Curium-242~~		~~uCi/g~~	~~n/a~~	~~<2.10E-07~~	~~<1.66E-07~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~1.66E-07~~	~~n/a~~	~~U~~

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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 HOLE C7680 IN SUPPORT OF RCRA SOIL CHARACTERIZATION

1.0 INTRODUCTION

This final report presents the results for the samples taken from Waste Management Area C between August 26, 2010 and September 1, 2010. 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-38777, *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); SW-846, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*; 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 other 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	Additional Organic Analyses QC Results
Attachment 5	Tentatively Identified Compounds (TIC) for Organic Analyses
Attachment 6	Geological Report
Attachment 7	Characterization Change Notices (CCN) and Correspondence
Attachment 8	Receipt Paperwork

2.0 SAMPLE RECEIPT AND BREAKDOWN

2.1 SAMPLE RECEIPT

A total of eight core intervals and two surface grab samples from core hole C7680 along with nine field blanks and six trip blanks were received by the 222-S Laboratory between August 26, 2010 and September 1, 2010. The samples were delivered in a cooler with ice or, in the case of the volatile organic soil samples, in a freezer. The temperatures of the temperature blanks were measured and recorded on the sample receipt check list and/or the chain of custody form.

The chain of custody requested that conductivity be analyzed on the soil samples. Since this analysis was not listed in the SAP or FSAP, it was not performed. The client has indicated that

this analysis may be performed later after a CCN is issued to cover the change to the FSAP (see Attachment 7).

2.2 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. The VOA samples were made from the shoe section of each core interval following SW-846 5035. 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 Attachment 6. Provided sufficient samples existed, the composite for each core interval was analyzed as described in the SAP and FSAP. One core interval, I002, had less than full recovery (see Attachment 2 and Attachment 8).

WRPS shipped subsamples of the composites to Test America Laboratories, Inc. (TAL) in St. Louis, Missouri and Knoxville, Tennessee to be analyzed for dibutyl and monobutyl phosphate, total petroleum hydrocarbons (diesel and gasoline range), ethylene glycol, chlorinated pesticides, and polychlorinated biphenyls (Aroclors and congeners). TAL subsequently subcontracted the monobutyl and dibutyl phosphate analyses to Southwest Research Institute. The results of these analyses will be released in the final WRPS report.

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 5. 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 (MDA) 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 SW-846 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 standard water digest.

"WV" indicates samples that were prepared by a Vadose 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 from FEAD CP-15383, *Common Requirements of the Format for Electronic Analytical Data,* that are defined as follows:

> "B" for organic or radiochemistry results is used to indicate that the analyte was detected in the method or preparation blank and in the sample.
>
> "B" for inorganic results is used to indicate that the reported result should be considered an estimate because it is below the quantitation limit. The "B" flag is applied to sample concentrations that are greater than the MDL but less than the quantitation limit.
>
> "C" for inorganic results 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 or equal to 20% of the reported sample result.
>
> "J" for organic results is used to indicate 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.
>
> "T" for GC/MS results is used to indicate the matrix spike (MS) recovery or matrix spike duplicate (MSD) recovery is outside control limits.
>
> "U" for all results is used to indicate that the reported result is less than the calculated detection limit.
>
> "N" for all but GC/MS is used to indicate that the MS recovery or MSD recovery was outside of the specified range in the QAPP or SAP.
>
> "N" for GC/MS is used to indicate a TIC which has been named.
>
> "M" for inorganic results is used to indicate that the relative percent difference (RPD) between the sample and the duplicate is greater than 30%.

Manual calculations using rounded results from the Data Summary Report (Attachment 1) 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 1 to 10 g of sample was digested depending on the analysis being performed. The digestate was then filtered and diluted to a final volume. This digestion was used for all radiochemical analyses except ^{3}H, ^{14}C, and ^{129}I. This digestion is a leach of the acid soluble species only.

3.1.2 SW-846 3050B - Acid Digestion-Heating Block

This acid digestion follows SW-846 3050B using a heating block and nitric and hydrochloric acids. An aliquot of approximately 5 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) analyses. 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. A separate digestion for antimony was prepared using additional hydrochloric acid, as recommended in SW-846.

3.1.3 Water Digestion

A water digestion or leach was prepared for the anions by ion chromatography, ^{14}C, and ^{3}H 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.

3.1.4 Vadose Water Digestion

A 70-g sample of soil was leached using a ratio of one part water to one part soil. To maintain a one-to-one ratio, the amount of water added to the sample was adjusted based on the percent moisture of the soil. The slurries were placed on a shaker table for about 1 hour. They were then transferred to a centrifuge tube and centrifuged at 4,000 rpm for 30 minutes. The leachates were filtered using a disposable vacuum filtration system. The filtrates were transferred to a clean bottle and then analyzed for ^{99}Tc by ICP/MS analysis.

3.2 INORGANIC ANALYSES

3.2.1 Cyanide

The cyanide analysis by distillation and spectrophotometry was performed on the grab samples and liner composite samples. All analyses met the SW-846 holding time of 14 days. There was no required reporting limit in the SAP for cyanide. The target detection limit was 0.5 µg/g, which is lower than what the current laboratory procedure (lachet micro-distillation) is reporting as reached. There were no notable quality control (QC) issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.2.2 Sulfide

Sulfide analysis by distillation and ion selective electrode was performed on the grab samples and liner composite samples. All analyses met the SW-846 holding time of 7 days. There was no required reporting limit in the SAP for sulfide. The target detection limit was 5 µg/g. All sample results had adjusted MDLs of approximately 7 µg/g. There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.2.3 pH Analysis

The pH analysis was performed on the grab samples and 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 after the water leach was performed. The sampling to analysis time varied from 19 to 25 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 variation in time has no apparent effect on the results.

3.2.4 Mercury

Analysis for mercury by cold-vapor/atomic absorption was performed on the grab samples and liner composite samples. All results met the QC requirements in the FSAP, SAP, and QAPP. All analyses met the holding time of 28 days. This analysis met the required and target detection limits.

3.2.5 Ion Chromatography – Ammonium

Analysis for ammonium was performed using a distillation preparation of the grab samples and the liner composite samples. There is no regulatory holding time limit promulgated for ammonium in soil. The SAP lists an administrative holding time of 7 days. The laboratory believes that after distillation and preservation, the holding time is 28 days, based on U.S. Environmental Protection Agency drinking water and waste water holding times for preserved samples. All samples met these holding times. However, sample B26C26 did not produce usable results and is discussed below in batch 21960. These analyses met the target detection limit listed in the SAP. There was no required reporting limit in the SAP or FSAP for ammonium.

Batch 21732: Ammonium was detected in the preparation blanks at a level below the quantitation limit and above the MDL. Ammonium was also detected in the samples above the quantitation limit but at more than 5 times the level of the blank; therefore, these results have not been flagged with a “C”.

Batch 21960: This batch experienced a major analytical error that was not discovered for several months. During the final review of this batch, which occurred several months after the analysis, it was discovered that for sample B26C26, it appeared that the spike standard was added to both the sample and MS. All the samples for core hole C7680 were reanalyzed months past the holding, and it was obvious from the results that most of the original ammonium had dissipated and results were unusable. These issues were discussed with the client and it was agreed that no result should be reported for sample B26C26 (see Attachment 7). The seven remaining sample results in the original batch were reported. Ammonium was detected in the preparation blanks at a level above the quantitation limit. Ammonium was also detected in three of the samples above the quantitation limit but at more than 5 times the level of the blank. All results have not been flagged with a “C”.

3.2.6 Ion Chromatography – Anions and Small Organic Acids

Ion chromatography analysis was performed on all grab samples and liner composite samples. The laboratory met all of the required and target detection limits. All analyses were within the applicable SW-846 holding times. The sample spikes used for the standard water digestions are predigestion spikes.

Batch 21990: The result for chloride in the preparation blank was slightly above the MDL and below the quantitation limit. All sample results were above the quantitation limit and were greater than 5 times the blank; therefore, no "C" flags were applied.

3.2.7 Inductively Coupled Plasma/Atomic Emission Spectroscopy

The ICP/AES analysis was performed on an acid-digest (SW-846 3050B) of all grab samples and liner composite samples. The ICP/AES analysis was unable to obtain the required detection limit for antimony, arsenic, cadmium, lead, selenium, silver, and thallium for the soil sample. These elements have been reported from separate ICP/MS analyses. Total uranium has not been reported by the ICP/AES analysis since it cannot meet the required detection limits in the SAP. The isotopic uranium analysis by ICP/MS met the required detection limit for ^{238}U, which is essentially total uranium. The overall data usability was not affected. For all other metals reported by ICP/AES, all target and required detection limits were met. SW-846 lists the holding times for ICP/AES metals as 6 months. All analyses met the holding times. All primary metal constituents are reported. Secondary constituents are only reported if the results were above the MDL and had a valid calibration.

Batch 23817: The interference check standard-A produced positive results for phosphorous, neodymium, and manganese, which are not contained in this standard. This could indicate a positive interference. However, since in the interference check standard-AB (ICSAB) phosphorous and manganese were recovered at 100% and 99%, there appears to be no positive interference. The ICSAB also produced a result above the quantitation limit for neodymium. This indicates that spectral interference was occurring. Neodymium results in the sample were not reported due to the high probability that they were the result of this interference. A low level of iron was detected in the preparation blank, but reanalysis was not required since these levels were less than 20% of the lowest sample result.

The MS recoveries for aluminum, calcium, iron, magnesium, potassium, manganese, phosphorous, and titanium exceeded the ±25% requirement in the FSAP and SAP. Since the sample results for these elements exceeded the MS level by more than four times, this criterion does not apply.

The MS recovery for barium, sodium, silicon, strontium, and zirconium exceeded the ±25% requirement in the SAP and FSAP. These results have been flagged with an "N". The exact cause of these failures is unknown. Matrix interference is suspected for barium and zirconium since these commonly fail. However, since all duplicate results were higher than the sample results, analytical error cannot be ruled out. These results were discussed with the client and reported "as is" (see Attachment 7).

The RPD between the sample and the duplicate exceeded the ±30% requirement in the SAP for sodium, chromium, and strontium. These results have been flagged with an "M". The exact cause of these failures is unknown. Matrix interference is suspected; however, since all duplicate results were higher than the sample results, analytical error cannot be ruled out. These results were discussed with the client and reported "as is" (see Attachment 7).

The RPD between the sample and the duplicate exceeded the ±30% requirement in the SAP for silicon. The laboratory believes this was due to matrix interference. Reanalysis was not required since this is secondary element. It should be noted that silicon is not listed with other elements in SW-846 3050B, section 1.1, under "Scope and Application" for the method and does not perform consistently when using this digest. The silicon results have been flagged with an "M".

The method blank contained a low level of calcium and iron. Since the adjusted blank results were less than 20% of the lowest sample result, reanalysis was not required and no qualifier flag was applied.

3.2.8 Inductively Coupled Plasma/Mass Spectroscopy

The ICP/MS actinide and trace metal analyses were performed on the standard SW-846 3050 acid digestion of all grab samples and liner composite samples. The ICP/MS ^{126}Sn and ^{99}Tc analysis was performed on the sample digest without the addition of hydrochloric acid. Hydrochloric acid is not used for ^{99}Tc analysis because of the potential formation of a ZnCl ion pair with mass 99. ICP/MS trace metal analysis for antimony was perform on the SW-846 3050 digest with additional hydrochloric acid, which is required to keep antimony in the solution. In addition to these acid digests, ICP/MS ^{99}Tc analysis was performed on a vadose water digest of all solid samples.

Direct is the most accurate type of calibration; however, standard material is not commercially available for all of the isotopes of interest. Concentrations of those isotopes without available standards are estimated based on the instrument's mass-response curve, which is generated by using the intensity/concentration relationship for the available isotope standards. Results estimated in this manner are designated "semi-quantitative."

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 SAP lists the holding time for isotopic analytes as 6 months. All samples were analyzed within the holding time.

Because there is no available source for ^{126}Sn, ^{117}Sn is used to monitor the chemical recovery for this analysis. Though not specifically requested in the SAP, ^{117}Sn is reported for the laboratory control sample (LCS) and MS in order to demonstrate method accuracy and presence of possible matrix interference.

All sample results for ^{126}Sn were above the MDL and below the quantitation limit with one exception. Based on this, the laboratory suspects that a low level isobaric interference is present in these samples at mass 126. The laboratory believes the most likely suspect is ^{126}Te, but there are other possible candidates. One sample result was above the quantitation level for ^{126}Sn. Users of this data should be aware that all positive ^{126}Sn results in the report may be due to isobaric interference. The laboratory is currently evaluating how to quantify the possible isobaric interferences for ^{126}Sn.

Batch 24040: The MS for ^{117}Sn was recovered below the ±25% requirement at 53%. Similar results have been observed in other batches; this appears to be a matrix interference issue. This batch was not reanalyzed, but others have been with no improvement. Tin results should be considered biased low at these levels. All samples in the batch have been flagged with an "N". The laboratory is investigating changing the acid mixture used to perform low level ^{126}Sn analysis in hopes of improving spike recoveries. Tin-126 was detected in two of the three continuing calibration blanks at slightly above the MDL. Since all results were below the quantification level, reanalysis was not required. The affected results have been flagged with a "B".

3.2.8.2 Technetium-99 (Vadose Water Digest)

The required and target detection limits listed in the SAP for ^{99}Tc were met. The SAP lists a holding time of 6 months for isotopic analytes. All analyses met this holding time. There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.2.8.3 Actinides

The required and target detection limits were met for all isotopes and in all samples. The SAP lists the holding time for isotopic analytes as 6 months. All samples were analyzed within the holding time.

Batch 23367: The closing low level standard (LLS) for ^{235}U exceeded the ±30% limit at 169%. Since all ^{235}U results were at least 17 times the LLS level, the data usability was not affected. The preparation blank result for ^{236}U was slightly above the MDL. The samples had similar results that should be considered equivalent to the blank. The affected results have been flagged with a "B".

Batch 23808: One LLS for ^{232}Th exceeded the ±30% limit at 133%. Since all ^{232}Th results were at least 130 times the LLS level, the data quality was not affected. The preparation blank result for ^{230}Th was slightly above the MDL. The samples had similar results that should be considered equivalent to the blank. The affected results have been flagged with a "B".

3.2.8.4 Trace Metals

Antimony, arsenic, cadmium, lead, selenium, silver, and thallium were analyzed by ICP/MS to obtain the required detection limits in the SAP. Except for the required detection limit for selenium, all required detection limits were met or the sample results were above the quantitation limit and the sample detection limit criteria do not apply. All target detection limits were met. The required detection limit for selenium was approximately an order of magnitude below the detection limit obtained by ICP/MS. The laboratory does not anticipate reaching this detection

limit for future projects. The adjusted MDL for selenium was approximately 0.27 µg/g. SW-846 lists the holding time for metals as 6 months. All samples were analyzed within the holding time.

Batch 24457: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batch 22891: The LLS recoveries for antimony exceeded the ±30% limit at 177% and 166%. This would indicate a high bias for sample results near the LLS level. Since all sample results were below the RDL, the data usability was not affected.

Batch 24435: The closing LLS recovery for selenium exceeded the ±30% limit at 131%, which is believed to be due to carryover from the continuing calibration verification (CCV) standard, and impact on the data usability is minimal. The cadmium RPD exceeded the required ±30 in the FSAP and SAP at 31%. Since the sample result was below the quantitation limit, this criterion does not apply.

3.3 RADIOCHEMICAL ANALYSIS

The holding time listed in the SAP for radioactive isotopes is 6 months. The FSAP lists the holding time as "none." SW-846 does not address holding times for radiochemical analytes. All radiochemical analyses met the 6-month holding time listed in the SAP. Holding time tables for these analytes have not been included in Attachment 3. With the exception of the ^{14}C and ^{3}H analyses, tracers and spikes are added prior to the digestion.

3.3.1 Gamma Energy Analysis

GEA was performed directly on the grab samples and liner composite samples. The SAP requires the reporting of all isotopes with positive results above the MDA; therefore, isotopes additional to those required in the SAP were reported when detected. The GEA analysis met all of the required detection limits in the SAP. The laboratory was unable to meet any of the target detection limits.

3.3.2 Strontium-89/90

Strontium-89/90 analysis was performed on the grab samples and liner composite samples. All of the sample analyses met the required and target detection limits. The FSAP and SAP requested ^{90}Sr, not $^{89/90}Sr$, be reported. The 222-S Laboratory only performs the latter analysis. Since the half-life for ^{89}Sr is approximately 51 days and ^{89}Sr has not been produced at Hanford for years, $^{89/90}Sr$ is essentially ^{90}Sr. There were no notable issues with the batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.3.3 Tritium

The ^{3}H analysis by liquid scintillation counting (LSC) was performed on a water leach of all grab samples and liner composite samples. This method only measured the ^{3}H in the samples that could be dissolved in water. This analysis achieved the required and target detection limits in the

FSAP. There were no notable issues with the batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.3.4 Selenium-79

The ^{79}Se analysis by LSC was performed on the grab samples and liner composite samples. The analysis achieved the target detection limit in the FSAP. No required detection limit was listed. The analysis achieved the target detection limit. No standard is currently available for ^{79}Se, and a cold carrier is used to monitor recovery and is measured gravimetrically. The ^{14}C LSC curve is used to determine the ^{79}Se results since their energies are similar. Since both ^{63}Ni and ^{79}Se use a single digestion batch that is equally split prior to the separation step, the maximum tracer/carrier recovery is 50%.

Batch 24055: The preparation blank demonstrated a positive result below the quantitation limit, as did the four samples in the batch. All results had very large counting uncertainties and were below the target detection limit. Because of these factors, reanalysis was not required. The associated positive results have been flagged with a “B”.

3.3.5 Carbon-14

The ^{14}C analysis by LSC was performed on a water leach of the grab samples and liner composite samples. 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 batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.3.6 Nickel-63

The ^{63}Ni analysis by LSC was performed on the grab samples and liner composite samples. The analysis achieved the required and target detection limits in the FSAP. Since both ^{63}Ni and ^{79}Se use a single digestion batch that is equally split prior to the separation step, the maximum trace/carrier recovery is 50%. There were no notable issues with the batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.3.7 Iodine-129

Analysis for ^{129}I by low energy GEA was performed on an iodine-specific fusion digest of all grab samples and liner composite samples. The required and target detection limits in the SAP were met. There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

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

Analysis for ^{241}Am, $^{243/244}$Cm, and ^{242}Cm by alpha energy analysis (AEA) was performed on the grab samples and liner composite samples. For this analysis, there were no notable issues with any batches and all QC requirements in the FSAP, SAP, and QAPP were met. The required and

target detection limits in the SAP were met. The SAP and FSAP requested ^{243}Cm and ^{244}Cm be reported separately. Since it is not possible to resolve these individual isotopes when using AEA, these isotopes have been reported as $^{243/244}$Cm.

3.3.9 Plutonium-238 and Plutonium-239/240

Plutonium isotopic (^{238}Pu and $^{239/240}$Pu) analysis by AEA was performed on the grab samples and liner composite samples. For this analysis, there were no notable issues with any batches and all QC requirements in the FSAP, SAP, and 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 by GC/MS was performed on field samples by purge and trap. Field sampling methods, sample containers, and preservation methods followed SW-846 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. Nine field blanks and six trip blanks 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 met the required holding time. All primary organic constituents are reported. Secondary and unlisted constituents are only reported if the results were above the MDL and had a validation calibration.

The VOA met the target and required detection limits in the SAP. The SAP and FSAP requested m-xylene and p-xylene be reported separately. Since it is not possible to resolve these individual compounds when performing VOA by SW-846 8260C, these compounds have been reported as m+p xylene. The SAP and FSAP request that methanol be reported with this analysis; however, this compound is too polar to be purged and cannot be reported (see Attachment 7). Isobutanol, another poor purger, was reported as a semivolatile organic compound.

Four of the field blanks and four of the trip blanks contained chloroform above the quantification level. Since chloroform is a common chlorination byproduct, the laboratory believes a likely the source of chloroform may be the water used by sampling personnel to make the various blanks.

Four of the field blank and two of the trip blanks contained methylene chloride above or near the quantification level. None of the associated laboratory blanks contained methylene chloride.

The 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 21718, 21719, and 21897: The method blank results for toluene and styrene were above the MDL but below the quantitation limit. Some of the samples contained toluene and styrene at similar levels and have been flagged with at "B". Since all sample and blank results were below the quantitation limit, reanalysis was not required.

Batch 21786: The method blank result for toluene was above the MDL but below the quantitation limit. One of the samples contained toluene at a similar level and has been flagged with at "B". Since the sample and blank results were below the quantitation limit, reanalysis was not required. The percent difference for n-butanol in the CCV was +25%, which exceeds the ±20% difference requirement. This indicates a high bias; however, since all sample results were below the MDL, the data usability was not affected and reanalysis not required.

Batch 21922: The method blank result for toluene was above the MDL but below the quantitation limit. One of the samples contained toluene at a similar level and has been flagged with at "B". Since the sample and blank results were below the quantitation limit, reanalysis was not required. The internal standards for one sample, B26CW9 (S10V001852), were recovered low, ranging from -66% to -78%. This sample was analyzed two additional times using its own MS and MSD with similar results. The MS and MSD (not reported) for the sample exhibited normal internal standard recovery. In addition, the sample's surrogate recoveries, which are adjusted using the internal standards, hovered around 100%. This indicates that there may have been a spiking or sample introduction problem. Since the results for chloroform and methylene chloride were similar in the sample and MS and MSD, the results for these were reported from the original sample analysis.

Batch 21979: The method blank result for styrene was above the MDL but below the quantitation limit. The sample contained styrene at a similar level and has been flagged with a "B". Since the sample and blank results were below the quantitation limit, reanalysis was not required. Styrene is not a primary analyte.

Batch 24659: The method blank result for benzene was above the MDL but below the quantitation limit. The sample contained benzene at a similar level and has been flagged with a "B". Since the sample and blank results were below the quantitation limit, reanalysis was not required.

3.4.2 Semivolatile Organic Analysis

The semivolatile organic analysis (SVOA) by GC/MS was performed on methylene chloride extractions of all grab samples and liner composite samples. All holding times were met.

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

- The adjusted MDLs for cyclohexanone were above the 0.5-mg/kg target detection limit for most samples. This compound obtained detection limits between 0.5 mg/kg and 0.6 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 0.6 mg/kg for this compound.

LCS, MS, and MSD recoveries were compared against the laboratory's SPC limits, as required by SW-846. The use of SPC limits is permitted in the FSAP, SAP, and QAPP.

The SAP and FSAP requested 3-methylphenol and 4-methylpnenol be reported separately. Since it is not possible to resolve these individual compounds when performing SVOA by SW-846 8270C, these compounds have been reported as 3&4 methylphenol.

Batches 22043 and 22254: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batch 22217: The MS recovery for 2,4-dinitrotoluene exceeded the statistical control limit of 55% to 111% at 114%. Since all sample results were below the MDL for this compound, the data usability was not affected

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's NIST 02, *HP Mass Spectral Libraries*. The estimated concentration of compounds identified in 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 5. TICs that were found in the field samples and 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 Area C samples.

Table 2. Analytical Procedures

Analysis	Preparation Method	Analysis Procedure
Inorganic Analyses		
Cyanide	LA-695-103, Rev. J-0 (SW-846 9010C)	LA-695-103, Rev. 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 (solid)	LA-212-105, Rev. H-0 (SW-846 9045D)	LA-212-105, Rev. H-0 (SW-846 9045D)

Analysis	Preparation Method	Analysis Procedure
Mercury – Cold Vapor Atomic Absorption	LA-325-110, Rev. A-0 (SW-846 7471A)	LA-325-110, Rev. A-0 (SW-846 7471A)
Ammonia – IC	LA-544-112, Rev. E-0	LA-533-101, Rev. Q-0
Anions & Organic Acids – IC	LA-504-101, Rev. M-0	LA-533-115, Rev. J-0
Metals – ICP /AES	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-505-161, Rev. J-0-A (SW-846 6010C)
^{99}Tc, ^{126}Sn – ICP/MS	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-506-102, Rev. F-1
^{99}Tc – ICP/MS	08-ATL-078 Vadose Water Digest	LA-506-103, Rev. B-0
Metals – ICP/MS	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-506-102, Rev. F-1 LA-506-103, Rev. B-0 (SW-846 6020A)
Actinides – ICP/MS	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-506-102, Rev. F-1
Radiochemical Analyses		
GEA	Direct	LA-548-121, Rev. I-0
^{90}Sr – Separation/Beta counting (Solid)	LA-544-101, Rev. F-0	LA-220-101, Rev. I-0
^{3}H – LSC	LA-504-101, Rev. M-0	LA-218-111, Rev. H-0
^{14}C – LSC	LA-504-101, Rev. M-0	LA-348-104, Rev. I-0
^{79}Se – Separation/LSC	LA-544-101, Rev. F-0	LA-365-132, Rev. J-0
^{63}Ni – Separation/LSC	LA-544-101, Rev. F-0	LA-285-102, Rev. E-0
^{129}I – Separation/GEA	LA-378-105, Rev. D-0	LA-378-105, Rev. D-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. H-O (SW-846 8260B)
SVOC – GC/MS	LA-523-138, Rev. G-0 (SW-846 3540C)	LA-523-135, Rev. D-0 (SW-846 8270C)

5.0 REFERENCES

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Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V10-003-142	PAGE 1 OF 2
COLLECTOR Harris / Snook	COMPANY CONTACT TEMPLETON, AM	TELEPHONE NO. 373-5589	PROJECT COORDINATOR BERLIN, PC	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION 7680 003	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V10-003	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO. TFUS-09-003	FIELD LOGBOOK NO. TFUZ-10-000004	ACTUAL SAMPLE DEPTH 14'-16'	COA n/A	METHOD OF SHIPMENT Govt. Vehicle	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. n/A		BILL OF LADING/AIR BILL NO. n/A		

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)	PRESERVATION	Cool~4C
		HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	Gs jar/Liners
		NO. OF CONTAINER(S)	3 A,B,C RK
		VOLUME	160g
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B26C30	SOIL	8-29-10	0935	—

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
Dan Harris Dan Harris	8-29-10 1147	RA Steele RA Steele	8.29.10 1147	V/RK
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	GRP# 20100584
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	SPDV001943 A
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	1944 B
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	1945 C
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

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

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V10-003-142	PAGE 2 OF 2
COLLECTOR Harris / Snook	**COMPANY CONTACT** TEMPLETON, AM	**TELEPHONE NO.** 373-5589	**PROJECT COORDINATOR** BERLIN, PC	**PRICE CODE** 8P **AIR QUALITY** ☐	**DATA TURNAROUND** **75 Days / 75 Days**
SAMPLING LOCATION 7680 003	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V10-003		
ICE CHEST NO. TFVS-09-003	**FIELD LOGBOOK NO.** TFVZ-10-000004	**ACTUAL SAMPLE DEPTH** 14'-16'	**COA** n/A	**METHOD OF SHIPMENT** Govt. Vehicle	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.** n/A		**BILL OF LADING/AIR BILL NO.** n/A		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the sampler will cap remaining liners for shipment to 222-S. Where capping is not possible, the sample shall be put into 500 mL or 250 mL glass bottles with Teflon-lined lids.
(1) Semi-VOA - 8270 Complete (TF); TPH-Gasoline Range - WTPH-G; TPH-Diesel Range - WTPH-D; PCBs - 8082; Pesticides - 8081 (TF); 1668 PCB CONGENER (TCL); ICP Metals - 6010 (SW-846) (TF); Mercury - 7471 - (CV) (TF); 300.7_AMMONIUM (TF); IC Anions - 9056; Sulfide - 9215; Total Cyanide - 9014 (TF); pH (Soil) - 9045; Americium-241 (TF); C-14; CURIUM; GAMMA ENERGY ANALYSIS (TF); H3 - TRITIUM; I129_SEP_GEA (TF); Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Nickel-63 (TF); RADISO_ICPMS (TF); Selenium-79 (TF); Strontium-90; Conductivity - 9050_WE; Percent Solids (TF); Percent Water (TF);

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V10-003-150	PAGE 1 OF 2
COLLECTOR Campbell / Hurris	**COMPANY CONTACT** TEMPLETON, AM	**TELEPHONE NO.** 373-5589	**PROJECT COORDINATOR** BERLIN, PC	**PRICE CODE** 8P	**DATA TURNAROUND**
SAMPLING LOCATION 7680 007	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V10-003	**AIR QUALITY** ☐	75 Days / 75 Days
ICE CHEST NO. TFV3-09-003	**FIELD LOGBOOK NO.** TFV2-10-000004	**ACTUAL SAMPLE DEPTH** 116'-118'	**COA** n/a	**METHOD OF SHIPMENT** Govt. Vehicle	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.** n/a		**BILL OF LADING/AIR BILL NO.** n/a		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C
HOLDING TIME	14/40 Days
TYPE OF CONTAINER	Gs jar/Liners
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B26C38	SOIL	9-1-10	1740	✓

20100584
S10V002502
2503
2504

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
Campbell C-pbell	9-1-10 2200	[illegible] Edwards	9/1/10 2200	
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	

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

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V10-003-150	PAGE 2 OF 2
COLLECTOR Campbell / Harris	**COMPANY CONTACT** TEMPLETON, AM	**TELEPHONE NO.** 373-5589	**PROJECT COORDINATOR** BERLIN, PC	**PRICE CODE** 8P **AIR QUALITY** ☐	**DATA TURNAROUND** **75 Days / 75 Days**
SAMPLING LOCATION 7680 007	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V10-003		
ICE CHEST NO. TFVS - 09 - 063	**FIELD LOGBOOK NO.** TFVZ-10-000004	**ACTUAL SAMPLE DEPTH** 116' - 118'	**COA** N/A	**METHOD OF SHIPMENT** Govt. Vehicle	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.** N/A		**BILL OF LADING/AIR BILL NO.** N/A		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the sampler will cap remaining liners for shipment to 222-S. Where capping is not possible, the sample shall be put into 500 mL or 250 mL glass bottles with Teflon-lined lids.
(1) Semi-VOA - 8270 Complete (TF); TPH-Gasoline Range - WTPH-G; TPH-Diesel Range - WTPH-D; PCBs - 8082; Pesticides - 8081 (TF); 1668 PCB CONGENER (TCL); ICP Metals - 6010 (SW-846) (TF); Mercury - 7471 - (CV) (TF); 300.7_AMMONIUM (TF); IC Anions - 9056; Sulfide - 9215; Total Cyanide - 9014 (TF); pH (Soil) - 9045; Americium-241 (TF); C-14; CURIUM; GAMMA ENERGY ANALYSIS (TF); H3 - TRITIUM; I129_SEP_GEA (TF); Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Nickel-63 (TF); RADISO_ICPMS (TF); Selenium-79 (TF); Strontium-90; Conductivity - 9050_WE; Percent Solids (TF); Percent Water (TF);

Appendix 5

Data Validation Supporting Documentation

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: WMA C			DATA PACKAGE: VSR11-046		
VALIDATOR: Carl Schloesslin		LAB: 222-S Lab		DATE: 5-30-2011	
			SDG: 20100584		
ANALYSES PERFORMED					
SW-846/ICP X	SW-846/GFAA	SW-846/Hg X		EPA 200.8	
SAMPLES/MATRIX Soil samples B26C30 and B26C38					

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:

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:

6010C MB Hits: Ca 10.1 ug/g, Fe 1.15 ug/g

ICP-MS Actinides MB Hits: U-236 1.62E-05 ug/g, Th-230 4.16E-05 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:

6010C: Ba MS/PS %Rs = 136%/OK
Na MS/PS %Rs = 431%/OK
Si MS/PS %Rs = 158%/OK
Sr MS/PS %Rs = 134%/OK
Zr MS/PS %Rs = 39%/OK

ICP-MS Fission: Sn-117 MS/PS %Rs = 53%/OK

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:

6010C: Cr RPD = 32%
Na RPD = 50%

C,

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:

7. HOLDING TIMES (all levels)

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

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

Comments:

None

8. 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:

The MDLs for Se significantly > the RDL of 0.03 ug/g. The Se results for both samples were detects.

Appendix 6

Additional Documentation Requested By Client

Holding Time Report: Mercury

Sample Group	Sample	Matrix	Method	Prep Method	Sample Date	Received Date	Analysis Date	Missed Holding Time
20100584	S10V001869	SOLID	SW-846 7471A	SW-846 7471A	08/26/10 09:00	08/26/10 10:20	09/14/10 20:20	N
20100584	S10V001886	SOLID	SW-846 7471A	SW-846 7471A	08/26/10 09:15	08/26/10 10:20	09/14/10 20:20	N
20100584	S10V001906	SOLID	SW-846 7471A	SW-846 7471A	08/27/10 13:15	08/27/10 14:00	09/14/10 20:20	N
20100584	S10V001926	SOLID	SW-846 7471A	SW-846 7471A	08/29/10 08:30	08/29/10 11:47	09/14/10 20:20	N
20100584	S10V001946	SOLID	SW-846 7471A	SW-846 7471A	08/29/10 09:35	08/29/10 11:47	09/14/10 20:20	N
20100584	S10V001966	SOLID	SW-846 7471A	SW-846 7471A	08/29/10 10:50	08/29/10 11:47	09/14/10 20:20	N
20100584	S10V002050	SOLID	SW-846 7471A	SW-846 7471A	08/31/10 09:35	08/31/10 10:45	09/14/10 20:20	N
20100584	S10V002072	SOLID	SW-846 7471A	SW-846 7471A	09/01/10 10:15	09/01/10 11:10	09/14/10 20:20	N
20100584	S10V002505	SOLID	SW-846 7471A	SW-846 7471A	09/01/10 17:40	09/01/10 22:00	09/14/10 20:20	N
20100584	S10V002800	SOLID	SW-846 7471A	SW-846 7471A	09/01/10 21:00	09/01/10 22:00	09/14/10 20:20	N

Holding Time Report: ICP/AES Metals

Sample Group	Sample	Matrix	Method	Prep Method	Sample Date	Received Date	Analysis Date	Missed Holding Time
20100584	S10V001877	SOLID	SW-846 6010C	SW-846 3050B	08/26/10 09:00	08/26/10 10:20	10/28/10 13:41	N
20100584	S10V001894	SOLID	SW-846 6010C	SW-846 3050B	08/26/10 09:15	08/26/10 10:20	10/28/10 11:03	N
20100584	S10V001914	SOLID	SW-846 6010C	SW-846 3050B	08/27/10 13:15	08/27/10 14:00	10/28/10 13:43	N
20100584	S10V001934	SOLID	SW-846 6010C	SW-846 3050B	08/29/10 08:30	08/29/10 11:47	10/28/10 13:46	N
20100584	S10V001954	SOLID	SW-846 6010C	SW-846 3050B	08/29/10 09:35	08/29/10 11:47	10/28/10 13:49	N
20100584	S10V002038	SOLID	SW-846 6010C	SW-846 3050B	08/29/10 10:50	08/29/10 11:47	10/28/10 13:51	N
20100584	S10V002060	SOLID	SW-846 6010C	SW-846 3050B	08/31/10 09:35	08/31/10 10:45	10/28/10 13:54	N
20100584	S10V002365	SOLID	SW-846 6010C	SW-846 3050B	09/01/10 10:15	09/01/10 11:10	10/28/10 13:57	N
20100584	S10V002513	SOLID	SW-846 6010C	SW-846 3050B	09/01/10 17:40	09/01/10 22:00	10/28/10 14:14	N
20100584	S10V002808	SOLID	SW-846 6010C	SW-846 3050B	09/01/10 21:00	09/01/10 22:00	10/28/10 14:17	N

Holding Time Report: ICP/MS Radiological Isotopes

Sample Group	Sample	Matrix	Method	Prep Method	Sample Date	Received Date	Analysis Date	Missed Holding Time
20100584	S10V001877	SOLID	MS ACTINIDES	SW-846 3050B	08/26/10 09:00	08/26/10 10:20	10/15/10 18:22	N
20100584	S10V001877	SOLID	MS ACTINIDES	SW-846 3050B	08/26/10 09:00	08/26/10 10:20	10/26/10 19:31	N
20100584	S10V001894	SOLID	MS ACTINIDES	SW-846 3050B	08/26/10 09:15	08/26/10 10:20	10/15/10 18:09	N
20100584	S10V001894	SOLID	MS ACTINIDES	SW-846 3050B	08/26/10 09:15	08/26/10 10:20	11/02/10 19:54	N
20100584	S10V001914	SOLID	MS ACTINIDES	SW-846 3050B	08/27/10 13:15	08/27/10 14:00	10/15/10 18:28	N
20100584	S10V001914	SOLID	MS ACTINIDES	SW-846 3050B	08/27/10 13:15	08/27/10 14:00	10/26/10 19:37	N
20100584	S10V001934	SOLID	MS ACTINIDES	SW-846 3050B	08/29/10 08:30	08/29/10 11:47	10/15/10 18:34	N
20100584	S10V001934	SOLID	MS ACTINIDES	SW-846 3050B	08/29/10 08:30	08/29/10 11:47	10/26/10 19:42	N
20100584	S10V001954	SOLID	MS ACTINIDES	SW-846 3050B	08/29/10 09:35	08/29/10 11:47	10/15/10 18:41	N
20100584	S10V001954	SOLID	MS ACTINIDES	SW-846 3050B	08/29/10 09:35	08/29/10 11:47	10/26/10 19:48	N
20100584	S10V002038	SOLID	MS ACTINIDES	SW-846 3050B	08/29/10 10:50	08/29/10 11:47	10/15/10 18:47	N
20100584	S10V002038	SOLID	MS ACTINIDES	SW-846 3050B	08/29/10 10:50	08/29/10 11:47	10/26/10 19:53	N
20100584	S10V002060	SOLID	MS ACTINIDES	SW-846 3050B	08/31/10 09:35	08/31/10 10:45	10/15/10 19:24	N
20100584	S10V002060	SOLID	MS ACTINIDES	SW-846 3050B	08/31/10 09:35	08/31/10 10:45	10/26/10 20:24	N
20100584	S10V002365	SOLID	MS ACTINIDES	SW-846 3050B	09/01/10 10:15	09/01/10 11:10	10/15/10 19:30	N
20100584	S10V002365	SOLID	MS ACTINIDES	SW-846 3050B	09/01/10 10:15	09/01/10 11:10	10/26/10 20:41	N
20100584	S10V002513	SOLID	MS ACTINIDES	SW-846 3050B	09/01/10 17:40	09/01/10 22:00	10/15/10 19:37	N
20100584	S10V002513	SOLID	MS ACTINIDES	SW-846 3050B	09/01/10 17:40	09/01/10 22:00	10/26/10 20:30	N
20100584	S10V002808	SOLID	MS ACTINIDES	SW-846 3050B	09/01/10 21:00	09/01/10 22:00	10/15/10 19:43	N
20100584	S10V002808	SOLID	MS ACTINIDES	SW-846 3050B	09/01/10 21:00	09/01/10 22:00	10/26/10 20:35	N
20100584	S10V001879	SOLID	MS Tc-99, Sn-126	SW-846 3050B	08/26/10 09:00	08/26/10 10:20	11/04/10 11:49	N
20100584	S10V001896	SOLID	MS Tc-99, Sn-126	SW-846 3050B	08/26/10 09:15	08/26/10 10:20	11/04/10 12:21	N
20100584	S10V001916	SOLID	MS Tc-99, Sn-126	SW-846 3050B	08/27/10 13:15	08/27/10 14:00	11/04/10 11:35	N
20100584	S10V001936	SOLID	MS Tc-99, Sn-126	SW-846 3050B	08/29/10 08:30	08/29/10 11:47	11/04/10 12:28	N
20100584	S10V001956	SOLID	MS Tc-99, Sn-126	SW-846 3050B	08/29/10 09:35	08/29/10 11:47	11/04/10 12:34	N
20100584	S10V002040	SOLID	MS Tc-99, Sn-126	SW-846 3050B	08/29/10 10:50	08/29/10 11:47	11/04/10 12:41	N
20100584	S10V002062	SOLID	MS Tc-99, Sn-126	SW-846 3050B	08/31/10 09:35	08/31/10 10:45	11/04/10 12:48	N
20100584	S10V002370	SOLID	MS Tc-99, Sn-126	SW-846 3050B	09/01/10 10:15	09/01/10 11:10	11/04/10 12:55	N
20100584	S10V002515	SOLID	MS Tc-99, Sn-126	SW-846 3050B	09/01/10 17:40	09/01/10 22:00	11/04/10 13:01	N
20100584	S10V002810	SOLID	MS Tc-99, Sn-126	SW-846 3050B	09/01/10 21:00	09/01/10 22:00	11/04/10 13:08	N

Holding Time Report: ICP/MS Radiological Isotopes

Sample Group	Sample	Matrix	Method	Prep Method	Sample Date	Received Date	Analysis Date	Missed Holding Time
20100584	S10V001872	SOLID	MS TC-99	WATER DIGES	08/26/10 09:00	08/26/10 10:20	11/08/10 20:36	N
20100584	S10V001889	SOLID	MS TC-99	WATER DIGES	08/26/10 09:15	08/26/10 10:20	11/08/10 19:13	N
20100584	S10V001909	SOLID	MS TC-99	WATER DIGES	08/27/10 13:15	08/27/10 14:00	11/08/10 19:25	N
20100584	S10V001929	SOLID	MS TC-99	WATER DIGES	08/29/10 08:30	08/29/10 11:47	11/08/10 19:31	N
20100584	S10V001949	SOLID	MS TC-99	WATER DIGES	08/29/10 09:35	08/29/10 11:47	11/08/10 19:37	N
20100584	S10V001969	SOLID	MS TC-99	WATER DIGES	08/29/10 10:50	08/29/10 11:47	11/08/10 19:43	N
20100584	S10V002055	SOLID	MS TC-99	WATER DIGES	08/31/10 09:35	08/31/10 10:45	11/08/10 20:12	N
20100584	S10V002075	SOLID	MS TC-99	WATER DIGES	09/01/10 10:15	09/01/10 11:10	11/08/10 20:18	N
20100584	S10V002508	SOLID	MS TC-99	WATER DIGES	09/01/10 17:40	09/01/10 22:00	11/08/10 20:24	N
20100584	S10V002803	SOLID	MS TC-99	WATER DIGES	09/01/10 21:00	09/01/10 22:00	11/08/10 20:30	N

Holding Time Report: ICP/MS Metals

Sample Group	Sample	Matrix	Method	Prep Method	Sample Date	Received Date	Analysis Date	Missed Holding Time
20100584	S10V001874	SOLID	SW-846 6020A	SW-846 3050B	08/26/10 09:00	08/26/10 10:20	10/14/10 20:06	N
20100584	S10V001877	SOLID	SW-846 6020A	SW-846 3050B	08/26/10 09:00	08/26/10 10:20	11/12/10 15:26	N
20100584	S10V001877	SOLID	SW-846 6020A	SW-846 3050B	08/26/10 09:00	08/26/10 10:20	11/12/10 11:23	N
20100584	S10V001877	SOLID	SW-846 6020A	SW-846 3050B	08/26/10 09:00	08/26/10 10:20	11/10/10 20:51	N
20100584	S10V001891	SOLID	SW-846 6020A	SW-846 3050B	08/26/10 09:15	08/26/10 10:20	10/14/10 20:15	N
20100584	S10V001894	SOLID	SW-846 6020A	SW-846 3050B	08/26/10 09:15	08/26/10 10:20	11/12/10 15:17	N
20100584	S10V001894	SOLID	SW-846 6020A	SW-846 3050B	08/26/10 09:15	08/26/10 10:20	11/12/10 11:12	N
20100584	S10V001894	SOLID	SW-846 6020A	SW-846 3050B	08/26/10 09:15	08/26/10 10:20	11/10/10 20:39	N
20100584	S10V001911	SOLID	SW-846 6020A	SW-846 3050B	08/27/10 13:15	08/27/10 14:00	10/14/10 20:20	N
20100584	S10V001914	SOLID	SW-846 6020A	SW-846 3050B	08/27/10 13:15	08/27/10 14:00	11/12/10 15:30	N
20100584	S10V001914	SOLID	SW-846 6020A	SW-846 3050B	08/27/10 13:15	08/27/10 14:00	11/12/10 11:28	N
20100584	S10V001914	SOLID	SW-846 6020A	SW-846 3050B	08/27/10 13:15	08/27/10 14:00	11/10/10 20:57	N
20100584	S10V001931	SOLID	SW-846 6020A	SW-846 3050B	08/29/10 08:30	08/29/10 11:47	10/14/10 20:25	N
20100584	S10V001934	SOLID	SW-846 6020A	SW-846 3050B	08/29/10 08:30	08/29/10 11:47	11/12/10 15:34	N
20100584	S10V001934	SOLID	SW-846 6020A	SW-846 3050B	08/29/10 08:30	08/29/10 11:47	11/12/10 11:33	N
20100584	S10V001934	SOLID	SW-846 6020A	SW-846 3050B	08/29/10 08:30	08/29/10 11:47	11/10/10 21:03	N
20100584	S10V001951	SOLID	SW-846 6020A	SW-846 3050B	08/29/10 09:35	08/29/10 11:47	10/14/10 20:30	N
20100584	S10V001954	SOLID	SW-846 6020A	SW-846 3050B	08/29/10 09:35	08/29/10 11:47	11/12/10 15:39	N
20100584	S10V001954	SOLID	SW-846 6020A	SW-846 3050B	08/29/10 09:35	08/29/10 11:47	11/12/10 11:39	N
20100584	S10V001954	SOLID	SW-846 6020A	SW-846 3050B	08/29/10 09:35	08/29/10 11:47	11/10/10 21:09	N
20100584	S10V001971	SOLID	SW-846 6020A	SW-846 3050B	08/29/10 10:50	08/29/10 11:47	10/14/10 20:35	N
20100584	S10V002038	SOLID	SW-846 6020A	SW-846 3050B	08/29/10 10:50	08/29/10 11:47	11/12/10 15:43	N
20100584	S10V002038	SOLID	SW-846 6020A	SW-846 3050B	08/29/10 10:50	08/29/10 11:47	11/12/10 11:44	N
20100584	S10V002038	SOLID	SW-846 6020A	SW-846 3050B	08/29/10 10:50	08/29/10 11:47	11/10/10 21:15	N
20100584	S10V002057	SOLID	SW-846 6020A	SW-846 3050B	08/31/10 09:35	08/31/10 10:45	10/14/10 20:53	N
20100584	S10V002060	SOLID	SW-846 6020A	SW-846 3050B	08/31/10 09:35	08/31/10 10:45	11/12/10 15:56	N
20100584	S10V002060	SOLID	SW-846 6020A	SW-846 3050B	08/31/10 09:35	08/31/10 10:45	11/12/10 12:15	N
20100584	S10V002060	SOLID	SW-846 6020A	SW-846 3050B	08/31/10 09:35	08/31/10 10:45	11/10/10 21:45	N
20100584	S10V002077	SOLID	SW-846 6020A	SW-846 3050B	09/01/10 10:15	09/01/10 11:10	10/14/10 20:58	N
20100584	S10V002365	SOLID	SW-846 6020A	SW-846 3050B	09/01/10 10:15	09/01/10 11:10	11/12/10 16:00	N
20100584	S10V002365	SOLID	SW-846 6020A	SW-846 3050B	09/01/10 10:15	09/01/10 11:10	11/12/10 12:20	N

Holding Time Report: ICP/MS Metals

Sample Group	Sample	Matrix	Method	Prep Method	Sample Date	Received Date	Analysis Date	Missed Holding Time
20100584	S10V002365	SOLID	SW-846 6020A	SW-846 3050B	09/01/10 10:15	09/01/10 11:10	11/10/10 21:51	N
20100584	S10V002510	SOLID	SW-846 6020A	SW-846 3050B	09/01/10 17:40	09/01/10 22:00	10/14/10 21:03	N
20100584	S10V002513	SOLID	SW-846 6020A	SW-846 3050B	09/01/10 17:40	09/01/10 22:00	11/12/10 16:04	N
20100584	S10V002513	SOLID	SW-846 6020A	SW-846 3050B	09/01/10 17:40	09/01/10 22:00	11/12/10 12:25	N
20100584	S10V002513	SOLID	SW-846 6020A	SW-846 3050B	09/01/10 17:40	09/01/10 22:00	11/10/10 21:57	N
20100584	S10V002805	SOLID	SW-846 6020A	SW-846 3050B	09/01/10 21:00	09/01/10 22:00	10/14/10 21:07	N
20100584	S10V002808	SOLID	SW-846 6020A	SW-846 3050B	09/01/10 21:00	09/01/10 22:00	11/12/10 16:09	N
20100584	S10V002808	SOLID	SW-846 6020A	SW-846 3050B	09/01/10 21:00	09/01/10 22:00	11/12/10 12:31	N
20100584	S10V002808	SOLID	SW-846 6020A	SW-846 3050B	09/01/10 21:00	09/01/10 22:00	11/10/10 22:03	N

LABCORE Completed Batch Report for Batch# 00023817

Analyst: Boisoneau, Ryan

Instrument: ICP-TJA

Method: ICP-TOTAL METALS, LA-505-161 Rev/Mod J-0-A

Specification: C Farm WMC 2010-2

Prep Batch: 00022546

Batch Comment:

ICP-TJA for C-Farm WMC 2010. LND

Book#: 1015919, 1015924, 1015934, 1015947, 1016014, 1016021, 1016028, A-124-100708-2, A-124-100708-3, A-124-100712-1

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	S1011040068		0 0			Silver	LIQUID	1	9.8511E-01			5.00E-03	ug/mL	98.511	% Recovery	
1	ICV	S1011040068		0 0			Aluminum	LIQUID	5	5.1015E+00			0.03	ug/mL	102.03	% Recovery	
1	ICV	S1011040068		0 0			Arsenic	LIQUID	5	5.3028E+00			0.05	ug/mL	106.06	% Recovery	
1	ICV	S1011040068		0 0			Boron	LIQUID	5	5.1814E+00			0.03	ug/mL	103.63	% Recovery	
1	ICV	S1011040068		0 0			Barium	LIQUID	5	5.2698E+00			3.00E-03	ug/mL	105.4	% Recovery	
1	ICV	S1011040068		0 0			Beryllium	LIQUID	5	5.2358E+00			1.00E-03	ug/mL	104.72	% Recovery	
1	ICV	S1011040068		0 0			Bismuth	LIQUID	5	5.3019E+00			0.1	ug/mL	106.04	% Recovery	
1	ICV	S1011040068		0 0			Calcium	LIQUID	5	4.9883E+00			0.05	ug/mL	99.766	% Recovery	
1	ICV	S1011040068		0 0			Cadmium	LIQUID	5	5.4364E+00			5.00E-03	ug/mL	108.73	% Recovery	
2	ICV	S1011040068		0 1			Cerium	LIQUID	5	5.5262E+00			0.03	ug/mL	110.52	% Recovery	
1	ICV	S1011040068		0 0			Cobalt	LIQUID	5	5.4287E+00			0.01	ug/mL	108.57	% Recovery	
1	ICV	S1011040068		0 0			Chromium	LIQUID	5	5.4704E+00			5.00E-03	ug/mL	109.41	% Recovery	
1	ICV	S1011040068		0 0			Copper	LIQUID	5	5.1456E+00			5.00E-03	ug/mL	102.91	% Recovery	
2	ICV	S1011040068		0 1			Europium	LIQUID	5	5.0842E+00			5.00E-03	ug/mL	101.68	% Recovery	
1	ICV	S1011040068		0 0			Iron	LIQUID	5	5.3801E+00			5.00E-03	ug/mL	107.6	% Recovery	
1	ICV	S1011040068		0 0			Potassium	LIQUID	5	4.5431E+00			0.5	ug/mL	90.862	% Recovery	
1	ICV	S1011040068		0 0			Lanthanum	LIQUID	5	5.1553E+00			3.00E-03	ug/mL	103.11	% Recovery	
1	ICV	S1011040068		0 0			Lithium	LIQUID	5	5.0336E+00			3.00E-03	ug/mL	100.67	% Recovery	
1	ICV	S1011040068		0 0			Magnesium	LIQUID	5	5.2126E+00			0.05	ug/mL	104.25	% Recovery	
1	ICV	S1011040068		0 0			Manganese	LIQUID	5	5.3471E+00			3.00E-03	ug/mL	106.94	% Recovery	
1	ICV	S1011040068		0 0			Molybdenum	LIQUID	5	5.2358E+00			0.02	ug/mL	104.72	% Recovery	
1	ICV	S1011040068		0 0			Sodium	LIQUID	5	5.0860E+00			0.1	ug/mL	101.72	% Recovery	
2	ICV	S1011040068		0 1			Neodymium	LIQUID	5	5.2496E+00			0.01	ug/mL	104.99	% Recovery	
1	ICV	S1011040068		0 0			Nickel	LIQUID	5	5.3667E+00			0.02	ug/mL	107.33	% Recovery	
3	ICV	S1011040068		0 2			Niobium	LIQUID	5	5.2286E+00			0.03	ug/mL	104.57	% Recovery	
1	ICV	S1011040068		0 0			Phosphorus	LIQUID	5	5.2392E+00			0.05	ug/mL	104.78	% Recovery	
1	ICV	S1011040068		0 0			Lead	LIQUID	5	5.5017E+00			0.05	ug/mL	110.03	% Recovery	
2	ICV	S1011040068		0 1			Palladium	LIQUID	5	5.0000E+00			0.1	ug/mL	100	% Recovery	
2	ICV	S1011040068		0 1			Praseodymium	LIQUID	5	5.1890E+00			0.01	ug/mL	103.78	% Recovery	
2	ICV	S1011040068		0 1			Rubidium	LIQUID	5	4.5070E+00			1	ug/mL	90.14	% Recovery	
2	ICV	S1011040068		0 1			Rhodium	LIQUID	5	5.1256E+00			0.05	ug/mL	102.51	% 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# 00023817

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
2	ICV	S1011040068		0 1			Ruthenium	LIQUID	5	5.3157E+00			0.03	ug/mL	106.31	% Recovery	
1	ICV	S1011040068		0 0			Sulfur	LIQUID	5	5.2811E+00			0.1	ug/mL	105.62	% Recovery	
1	ICV	S1011040068		0 0			Antimony	LIQUID	5	5.1136E+00			0.05	ug/mL	102.27	% Recovery	
1	ICV	S1011040068		0 0			Selenium	LIQUID	5	5.3388E+00			0.1	ug/mL	106.78	% Recovery	
1	ICV	S1011040068		0 0			Silicon	LIQUID	5	4.8090E+00			0.03	ug/mL	96.179	% Recovery	
2	ICV	S1011040068		0 1			Samarium	LIQUID	5	5.3034E+00			0.02	ug/mL	106.07	% Recovery	
3	ICV	S1011040068		0 2			Tin	LIQUID	5	5.2723E+00			0.03	ug/mL	105.45	% Recovery	
1	ICV	S1011040068		0 0			Strontium	LIQUID	5	5.2378E+00			3.00E-03	ug/mL	104.76	% Recovery	
3	ICV	S1011040068		0 2			Tantalum	LIQUID	5	5.2190E+00			0.05	ug/mL	104.38	% Recovery	
3	ICV	S1011040068		0 2			Tellurium	LIQUID	5	5.2746E+00			0.1	ug/mL	105.49	% Recovery	
2	ICV	S1011040068		0 1			Thorium	LIQUID	5	5.0770E+00			0.05	ug/mL	101.54	% Recovery	
1	ICV	S1011040068		0 0			Titanium	LIQUID	5	5.2282E+00			5.00E-03	ug/mL	104.56	% Recovery	
2	ICV	S1011040068		0 1			Thallium	LIQUID	5	5.3637E+00			0.1	ug/mL	107.27	% Recovery	
2	ICV	S1011040068		0 1			Uranium	LIQUID	5	5.4174E+00			0.1	ug/mL	108.35	% Recovery	
1	ICV	S1011040068		0 0			Vanadium	LIQUID	5	5.3785E+00			5.00E-03	ug/mL	107.57	% Recovery	
3	ICV	S1011040068		0 2			Tungsten	LIQUID	5	5.2653E+00			0.2	ug/mL	105.31	% Recovery	
2	ICV	S1011040068		0 1			Yttrium	LIQUID	5	5.2121E+00			2.00E-03	ug/mL	104.24	% Recovery	
1	ICV	S1011040068		0 0			Zinc	LIQUID	5	5.2418E+00			5.00E-03	ug/mL	104.84	% Recovery	
1	ICV	S1011040068		0 0			Zirconium	LIQUID	5	4.9396E+00			5.00E-03	ug/mL	98.791	% Recovery	
Sample Sequence 4																	
5	LLS	S1011040070		0 1			Silver	LIQUID	.02	1.9830E-02			5.00E-03	ug/mL	99.15	% Recovery	
5	LLS	S1011040070		0 1			Aluminum	LIQUID	.1	9.1210E-02			0.03	ug/mL	91.21	% Recovery	
4	LLS	S1011040070		0 0			Arsenic	LIQUID	.2	2.0379E-01			0.05	ug/mL	101.9	% Recovery	
6	LLS	S1011040070		0 2			Boron	LIQUID	.1	9.4980E-02			0.03	ug/mL	94.98	% Recovery	
4	LLS	S1011040070		0 0			Barium	LIQUID	.01	9.8400E-03			3.00E-03	ug/mL	98.4	% Recovery	
5	LLS	S1011040070		0 1			Beryllium	LIQUID	.001	9.2000E-04			1.00E-04	ug/mL	92	% Recovery	
4	LLS	S1011040070		0 0			Bismuth	LIQUID	.2	1.7276E-01			0.1	ug/mL	86.38	% Recovery	
5	LLS	S1011040070		0 1			Calcium	LIQUID	.2	1.4103E-01			0.05	ug/mL	70.515	% Recovery	
5	LLS	S1011040070		0 1			Cadmium	LIQUID	.01	9.1200E-03			5.00E-03	ug/mL	91.2	% Recovery	
4	LLS	S1011040070		0 0			Cerium	LIQUID	.2	2.0535E-01			0.03	ug/mL	102.68	% Recovery	
6	LLS	S1011040070		0 2			Cobalt	LIQUID	.04	3.5790E-02			0.01	ug/mL	89.475	% Recovery	
5	LLS	S1011040070		0 1			Chromium	LIQUID	.02	1.9830E-02			5.00E-03	ug/mL	99.15	% Recovery	
6	LLS	S1011040070		0 2			Copper	LIQUID	.02	2.1210E-02			5.00E-03	ug/mL	106.05	% Recovery	
7	LLS	S1011040070		0 3			Europium	LIQUID	.1	9.6940E-02			5.00E-03	ug/mL	96.94	% Recovery	
5	LLS	S1011040070		0 1			Iron	LIQUID	.05	4.7200E-02			5.00E-03	ug/mL	94.4	% Recovery	
4	LLS	S1011040070		0 0			Potassium	LIQUID	.5	3.9239E-01			0.1	ug/mL	78.478	% Recovery	
5	LLS	S1011040070		0 1			Lanthanum	LIQUID	.01	1.0370E-02			3.00E-03	ug/mL	103.7	% Recovery	
5	LLS	S1011040070		0 1			Lithium	LIQUID	.02	1.9810E-02			3.00E-03	ug/mL	99.05	% Recovery	
4	LLS	S1011040070		0 0			Magnesium	LIQUID	.2	2.0314E-01			0.05	ug/mL	101.57	% Recovery	
5	LLS	S1011040070		0 1			Manganese	LIQUID	.02	2.0130E-02			3.00E-03	ug/mL	100.65	% Recovery	
6	LLS	S1011040070		0 2			Molybdenum	LIQUID	.1	1.0160E-01			0.02	ug/mL	101.6	% Recovery	
4	LLS	S1011040070		0 0			Sodium	LIQUID	.2	1.8707E-01			0.1	ug/mL	93.535	% Recovery	

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LABCORE Completed Batch Report for Batch# 00023817

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
4	LLS	S1011040070		0 0			Neodymium	LIQUID	.1	9.9230E-02			0.01	ug/mL	99.23	% Recovery	
4	LLS	S1011040070		0 0			Nickel	LIQUID	.04	4.4740E-02			0.02	ug/mL	111.85	% Recovery	
9	LLS	S1011040070		0 5			Niobium	LIQUID	.1	1.0809E-01			0.03	ug/mL	108.09	% Recovery	
6	LLS	S1011040070		0 2			Phosphorus	LIQUID	.4	3.9762E-01			0.05	ug/mL	99.405	% Recovery	
4	LLS	S1011040070		0 0			Lead	LIQUID	.2	2.3517E-01			0.05	ug/mL	117.58	% Recovery	
8	LLS	S1011040070		0 4			Palladium	LIQUID	1	1.0160E+00			0.1	ug/mL	101.6	% Recovery	
7	LLS	S1011040070		0 3			Praseodymium	LIQUID	.1	1.0455E-01			0.01	ug/mL	104.55	% Recovery	
7	LLS	S1011040070		0 3			Rubidium	LIQUID	1	8.5763E-01			0.1	ug/mL	85.763	% Recovery	
8	LLS	S1011040070		0 4			Rhodium	LIQUID	.1	1.2360E-01			0.05	ug/mL	123.6	% Recovery	
8	LLS	S1011040070		0 4			Ruthenium	LIQUID	.1	1.1360E-01			0.03	ug/mL	113.6	% Recovery	
6	LLS	S1011040070		0 2			Sulfur	LIQUID	.2	1.7350E-01			0.1	ug/mL	86.75	% Recovery	
6	LLS	S1011040070		0 2			Antimony	LIQUID	.1	8.3180E-02			0.05	ug/mL	83.18	% Recovery	
4	LLS	S1011040070		0 0			Selenium	LIQUID	.2	2.1056E-01			0.1	ug/mL	105.28	% Recovery	
6	LLS	S1011040070		0 2			Silicon	LIQUID	.1	9.2630E-02			0.03	ug/mL	92.63	% Recovery	
4	LLS	S1011040070		0 0			Samarium	LIQUID	.1	1.0507E-01			0.02	ug/mL	105.07	% Recovery	
9	LLS	S1011040070		0 5			Tin	LIQUID	.1	9.8400E-02			0.03	ug/mL	98.4	% Recovery	
4	LLS	S1011040070		0 0			Strontium	LIQUID	.02	2.0050E-02			3.00E-03	ug/mL	100.25	% Recovery	
9	LLS	S1011040070		0 5			Tantalum	LIQUID	1	1.0018E+00			0.05	ug/mL	100.18	% Recovery	
9	LLS	S1011040070		0 5			Tellurium	LIQUID	1	1.0213E+00			0.1	ug/mL	102.13	% Recovery	
7	LLS	S1011040070		0 3			Thorium	LIQUID	.1	9.0450E-02			0.05	ug/mL	90.45	% Recovery	
6	LLS	S1011040070		0 2			Titanium	LIQUID	.02	1.9480E-02			5.00E-03	ug/mL	97.4	% Recovery	
4	LLS	S1011040070		0 0			Thallium	LIQUID	.4	3.7159E-01			0.1	ug/mL	92.898	% Recovery	
6	LLS	S1011040070		0 2			Uranium	LIQUID	.5	5.1398E-01			0.1	ug/mL	102.8	% Recovery	
6	LLS	S1011040070		0 2			Vanadium	LIQUID	.05	5.0300E-02			5.00E-03	ug/mL	100.6	% Recovery	
9	LLS	S1011040070		0 5			Tungsten	LIQUID	1	1.0644E+00			0.2	ug/mL	106.44	% Recovery	
7	LLS	S1011040070		0 3			Yttrium	LIQUID	.1	1.0022E-01			2.00E-03	ug/mL	100.22	% Recovery	
6	LLS	S1011040070		0 2			Zinc	LIQUID	.02	1.6150E-02			5.00E-03	ug/mL	80.75	% Recovery	
6	LLS	S1011040070		0 2			Zirconium	LIQUID	.02	2.0560E-02			5.00E-03	ug/mL	102.8	% Recovery	
Sample Sequence 10																	
10	ICB	S1011040069		0 0			Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
10	ICB	S1011040069		0 0			Aluminum	LIQUID		<3.0000E-02			0.03	ug/mL			
10	ICB	S1011040069		0 0			Arsenic	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S1011040069		0 0			Boron	LIQUID		<3.0000E-02			0.03	ug/mL			
10	ICB	S1011040069		0 0			Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
10	ICB	S1011040069		0 0			Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL			
10	ICB	S1011040069		0 0			Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL			
10	ICB	S1011040069		0 0			Calcium	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S1011040069		0 0			Cadmium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
10	ICB	S1011040069		0 0			Cerium	LIQUID		<3.0000E-02			0.03	ug/mL			
10	ICB	S1011040069		0 0			Cobalt	LIQUID		<1.0000E-02			0.01	ug/mL			
10	ICB	S1011040069		0 0			Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
10	ICB	S1011040069		0 0			Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL			

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LABCORE Completed Batch Report for Batch# 00023817

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
10	ICB	S1011040069		0 0			Europium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
10	ICB	S1011040069		0 0			Iron	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
10	ICB	S1011040069		0 0			Potassium	LIQUID		<5.0000E-01			0.5	ug/mL			
10	ICB	S1011040069		0 0			Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
10	ICB	S1011040069		0 0			Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
10	ICB	S1011040069		0 0			Magnesium	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S1011040069		0 0			Manganese	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
10	ICB	S1011040069		0 0			Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL			
10	ICB	S1011040069		0 0			Sodium	LIQUID		<1.0000E-01			0.1	ug/mL			
10	ICB	S1011040069		0 0			Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
10	ICB	S1011040069		0 0			Nickel	LIQUID		<2.0000E-02			0.02	ug/mL			
10	ICB	S1011040069		0 0			Niobium	LIQUID		<3.0000E-02			0.03	ug/mL			
10	ICB	S1011040069		0 0			Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S1011040069		0 0			Lead	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S1011040069		0 0			Palladium	LIQUID		<1.0000E-01			0.1	ug/mL			
10	ICB	S1011040069		0 0			Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
10	ICB	S1011040069		0 0			Rubidium	LIQUID		<1.0000E+00			1	ug/mL			
10	ICB	S1011040069		0 0			Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S1011040069		0 0			Ruthenium	LIQUID		<3.0000E-02			0.03	ug/mL			
10	ICB	S1011040069		0 0			Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL			
10	ICB	S1011040069		0 0			Antimony	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S1011040069		0 0			Selenium	LIQUID		<1.0000E-01			0.1	ug/mL			
10	ICB	S1011040069		0 0			Silicon	LIQUID		<3.0000E-02			0.03	ug/mL			
10	ICB	S1011040069		0 0			Samarium	LIQUID		<2.0000E-02			0.02	ug/mL			
10	ICB	S1011040069		0 0			Tin	LIQUID		<3.0000E-02			0.03	ug/mL			
10	ICB	S1011040069		0 0			Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
10	ICB	S1011040069		0 0			Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S1011040069		0 0			Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL			
10	ICB	S1011040069		0 0			Thorium	LIQUID		<5.0000E-02			0.05	ug/mL			
10	ICB	S1011040069		0 0			Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
10	ICB	S1011040069		0 0			Thallium	LIQUID		<1.0000E-01			0.1	ug/mL			
10	ICB	S1011040069		0 0			Uranium	LIQUID		<1.0000E-01			0.1	ug/mL			
10	ICB	S1011040069		0 0			Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
10	ICB	S1011040069		0 0			Tungsten	LIQUID		<2.0000E-01			0.2	ug/mL			
10	ICB	S1011040069		0 0			Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL			
10	ICB	S1011040069		0 0			Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
10	ICB	S1011040069		0 0			Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
Sample Sequence 11																	
11	ICSA	S1011040071		0 0			Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
11	ICSA	S1011040071		0 0			Aluminum	LIQUID	200	1.9756E+02			0.03	ug/mL	98.78	% Recovery	
11	ICSA	S1011040071		0 0			Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
11	ICSA	S1011040071		0 0			Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL	N/A		

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# 00023817

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
11	ICSA	S1011040071		0 0			Calcium	LIQUID	200	1.9645E+02			0.05	ug/mL	98.226	% Recovery	
11	ICSA	S1011040071		0 0			Cerium	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
11	ICSA	S1011040071		0 0			Cobalt	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
11	ICSA	S1011040071		0 0			Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
11	ICSA	S1011040071		0 0			Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
11	ICSA	S1011040071		0 0			Iron	LIQUID	200	1.9366E+02			5.00E-03	ug/mL	96.828	% Recovery	
11	ICSA	S1011040071		0 0			Potassium	LIQUID		<5.0000E-01			0.5	ug/mL	N/A		
11	ICSA	S1011040071		0 0			Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
11	ICSA	S1011040071		0 0			Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
11	ICSA	S1011040071		0 0			Magnesium	LIQUID	200	1.9732E+02			0.05	ug/mL	98.66	% Recovery	
11	ICSA	S1011040071		0 0			Manganese	LIQUID		5.3210E-02			3.00E-03	ug/mL	N/A		
11	ICSA	S1011040071		0 0			Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
11	ICSA	S1011040071		0 0			Sodium	LIQUID	200	1.7125E+02			0.1	ug/mL	85.623	% Recovery	
11	ICSA	S1011040071		0 0			Neodymium	LIQUID		1.3010E-02			0.01	ug/mL	N/A		
11	ICSA	S1011040071		0 0			Nickel	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
11	ICSA	S1011040071		0 0			Phosphorus	LIQUID		5.9760E-02			0.05	ug/mL	N/A		
11	ICSA	S1011040071		0 0			Lead	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
11	ICSA	S1011040071		0 0			Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
11	ICSA	S1011040071		0 0			Silicon	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
11	ICSA	S1011040071		0 0			Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
11	ICSA	S1011040071		0 0			Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
11	ICSA	S1011040071		0 0			Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
11	ICSA	S1011040071		0 0			Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL	N/A		
11	ICSA	S1011040071		0 0			Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
11	ICSA	S1011040071		0 0			Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
Sample Sequence 12																	
12	ICSAB	S1011040072		0 0			Aluminum	LIQUID	200	1.9909E+02			0.03	ug/mL	99.545	% Recovery	
12	ICSAB	S1011040072		0 0			Barium	LIQUID	1	9.4717E-01			3.00E-03	ug/mL	94.717	% Recovery	
12	ICSAB	S1011040072		0 0			Beryllium	LIQUID	.1	9.2080E-02			1.00E-03	ug/mL	92.08	% Recovery	
12	ICSAB	S1011040072		0 0			Calcium	LIQUID	200	1.9198E+02			0.05	ug/mL	95.99	% Recovery	
12	ICSAB	S1011040072		0 0			Cobalt	LIQUID	5	4.9263E+00			0.01	ug/mL	98.525	% Recovery	
12	ICSAB	S1011040072		0 0			Chromium	LIQUID	5	4.9105E+00			5.00E-03	ug/mL	98.209	% Recovery	
12	ICSAB	S1011040072		0 0			Copper	LIQUID	5	5.1104E+00			5.00E-03	ug/mL	102.21	% Recovery	
12	ICSAB	S1011040072		0 0			Iron	LIQUID	200	1.9232E+02			5.00E-03	ug/mL	96.161	% Recovery	
12	ICSAB	S1011040072		0 0			Potassium	LIQUID		<5.0000E-01			0.5	ug/mL	N/A		
12	ICSAB	S1011040072		0 0			Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
12	ICSAB	S1011040072		0 0			Lithium	LIQUID	1	9.1458E-01			3.00E-03	ug/mL	91.458	% Recovery	
12	ICSAB	S1011040072		0 0			Magnesium	LIQUID	200	1.9617E+02			0.05	ug/mL	98.086	% Recovery	
12	ICSAB	S1011040072		0 0			Manganese	LIQUID	5	4.9338E+00			3.00E-03	ug/mL	98.676	% Recovery	
12	ICSAB	S1011040072		0 0			Molybdenum	LIQUID	5	4.8293E+00			0.02	ug/mL	96.585	% Recovery	
12	ICSAB	S1011040072		0 0			Sodium	LIQUID	200	1.7387E+02			0.1	ug/mL	86.934	% Recovery	
12	ICSAB	S1011040072		0 0			Neodymium	LIQUID		9.0280E-02			0.01	ug/mL	N/A		

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LABCORE Completed Batch Report for Batch# 00023817

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
12	ICSAB	S1011040072		0 0			Nickel	LIQUID	5	4.8598E+00			0.02	ug/mL	97.196	% Recovery	
12	ICSAB	S1011040072		0 0			Phosphorus	LIQUID	1	1.0011E+00			0.05	ug/mL	100.11	% Recovery	
12	ICSAB	S1011040072		0 0			Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
12	ICSAB	S1011040072		0 0			Silicon	LIQUID	5	4.8259E+00			0.03	ug/mL	96.517	% Recovery	
12	ICSAB	S1011040072		0 0			Strontium	LIQUID	1	9.6301E-01			3.00E-03	ug/mL	96.301	% Recovery	
12	ICSAB	S1011040072		0 0			Titanium	LIQUID	50	4.8637E+01			5.00E-03	ug/mL	97.274	% Recovery	
12	ICSAB	S1011040072		0 0			Vanadium	LIQUID	1	9.9573E-01			5.00E-03	ug/mL	99.573	% Recovery	
12	ICSAB	S1011040072		0 0			Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL	N/A		
12	ICSAB	S1011040072		0 0			Zinc	LIQUID	5	4.9781E+00			5.00E-03	ug/mL	99.562	% Recovery	
12	ICSAB	S1011040072		0 0			Zirconium	LIQUID	5	4.5548E+00			5.00E-03	ug/mL	91.096	% Recovery	
Sample Sequence 13																	
13	BLNK-PREP	S1009260007		0 0	A		Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Aluminum	LIQUID		<3.0000E-02			0.03	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Arsenic	LIQUID		<5.0000E-02			0.05	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Boron	LIQUID		<3.0000E-02			0.03	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Calcium	LIQUID		1.0074E-01			0.05	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Cadmium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Cerium	LIQUID		<3.0000E-02			0.03	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Cobalt	LIQUID		<1.0000E-02			0.01	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Europium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Iron	LIQUID		1.1510E-02			5.00E-03	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Potassium	LIQUID		<5.0000E-01			0.5	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Magnesium	LIQUID		<5.0000E-02			0.05	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Manganese	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Sodium	LIQUID		<1.0000E-01			0.1	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Nickel	LIQUID		<2.0000E-02			0.02	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Niobium	LIQUID		<3.0000E-02			0.03	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Lead	LIQUID		<5.0000E-02			0.05	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Palladium	LIQUID		<1.0000E-01			0.1	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Rubidium	LIQUID		<1.0000E+00			1	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL			

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LABCORE Completed Batch Report for Batch# 00023817

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	S1009260007		0 0	A		Ruthenium	LIQUID		<3.0000E-02			0.03	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Antimony	LIQUID		<5.0000E-02			0.05	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Selenium	LIQUID		<1.0000E-01			0.1	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Silicon	LIQUID		<3.0000E-02			0.03	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Samarium	LIQUID		<2.0000E-02			0.02	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Tin	LIQUID		<3.0000E-02			0.03	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Thorium	LIQUID		<5.0000E-02			0.05	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Thallium	LIQUID		<1.0000E-01			0.1	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Uranium	LIQUID		<1.0000E-01			0.1	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Tungsten	LIQUID		<2.0000E-01			0.2	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
13	BLNK-PREP	S1009260007		0 0	A		Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
Sample Sequence 14																	
14	STD-PREP	S1009260008		0 0	A		Silver	LIQUID	1	8.9026E-01			5.00E-03	ug/mL	89.026	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Aluminum	LIQUID	5	4.8980E+00			0.03	ug/mL	97.961	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Arsenic	LIQUID	5	4.1619E+00			0.05	ug/mL	83.238	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Boron	LIQUID	5	4.1002E+00			0.03	ug/mL	82.004	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Barium	LIQUID	5	4.4303E+00			3.00E-03	ug/mL	88.605	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Beryllium	LIQUID	5	4.4737E+00			1.00E-03	ug/mL	89.473	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Bismuth	LIQUID	5	4.9428E+00			0.1	ug/mL	98.857	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Calcium	LIQUID	5	4.4780E+00			0.05	ug/mL	89.559	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Cadmium	LIQUID	5	4.0115E+00			5.00E-03	ug/mL	80.23	% Recovery	
15	STD-PREP	S1009260008		0 1	A		Cerium	LIQUID	5	4.6336E+00			0.03	ug/mL	92.671	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Cobalt	LIQUID	5	4.0351E+00			0.01	ug/mL	80.701	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Chromium	LIQUID	5	4.0371E+00			5.00E-03	ug/mL	80.742	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Copper	LIQUID	5	4.4975E+00			5.00E-03	ug/mL	89.95	% Recovery	
15	STD-PREP	S1009260008		0 1	A		Europium	LIQUID	5	4.3772E+00			5.00E-03	ug/mL	87.544	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Iron	LIQUID	5	4.1674E+00			5.00E-03	ug/mL	83.348	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Potassium	LIQUID	5	4.7006E+00			0.5	ug/mL	94.013	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Lanthanum	LIQUID	5	4.5093E+00			3.00E-03	ug/mL	90.185	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Lithium	LIQUID	5	4.4444E+00			3.00E-03	ug/mL	88.888	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Magnesium	LIQUID	5	4.8402E+00			0.05	ug/mL	96.804	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Manganese	LIQUID	5	4.0091E+00			3.00E-03	ug/mL	80.182	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Molybdenum	LIQUID	5	4.1114E+00			0.02	ug/mL	82.227	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Sodium	LIQUID	5	4.3528E+00			0.1	ug/mL	87.055	% Recovery	

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00023817

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	S1009260008		0 1	A		Neodymium	LIQUID	5	4.8294E+00			0.01	ug/mL	96.589	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Nickel	LIQUID	5	4.9443E+00			0.02	ug/mL	98.887	% Recovery	
15	STD-PREP	S1009260008		0 1	A		Niobium	LIQUID	5	4.1965E+00			0.03	ug/mL	83.929	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Phosphorus	LIQUID	5	4.0531E+00			0.05	ug/mL	81.062	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Lead	LIQUID	5	4.8435E+00			0.05	ug/mL	96.87	% Recovery	
15	STD-PREP	S1009260008		0 1	A		Palladium	LIQUID	5	4.9476E+00			0.1	ug/mL	98.953	% Recovery	
15	STD-PREP	S1009260008		0 1	A		Praseodymium	LIQUID	5	4.7873E+00			0.01	ug/mL	95.746	% Recovery	
15	STD-PREP	S1009260008		0 1	A		Rhodium	LIQUID	5	4.5295E+00			0.05	ug/mL	90.59	% Recovery	
15	STD-PREP	S1009260008		0 1	A		Ruthenium	LIQUID	5	4.9655E+00			0.03	ug/mL	99.31	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Sulfur	LIQUID	5	4.0599E+00			0.1	ug/mL	81.198	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Antimony	LIQUID	5	4.9385E+00			0.05	ug/mL	98.77	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Selenium	LIQUID	5	4.2991E+00			0.1	ug/mL	85.981	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Silicon	LIQUID	5	4.7360E+00			0.03	ug/mL	94.719	% Recovery	
15	STD-PREP	S1009260008		0 1	A		Samarium	LIQUID	5	4.8618E+00			0.02	ug/mL	97.235	% Recovery	
15	STD-PREP	S1009260008		0 1	A		Tin	LIQUID	5	4.5918E+00			0.03	ug/mL	91.836	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Strontium	LIQUID	5	4.4374E+00			3.00E-03	ug/mL	88.749	% Recovery	
15	STD-PREP	S1009260008		0 1	A		Tantalum	LIQUID	5	4.8316E+00			0.05	ug/mL	96.631	% Recovery	
15	STD-PREP	S1009260008		0 1	A		Tellurium	LIQUID	5	4.2082E+00			0.1	ug/mL	84.165	% Recovery	
15	STD-PREP	S1009260008		0 1	A		Thorium	LIQUID	5	4.7846E+00			0.05	ug/mL	95.692	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Titanium	LIQUID	5	4.1244E+00			5.00E-03	ug/mL	82.488	% Recovery	
15	STD-PREP	S1009260008		0 1	A		Thallium	LIQUID	5	4.0442E+00			0.1	ug/mL	80.884	% Recovery	
15	STD-PREP	S1009260008		0 1	A		Uranium	LIQUID	5	5.2583E+00			0.1	ug/mL	105.17	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Vanadium	LIQUID	5	4.2253E+00			5.00E-03	ug/mL	84.506	% Recovery	
15	STD-PREP	S1009260008		0 1	A		Tungsten	LIQUID	5	4.1884E+00			0.2	ug/mL	83.768	% Recovery	
15	STD-PREP	S1009260008		0 1	A		Yttrium	LIQUID	5	4.1408E+00			2.00E-03	ug/mL	82.816	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Zinc	LIQUID	5	4.0768E+00			5.00E-03	ug/mL	81.536	% Recovery	
14	STD-PREP	S1009260008		0 0	A		Zirconium	LIQUID	5	4.9477E+00			5.00E-03	ug/mL	98.954	% Recovery	
Sample Sequence 16																	
16	SERDIL	S1011040073	S10V001894	0 0			Aluminum	SOLID		5.8518E+03			14.791	ug/g	3.1015	% Diff	
16	SERDIL	S1011040073	S10V001894	0 0			Barium	SOLID		6.1870E+01			1.4791	ug/g	4.1156	% Diff	
16	SERDIL	S1011040073	S10V001894	0 0			Beryllium	SOLID		<4.9305E-01			0.49305	ug/g	N/A		
16	SERDIL	S1011040073	S10V001894	0 0			Calcium	SOLID		7.8459E+03			24.652	ug/g	5.0108	% Diff	
16	SERDIL	S1011040073	S10V001894	0 0			Cerium	SOLID		2.2407E+01			14.791	ug/g	8.6106	% Diff	
16	SERDIL	S1011040073	S10V001894	0 0			Cobalt	SOLID		7.2927E+00			4.9305	ug/g	13.144	% Diff	
16	SERDIL	S1011040073	S10V001894	0 0			Chromium	SOLID		8.7419E+00			2.4652	ug/g	5.6657	% Diff	
16	SERDIL	S1011040073	S10V001894	0 0			Copper	SOLID		9.6308E+00			2.4652	ug/g	4.1337	% Diff	
16	SERDIL	S1011040073	S10V001894	0 0			Iron	SOLID		2.0842E+04			2.4652	ug/g	6.1241	% Diff	
16	SERDIL	S1011040073	S10V001894	0 0			Potassium	SOLID		9.0868E+02			246.52	ug/g	10.67	% Diff	
16	SERDIL	S1011040073	S10V001894	0 0			Lanthanum	SOLID		9.2741E+00			1.4791	ug/g	5.0049	% Diff	
16	SERDIL	S1011040073	S10V001894	0 0			Lithium	SOLID		6.2863E+00			1.4791	ug/g	.35702	% Diff	
16	SERDIL	S1011040073	S10V001894	0 0			Magnesium	SOLID		4.3175E+03			24.652	ug/g	4.3069	% Diff	
16	SERDIL	S1011040073	S10V001894	0 0			Manganese	SOLID		3.0150E+02			1.4791	ug/g	5.5667	% Diff	

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

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LABCORE Completed Batch Report for Batch# 00023817

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
16	SERDIL	S1011040073	S10V001894	0 0			Molybdenum	SOLID		<9.8610E+00			9.861	ug/g	N/A		
16	SERDIL	S1011040073	S10V001894	0 0			Sodium	SOLID		1.3341E+02			49.305	ug/g	.74912	% Diff	
16	SERDIL	S1011040073	S10V001894	0 0			Neodymium	SOLID		1.2729E+01			4.9305	ug/g	1.4576	% Diff	
16	SERDIL	S1011040073	S10V001894	0 0			Nickel	SOLID		<9.8610E+00			9.861	ug/g	N/A		
16	SERDIL	S1011040073	S10V001894	0 0			Phosphorus	SOLID		6.9177E+02			24.652	ug/g	6.9107	% Diff	
16	SERDIL	S1011040073	S10V001894	0 0			Sulfur	SOLID		5.4204E+01			49.305	ug/g	5.5608	% Diff	
16	SERDIL	S1011040073	S10V001894	0 0			Silicon	SOLID		6.5389E+01			14.791	ug/g	48.426	% Diff	
16	SERDIL	S1011040073	S10V001894	0 0			Strontium	SOLID		2.4259E+01			1.4791	ug/g	4.0215	% Diff	
16	SERDIL	S1011040073	S10V001894	0 0			Titanium	SOLID		1.3573E+03			2.4652	ug/g	4.6119	% Diff	
16	SERDIL	S1011040073	S10V001894	0 0			Vanadium	SOLID		5.0532E+01			2.4652	ug/g	6.5524	% Diff	
16	SERDIL	S1011040073	S10V001894	0 0			Yttrium	SOLID		7.9195E+00			0.9861	ug/g	6.7985	% Diff	
16	SERDIL	S1011040073	S10V001894	0 0			Zinc	SOLID		3.6653E+01			2.4652	ug/g	1.1431	% Diff	
16	SERDIL	S1011040073	S10V001894	0 0			Zirconium	SOLID		1.1277E+01			2.4652	ug/g	2.3299	% Diff	
Sample Sequence 17																	
17	SAMPLE	S10V001894		0 0	A		Aluminum	SOLID	N/A	5.6758E+03			2.9583	ug/g			
17	SAMPLE	S10V001894		0 0	A		Barium	SOLID	N/A	5.9424E+01			0.29583	ug/g			
17	SAMPLE	S10V001894		0 0	A		Beryllium	SOLID	N/A	1.5206E-01			0.09861	ug/g			J
17	SAMPLE	S10V001894		0 0	A		Calcium	SOLID	N/A	7.4715E+03			4.9305	ug/g			
17	SAMPLE	S10V001894		0 0	A		Cerium	SOLID	N/A	2.0631E+01			2.9583	ug/g			Jb
17	SAMPLE	S10V001894		0 0	A		Cobalt	SOLID	N/A	6.4455E+00			0.9861	ug/g			J
17	SAMPLE	S10V001894		0 0	A		Chromium	SOLID	N/A	8.2732E+00			0.49305	ug/g			c
17	SAMPLE	S10V001894		0 0	A		Copper	SOLID	N/A	9.2485E+00			0.49305	ug/g			
17	SAMPLE	S10V001894		0 0	A		Iron	SOLID	N/A	1.9639E+04			0.49305	ug/g			
17	SAMPLE	S10V001894		0 0	A		Potassium	SOLID	N/A	8.2107E+02			49.305	ug/g			
17	SAMPLE	S10V001894		0 0	A		Lanthanum	SOLID	N/A	8.8321E+00			0.29583	ug/g			
17	SAMPLE	S10V001894		0 0	A		Lithium	SOLID	N/A	6.2639E+00			0.29583	ug/g			
17	SAMPLE	S10V001894		0 0	A		Magnesium	SOLID	N/A	4.1392E+03			4.9305	ug/g			
17	SAMPLE	S10V001894		0 0	A		Manganese	SOLID	N/A	2.8560E+02			0.29583	ug/g			
17	SAMPLE	S10V001894		0 0	A		Molybdenum	SOLID	N/A	<1.9722E+00			1.9722	ug/g			U
17	SAMPLE	S10V001894		0 0	A		Sodium	SOLID	N/A	1.3242E+02			9.861	ug/g			c
17	SAMPLE	S10V001894		0 0	A		Nickel	SOLID	N/A	7.5948E+00			1.9722	ug/g			J
17	SAMPLE	S10V001894		0 0	A		Phosphorus	SOLID	N/A	6.4705E+02			4.9305	ug/g			
17	SAMPLE	S10V001894		0 0	A		Sulfur	SOLID	N/A	5.7396E+01			9.861	ug/g			J
17	SAMPLE	S10V001894		0 0	A		Silicon	SOLID	N/A	4.4055E+01			2.9583	ug/g			bc
17	SAMPLE	S10V001894		0 0	A		Strontium	SOLID	N/A	2.3321E+01			0.29583	ug/g			bc
17	SAMPLE	S10V001894		0 0	A		Titanium	SOLID	N/A	1.2975E+03			0.49305	ug/g			
17	SAMPLE	S10V001894		0 0	A		Vanadium	SOLID	N/A	4.7425E+01			0.49305	ug/g			
17	SAMPLE	S10V001894		0 0	A		Yttrium	SOLID	N/A	7.4154E+00			0.19722	ug/g			
17	SAMPLE	S10V001894		0 0	A		Zinc	SOLID	N/A	3.7077E+01			0.49305	ug/g			
17	SAMPLE	S10V001894		0 0	A		Zirconium	SOLID	N/A	1.1546E+01			0.49305	ug/g			b
Sample Sequence 18																	
18	DUP	S1009260009	S10V001894	0 0	A		Aluminum	SOLID	5.6758E+03	7.3666E+03			2.9512	ug/g	25.927	% RPD	
18	DUP	S1009260009	S10V001894	0 0	A		Barium	SOLID	5.9424E+01	7.8398E+01			0.29512	ug/g	27.534	% RPD	

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LABCORE Completed Batch Report for Batch# 00023817

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
18	DUP	S1009260009	S10V001894	0 0	A		Beryllium	SOLID	1.5206E-01	1.8760E-01			0.098373	ug/g	20.929	% RPD	
18	DUP	S1009260009	S10V001894	0 0	A		Calcium	SOLID	7.4715E+03	9.6686E+03			4.9186	ug/g	25.637	% RPD	
18	DUP	S1009260009	S10V001894	0 0	A		Cobalt	SOLID	6.4455E+00	9.0080E+00			0.98373	ug/g	33.164	% RPD	
18	DUP	S1009260009	S10V001894	0 0	A		Chromium	SOLID	8.2732E+00	1.1457E+01			0.49186	ug/g	32.273	% RPD	
18	DUP	S1009260009	S10V001894	0 0	A		Copper	SOLID	9.2485E+00	1.2475E+01			0.49186	ug/g	29.705	% RPD	
18	DUP	S1009260009	S10V001894	0 0	A		Iron	SOLID	1.9639E+04	2.3489E+04			0.49186	ug/g	17.853	% RPD	
18	DUP	S1009260009	S10V001894	0 0	A		Potassium	SOLID	8.2107E+02	1.0448E+03			49.186	ug/g	23.982	% RPD	
18	DUP	S1009260009	S10V001894	0 0	A		Lithium	SOLID	6.2639E+00	7.7121E+00			0.29512	ug/g	20.724	% RPD	
18	DUP	S1009260009	S10V001894	0 0	A		Magnesium	SOLID	4.1392E+03	5.3637E+03			4.9186	ug/g	25.771	% RPD	
18	DUP	S1009260009	S10V001894	0 0	A		Manganese	SOLID	2.8560E+02	3.5728E+02			0.29512	ug/g	22.301	% RPD	
18	DUP	S1009260009	S10V001894	0 0	A		Molybdenum	SOLID	<1.9722E+00	<1.9675E+00			1.9675	ug/g			
18	DUP	S1009260009	S10V001894	0 0	A		Sodium	SOLID	1.3242E+02	2.2248E+02			9.8373	ug/g	50.750	% RPD	
18	DUP	S1009260009	S10V001894	0 0	A		Nickel	SOLID	7.5948E+00	1.7860E+01			1.9675	ug/g	80.654	% RPD	
18	DUP	S1009260009	S10V001894	0 0	A		Phosphorus	SOLID	6.4705E+02	8.3864E+02			4.9186	ug/g	25.791	% RPD	
18	DUP	S1009260009	S10V001894	0 0	A		Strontium	SOLID	2.3321E+01	3.1957E+01			0.29512	ug/g	31.246	% RPD	
18	DUP	S1009260009	S10V001894	0 0	A		Vanadium	SOLID	4.7425E+01	5.4050E+01			0.49186	ug/g	13.057	% RPD	
18	DUP	S1009260009	S10V001894	0 0	A		Zinc	SOLID	3.7077E+01	4.5902E+01			0.49186	ug/g	21.270	% RPD	
18	DUP	S1009260009	S10V001894	0 0	A		Cerium	SOLID	2.0631E+01	2.6678E+01			2.9512	ug/g	25.565	% RPD	
18	DUP	S1009260009	S10V001894	0 0	A		Lanthanum	SOLID	8.8321E+00	1.0810E+01			0.29512	ug/g	20.140	% RPD	
18	DUP	S1009260009	S10V001894	0 0	A		Neodymium	SOLID		1.5944E+01			0.98373	ug/g			
18	DUP	S1009260009	S10V001894	0 0	A		Silicon	SOLID	4.4055E+01	7.3654E+01			2.9512	ug/g	50.291	% RPD	
18	DUP	S1009260009	S10V001894	0 0	A		Sulfur	SOLID	5.7396E+01	7.3853E+01			9.8373	ug/g	25.078	% RPD	
18	DUP	S1009260009	S10V001894	0 0	A		Titanium	SOLID	1.2975E+03	1.5484E+03			0.49186	ug/g	17.629	% RPD	
18	DUP	S1009260009	S10V001894	0 0	A		Yttrium	SOLID	7.4154E+00	9.4925E+00			0.19675	ug/g	24.569	% RPD	
18	DUP	S1009260009	S10V001894	0 0	A		Zirconium	SOLID	1.1546E+01	1.3393E+01			0.49186	ug/g	14.816	% RPD	
Sample Sequence 19																	
19	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Aluminum	SOLID	49.18935936	7.8439E+03			2.9514	ug/g	4407.7	% Recovery	
19	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Barium	SOLID	49.18935936	1.2632E+02			0.29514	ug/g	135.99	% Recovery	
19	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Beryllium	SOLID	49.18935936	5.1731E+01			0.098379	ug/g	104.86	% Recovery	
19	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Calcium	SOLID	49.18935936	9.7166E+03			4.9189	ug/g	4564.2	% Recovery	
19	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Cobalt	SOLID	49.18935936	6.1035E+01			0.98379	ug/g	110.98	% Recovery	
19	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Chromium	SOLID	49.18935936	6.1688E+01			0.49189	ug/g	108.59	% Recovery	
19	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Copper	SOLID	49.18935936	6.3128E+01			0.49189	ug/g	109.53	% Recovery	
19	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Iron	SOLID	49.18935936	2.2144E+04			0.49189	ug/g	5093.2	% Recovery	
19	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Potassium	SOLID	49.18935936	1.0669E+03			49.189	ug/g	499.7	% Recovery	
19	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Lanthanum	SOLID	49.18935936	6.2004E+01			0.29514	ug/g	108.1	% Recovery	
19	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Lithium	SOLID	49.18935936	5.5481E+01			0.29514	ug/g	100.06	% Recovery	
19	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Magnesium	SOLID	49.18935936	5.1477E+03			4.9189	ug/g	2050.1	% Recovery	
19	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Manganese	SOLID	49.18935936	3.9097E+02			0.29514	ug/g	214.21	% Recovery	
19	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Molybdenum	SOLID	49.18935936	5.1066E+01			1.9676	ug/g	103.82	% Recovery	
19	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Sodium	SOLID	49.18935936	3.4442E+02			9.8379	ug/g	430.98	% Recovery	
19	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Nickel	SOLID	49.18935936	6.2614E+01			1.9676	ug/g	111.85	% Recovery	

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LABCORE Completed Batch Report for Batch# 00023817

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
19	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Phosphorus	SOLID	49.18935936	8.5185E+02			4.9189	ug/g	416.35	% Recovery	
19	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Sulfur	SOLID	49.18935936	1.1491E+02			9.8379	ug/g	116.93	% Recovery	
19	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Silicon	SOLID	49.18935936	1.2190E+02			2.9514	ug/g	158.26	% Recovery	
19	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Strontium	SOLID	49.18935936	8.9112E+01			0.29514	ug/g	133.75	% Recovery	
19	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Titanium	SOLID	49.18935936	1.6591E+03			0.49189	ug/g	735.03	% Recovery	
19	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Vanadium	SOLID	49.18935936	1.0647E+02			0.49189	ug/g	120.04	% Recovery	
19	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Zinc	SOLID	49.18935936	9.5590E+01			0.49189	ug/g	118.95	% Recovery	
19	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Zirconium	SOLID	49.18935936	3.0740E+01			0.49189	ug/g	39.021	% Recovery	
Sample Sequence 20																	
20	SPK-PREDIG	S1009260011	S10V001894	0 0	A		Cerium	SOLID	49.53732142	7.8821E+01			2.9722	ug/g	117.47	% Recovery	
20	SPK-PREDIG	S1009260011	S10V001894	0 0	A		Neodymium	SOLID	49.53732142	6.5650E+01			0.99075	ug/g	106.45	% Recovery	
20	SPK-PREDIG	S1009260011	S10V001894	0 0	A		Yttrium	SOLID	49.53732142	5.7298E+01			0.19815	ug/g	100.7	% Recovery	
Sample Sequence 21																	
21	CCV	S1011040075		0 0			Silver	LIQUID	1	9.8111E-01			5.00E-03	ug/mL	98.111	% Recovery	
21	CCV	S1011040075		0 0			Aluminum	LIQUID	5	5.0264E+00			0.03	ug/mL	100.53	% Recovery	
21	CCV	S1011040075		0 0			Arsenic	LIQUID	5	5.2263E+00			0.05	ug/mL	104.53	% Recovery	
21	CCV	S1011040075		0 0			Boron	LIQUID	5	5.0667E+00			0.03	ug/mL	101.33	% Recovery	
21	CCV	S1011040075		0 0			Barium	LIQUID	5	5.2422E+00			3.00E-03	ug/mL	104.84	% Recovery	
21	CCV	S1011040075		0 0			Beryllium	LIQUID	5	5.1333E+00			1.00E-03	ug/mL	102.67	% Recovery	
21	CCV	S1011040075		0 0			Bismuth	LIQUID	5	5.2201E+00			0.1	ug/mL	104.4	% Recovery	
21	CCV	S1011040075		0 0			Calcium	LIQUID	5	4.9517E+00			0.05	ug/mL	99.034	% Recovery	
21	CCV	S1011040075		0 0			Cadmium	LIQUID	5	5.3460E+00			5.00E-03	ug/mL	106.92	% Recovery	
22	CCV	S1011040075		0 1			Cerium	LIQUID	5	5.4425E+00			0.03	ug/mL	108.85	% Recovery	
21	CCV	S1011040075		0 0			Cobalt	LIQUID	5	5.3780E+00			0.01	ug/mL	107.56	% Recovery	
21	CCV	S1011040075		0 0			Chromium	LIQUID	5	5.4079E+00			5.00E-03	ug/mL	108.16	% Recovery	
21	CCV	S1011040075		0 0			Copper	LIQUID	5	5.0734E+00			5.00E-03	ug/mL	101.47	% Recovery	
22	CCV	S1011040075		0 1			Europium	LIQUID	5	5.0095E+00			5.00E-03	ug/mL	100.19	% Recovery	
21	CCV	S1011040075		0 0			Iron	LIQUID	5	5.2590E+00			5.00E-03	ug/mL	105.18	% Recovery	
21	CCV	S1011040075		0 0			Potassium	LIQUID	5	4.5736E+00			0.5	ug/mL	91.473	% Recovery	
21	CCV	S1011040075		0 0			Lanthanum	LIQUID	5	5.1062E+00			3.00E-03	ug/mL	102.12	% Recovery	
21	CCV	S1011040075		0 0			Lithium	LIQUID	5	4.8132E+00			3.00E-03	ug/mL	96.265	% Recovery	
21	CCV	S1011040075		0 0			Magnesium	LIQUID	5	5.1560E+00			0.05	ug/mL	103.12	% Recovery	
21	CCV	S1011040075		0 0			Manganese	LIQUID	5	5.2912E+00			3.00E-03	ug/mL	105.82	% Recovery	
21	CCV	S1011040075		0 0			Molybdenum	LIQUID	5	5.1923E+00			0.02	ug/mL	103.85	% Recovery	
21	CCV	S1011040075		0 0			Sodium	LIQUID	5	4.8605E+00			0.1	ug/mL	97.211	% Recovery	
22	CCV	S1011040075		0 1			Neodymium	LIQUID	5	5.1703E+00			0.01	ug/mL	103.41	% Recovery	
21	CCV	S1011040075		0 0			Nickel	LIQUID	5	5.2702E+00			0.02	ug/mL	105.4	% Recovery	
23	CCV	S1011040075		0 2			Niobium	LIQUID	5	5.1536E+00			0.03	ug/mL	103.07	% Recovery	
21	CCV	S1011040075		0 0			Phosphorus	LIQUID	5	5.1574E+00			0.05	ug/mL	103.15	% Recovery	
21	CCV	S1011040075		0 0			Lead	LIQUID	5	5.4079E+00			0.05	ug/mL	108.16	% Recovery	
22	CCV	S1011040075		0 1			Palladium	LIQUID	5	4.9138E+00			0.1	ug/mL	98.275	% Recovery	
22	CCV	S1011040075		0 1			Praseodymium	LIQUID	5	5.1185E+00			0.01	ug/mL	102.37	% Recovery	
22	CCV	S1011040075		0 1			Rubidium	LIQUID	5	4.5086E+00			1	ug/mL	90.171	% Recovery	

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LABCORE Completed Batch Report for Batch# 00023817

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
22	CCV	S1011040075		0 1			Rhodium	LIQUID	5	5.0314E+00			0.05	ug/mL	100.63	% Recovery	
22	CCV	S1011040075		0 1			Ruthenium	LIQUID	5	5.1612E+00			0.03	ug/mL	103.22	% Recovery	
21	CCV	S1011040075		0 0			Sulfur	LIQUID	5	5.1663E+00			0.1	ug/mL	103.33	% Recovery	
21	CCV	S1011040075		0 0			Antimony	LIQUID	5	5.0301E+00			0.05	ug/mL	100.6	% Recovery	
21	CCV	S1011040075		0 0			Selenium	LIQUID	5	5.3331E+00			0.1	ug/mL	106.66	% Recovery	
21	CCV	S1011040075		0 0			Silicon	LIQUID	5	4.7470E+00			0.03	ug/mL	94.94	% Recovery	
22	CCV	S1011040075		0 1			Samarium	LIQUID	5	5.2131E+00			0.02	ug/mL	104.26	% Recovery	
23	CCV	S1011040075		0 2			Tin	LIQUID	5	5.2215E+00			0.03	ug/mL	104.43	% Recovery	
21	CCV	S1011040075		0 0			Strontium	LIQUID	5	5.1694E+00			3.00E-03	ug/mL	103.39	% Recovery	
23	CCV	S1011040075		0 2			Tantalum	LIQUID	5	5.1113E+00			0.05	ug/mL	102.23	% Recovery	
23	CCV	S1011040075		0 2			Tellurium	LIQUID	5	5.1364E+00			0.1	ug/mL	102.73	% Recovery	
22	CCV	S1011040075		0 1			Thorium	LIQUID	5	4.9415E+00			0.05	ug/mL	98.831	% Recovery	
21	CCV	S1011040075		0 0			Titanium	LIQUID	5	5.1449E+00			5.00E-03	ug/mL	102.9	% Recovery	
22	CCV	S1011040075		0 1			Thallium	LIQUID	5	5.2378E+00			0.1	ug/mL	104.76	% Recovery	
22	CCV	S1011040075		0 1			Uranium	LIQUID	5	5.3494E+00			0.1	ug/mL	106.99	% Recovery	
21	CCV	S1011040075		0 0			Vanadium	LIQUID	5	5.3301E+00			5.00E-03	ug/mL	106.6	% Recovery	
23	CCV	S1011040075		0 2			Tungsten	LIQUID	5	5.1813E+00			0.2	ug/mL	103.63	% Recovery	
22	CCV	S1011040075		0 1			Yttrium	LIQUID	5	5.0938E+00			2.00E-03	ug/mL	101.88	% Recovery	
21	CCV	S1011040075		0 0			Zinc	LIQUID	5	5.1529E+00			5.00E-03	ug/mL	103.06	% Recovery	
21	CCV	S1011040075		0 0			Zirconium	LIQUID	5	4.8809E+00			5.00E-03	ug/mL	97.617	% Recovery	
Sample Sequence 24																	
24	CCB	S1011040076		0 0			Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
24	CCB	S1011040076		0 0			Aluminum	LIQUID		<3.0000E-02			0.03	ug/mL			
24	CCB	S1011040076		0 0			Arsenic	LIQUID		<5.0000E-02			0.05	ug/mL			
24	CCB	S1011040076		0 0			Boron	LIQUID		<3.0000E-02			0.03	ug/mL			
24	CCB	S1011040076		0 0			Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
24	CCB	S1011040076		0 0			Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL			
24	CCB	S1011040076		0 0			Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL			
24	CCB	S1011040076		0 0			Calcium	LIQUID		<5.0000E-02			0.05	ug/mL			
24	CCB	S1011040076		0 0			Cadmium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
24	CCB	S1011040076		0 0			Cerium	LIQUID		<3.0000E-02			0.03	ug/mL			
24	CCB	S1011040076		0 0			Cobalt	LIQUID		<1.0000E-02			0.01	ug/mL			
24	CCB	S1011040076		0 0			Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
24	CCB	S1011040076		0 0			Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
24	CCB	S1011040076		0 0			Europium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
24	CCB	S1011040076		0 0			Iron	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
24	CCB	S1011040076		0 0			Potassium	LIQUID		<5.0000E-01			0.5	ug/mL			
24	CCB	S1011040076		0 0			Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
24	CCB	S1011040076		0 0			Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
24	CCB	S1011040076		0 0			Magnesium	LIQUID		<5.0000E-02			0.05	ug/mL			
24	CCB	S1011040076		0 0			Manganese	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
24	CCB	S1011040076		0 0			Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL			

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LABCORE Completed Batch Report for Batch# 00023817

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
24	CCB	S1011040076		0 0			Sodium	LIQUID		<1.0000E-01			0.1	ug/mL			
24	CCB	S1011040076		0 0			Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
24	CCB	S1011040076		0 0			Nickel	LIQUID		<2.0000E-02			0.02	ug/mL			
24	CCB	S1011040076		0 0			Niobium	LIQUID		<3.0000E-02			0.03	ug/mL			
24	CCB	S1011040076		0 0			Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL			
24	CCB	S1011040076		0 0			Lead	LIQUID		<5.0000E-02			0.05	ug/mL			
24	CCB	S1011040076		0 0			Palladium	LIQUID		<1.0000E-01			0.1	ug/mL			
24	CCB	S1011040076		0 0			Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
24	CCB	S1011040076		0 0			Rubidium	LIQUID		<1.0000E+00			1	ug/mL			
24	CCB	S1011040076		0 0			Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL			
24	CCB	S1011040076		0 0			Ruthenium	LIQUID		<3.0000E-02			0.03	ug/mL			
24	CCB	S1011040076		0 0			Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL			
24	CCB	S1011040076		0 0			Antimony	LIQUID		<5.0000E-02			0.05	ug/mL			
24	CCB	S1011040076		0 0			Selenium	LIQUID		<1.0000E-01			0.1	ug/mL			
24	CCB	S1011040076		0 0			Silicon	LIQUID		3.8440E-02			0.03	ug/mL			
24	CCB	S1011040076		0 0			Samarium	LIQUID		<2.0000E-02			0.02	ug/mL			
24	CCB	S1011040076		0 0			Tin	LIQUID		<3.0000E-02			0.03	ug/mL			
24	CCB	S1011040076		0 0			Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
24	CCB	S1011040076		0 0			Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL			
24	CCB	S1011040076		0 0			Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL			
24	CCB	S1011040076		0 0			Thorium	LIQUID		<5.0000E-02			0.05	ug/mL			
24	CCB	S1011040076		0 0			Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
24	CCB	S1011040076		0 0			Thallium	LIQUID		<1.0000E-01			0.1	ug/mL			
24	CCB	S1011040076		0 0			Uranium	LIQUID		<1.0000E-01			0.1	ug/mL			
24	CCB	S1011040076		0 0			Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
24	CCB	S1011040076		0 0			Tungsten	LIQUID		<2.0000E-01			0.2	ug/mL			
24	CCB	S1011040076		0 0			Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL			
24	CCB	S1011040076		0 0			Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
24	CCB	S1011040076		0 0			Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
Sample Sequence 25																	
27	SPK-POST	S1011040074	S10V001894	0 2			Aluminum	SOLID	1000	1.5582E+03			0.03	ug/g	98.263	% Recovery	
25	SPK-POST	S1011040074	S10V001894	0 0			Beryllium	SOLID	100	9.3142E+01			1.00E-03	ug/g	93.126	% Recovery	
27	SPK-POST	S1011040074	S10V001894	0 2			Calcium	SOLID	1000	1.7151E+03			0.05	ug/g	95.744	% Recovery	
25	SPK-POST	S1011040074	S10V001894	0 0			Cerium	SOLID	100	9.8552E+01			0.03	ug/g	96.46	% Recovery	
25	SPK-POST	S1011040074	S10V001894	0 0			Cobalt	SOLID	100	9.6662E+01			0.01	ug/g	96.008	% Recovery	
25	SPK-POST	S1011040074	S10V001894	0 0			Chromium	SOLID	100	9.5868E+01			5.00E-03	ug/g	95.029	% Recovery	
25	SPK-POST	S1011040074	S10V001894	0 0			Copper	SOLID	100	1.0005E+02			5.00E-03	ug/g	99.114	% Recovery	
27	SPK-POST	S1011040074	S10V001894	0 2			Iron	SOLID	1000	2.8794E+03			5.00E-03	ug/g	N/A		
25	SPK-POST	S1011040074	S10V001894	0 0			Potassium	SOLID	100	1.6403E+02			0.5	ug/g	80.768	% Recovery	
25	SPK-POST	S1011040074	S10V001894	0 0			Lanthanum	SOLID	100	9.5435E+01			3.00E-03	ug/g	94.539	% Recovery	
25	SPK-POST	S1011040074	S10V001894	0 0			Lithium	SOLID	100	9.1783E+01			3.00E-03	ug/g	91.148	% Recovery	
27	SPK-POST	S1011040074	S10V001894	0 2			Magnesium	SOLID	1000	1.3912E+03			0.05	ug/g	97.142	% Recovery	

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LABCORE Completed Batch Report for Batch# 00023817

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	S1011040074	S10V001894	0 0			Manganese	SOLID	100	1.2306E+02			3.00E-03	ug/g	94.095	% Recovery	
25	SPK-POST	S1011040074	S10V001894	0 0			Molybdenum	SOLID	100	9.3808E+01			0.02	ug/g	93.808	% Recovery	
25	SPK-POST	S1011040074	S10V001894	0 0			Sodium	SOLID	100	1.0531E+02			0.1	ug/g	91.882	% Recovery	
25	SPK-POST	S1011040074	S10V001894	0 0			Neodymium	SOLID	100	9.6430E+01			0.01	ug/g	95.12	% Recovery	
25	SPK-POST	S1011040074	S10V001894	0 0			Nickel	SOLID	100	9.5503E+01			0.02	ug/g	94.733	% Recovery	
25	SPK-POST	S1011040074	S10V001894	0 0			Phosphorus	SOLID	100	1.5805E+02			0.05	ug/g	92.428	% Recovery	
25	SPK-POST	S1011040074	S10V001894	0 0			Sulfur	SOLID	100	1.0185E+02			0.1	ug/g	96.031	% Recovery	
25	SPK-POST	S1011040074	S10V001894	0 0			Silicon	SOLID	100	9.3065E+01			0.03	ug/g	88.597	% Recovery	
25	SPK-POST	S1011040074	S10V001894	0 0			Strontium	SOLID	100	9.7992E+01			3.00E-03	ug/g	95.627	% Recovery	
25	SPK-POST	S1011040074	S10V001894	0 0			Vanadium	SOLID	100	1.0094E+02			5.00E-03	ug/g	96.13	% Recovery	
26	SPK-POST	S1011040074	S10V001894	0 1			Yttrium	SOLID	100	9.3763E+01			2.00E-03	ug/g	93.011	% Recovery	
25	SPK-POST	S1011040074	S10V001894	0 0			Zinc	SOLID	100	9.8526E+01			5.00E-03	ug/g	94.766	% Recovery	
25	SPK-POST	S1011040074	S10V001894	0 0			Zirconium	SOLID	100	9.3686E+01			5.00E-03	ug/g	92.515	% Recovery	
Sample Sequence 28																	
28	SAMPLE	S10V001877		0 0	A		Aluminum	SOLID	N/A	7.3074E+03			2.9582	ug/g			
28	SAMPLE	S10V001877		0 0	A		Barium	SOLID	N/A	7.7690E+01			0.29582	ug/g			
28	SAMPLE	S10V001877		0 0	A		Beryllium	SOLID	N/A	1.8991E-01			0.098606	ug/g			J
28	SAMPLE	S10V001877		0 0	A		Calcium	SOLID	N/A	9.4435E+03			4.9303	ug/g			
28	SAMPLE	S10V001877		0 0	A		Cerium	SOLID	N/A	2.2816E+01			2.9582	ug/g			Jb
28	SAMPLE	S10V001877		0 0	A		Cobalt	SOLID	N/A	8.1377E+00			0.98606	ug/g			J
28	SAMPLE	S10V001877		0 0	A		Chromium	SOLID	N/A	9.0940E+00			0.49303	ug/g			c
28	SAMPLE	S10V001877		0 0	A		Copper	SOLID	N/A	1.1291E+01			0.49303	ug/g			
28	SAMPLE	S10V001877		0 0	A		Iron	SOLID	N/A	2.2285E+04			0.49303	ug/g			
28	SAMPLE	S10V001877		0 0	A		Potassium	SOLID	N/A	1.0673E+03			49.303	ug/g			
28	SAMPLE	S10V001877		0 0	A		Lanthanum	SOLID	N/A	1.0124E+01			0.29582	ug/g			
28	SAMPLE	S10V001877		0 0	A		Lithium	SOLID	N/A	7.8126E+00			0.29582	ug/g			
28	SAMPLE	S10V001877		0 0	A		Magnesium	SOLID	N/A	5.0707E+03			4.9303	ug/g			
28	SAMPLE	S10V001877		0 0	A		Manganese	SOLID	N/A	3.3163E+02			0.29582	ug/g			
28	SAMPLE	S10V001877		0 0	A		Molybdenum	SOLID	N/A	<1.9721E+00			1.9721	ug/g			U
28	SAMPLE	S10V001877		0 0	A		Sodium	SOLID	N/A	2.2877E+02			9.8606	ug/g			c
28	SAMPLE	S10V001877		0 0	A		Nickel	SOLID	N/A	1.1096E+01			1.9721	ug/g			J
28	SAMPLE	S10V001877		0 0	A		Phosphorus	SOLID	N/A	8.0106E+02			4.9303	ug/g			
28	SAMPLE	S10V001877		0 0	A		Sulfur	SOLID	N/A	6.8327E+01			9.8606	ug/g			J
28	SAMPLE	S10V001877		0 0	A		Silicon	SOLID	N/A	6.9524E+01			2.9582	ug/g			bc
28	SAMPLE	S10V001877		0 0	A		Strontium	SOLID	N/A	3.2563E+01			0.29582	ug/g			bc
28	SAMPLE	S10V001877		0 0	A		Titanium	SOLID	N/A	1.5831E+03			0.49303	ug/g			
28	SAMPLE	S10V001877		0 0	A		Vanadium	SOLID	N/A	5.3375E+01			0.49303	ug/g			
28	SAMPLE	S10V001877		0 0	A		Tungsten	SOLID	N/A	3.9464E+01			19.721	ug/g			J
28	SAMPLE	S10V001877		0 0	A		Yttrium	SOLID	N/A	9.0539E+00			0.19721	ug/g			
28	SAMPLE	S10V001877		0 0	A		Zinc	SOLID	N/A	4.2959E+01			0.49303	ug/g			
28	SAMPLE	S10V001877		0 0	A		Zirconium	SOLID	N/A	1.2843E+01			0.49303	ug/g			b
Sample Sequence 29																	
29	SAMPLE	S10V001914		0 0	A		Aluminum	SOLID	N/A	7.7341E+03			2.9978	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# 00023817

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
29	SAMPLE	S10V001914		0 0	A		Barium	SOLID	N/A	8.0600E+01			0.29978	ug/g			
29	SAMPLE	S10V001914		0 0	A		Beryllium	SOLID	N/A	1.9946E-01			0.099928	ug/g			J
29	SAMPLE	S10V001914		0 0	A		Calcium	SOLID	N/A	3.6581E+03			4.9964	ug/g			
29	SAMPLE	S10V001914		0 0	A		Cerium	SOLID	N/A	2.3767E+01			2.9978	ug/g			Jb
29	SAMPLE	S10V001914		0 0	A		Cobalt	SOLID	N/A	7.9875E+00			0.99928	ug/g			J
29	SAMPLE	S10V001914		0 0	A		Chromium	SOLID	N/A	1.0090E+01			0.49964	ug/g			c
29	SAMPLE	S10V001914		0 0	A		Copper	SOLID	N/A	9.9714E+00			0.49964	ug/g			
29	SAMPLE	S10V001914		0 0	A		Iron	SOLID	N/A	2.2206E+04			0.49964	ug/g			
29	SAMPLE	S10V001914		0 0	A		Potassium	SOLID	N/A	1.3545E+03			49.964	ug/g			
29	SAMPLE	S10V001914		0 0	A		Lanthanum	SOLID	N/A	1.0839E+01			0.29978	ug/g			
29	SAMPLE	S10V001914		0 0	A		Lithium	SOLID	N/A	7.2273E+00			0.29978	ug/g			
29	SAMPLE	S10V001914		0 0	A		Magnesium	SOLID	N/A	4.4472E+03			4.9964	ug/g			
29	SAMPLE	S10V001914		0 0	A		Manganese	SOLID	N/A	3.4554E+02			0.29978	ug/g			
29	SAMPLE	S10V001914		0 0	A		Molybdenum	SOLID	N/A	<1.9986E+00			1.9986	ug/g			U
29	SAMPLE	S10V001914		0 0	A		Sodium	SOLID	N/A	2.0463E+02			9.9928	ug/g			c
29	SAMPLE	S10V001914		0 0	A		Nickel	SOLID	N/A	8.6532E+00			1.9986	ug/g			J
29	SAMPLE	S10V001914		0 0	A		Phosphorus	SOLID	N/A	7.9394E+02			4.9964	ug/g			
29	SAMPLE	S10V001914		0 0	A		Sulfur	SOLID	N/A	4.5850E+01			9.9928	ug/g			J
29	SAMPLE	S10V001914		0 0	A		Silicon	SOLID	N/A	5.9351E+01			2.9978	ug/g			bc
29	SAMPLE	S10V001914		0 0	A		Strontium	SOLID	N/A	2.3713E+01			0.29978	ug/g			bc
29	SAMPLE	S10V001914		0 0	A		Titanium	SOLID	N/A	1.4346E+03			0.49964	ug/g			
29	SAMPLE	S10V001914		0 0	A		Vanadium	SOLID	N/A	5.2288E+01			0.49964	ug/g			
29	SAMPLE	S10V001914		0 0	A		Yttrium	SOLID	N/A	8.5666E+00			0.19986	ug/g			
29	SAMPLE	S10V001914		0 0	A		Zinc	SOLID	N/A	4.2350E+01			0.49964	ug/g			
29	SAMPLE	S10V001914		0 0	A		Zirconium	SOLID	N/A	1.4329E+01			0.49964	ug/g			b
Sample Sequence 30																	
30	SAMPLE	S10V001934		0 0	A		Aluminum	SOLID	N/A	4.5882E+03			2.9894	ug/g			
30	SAMPLE	S10V001934		0 0	A		Barium	SOLID	N/A	7.5911E+01			0.29894	ug/g			
30	SAMPLE	S10V001934		0 0	A		Beryllium	SOLID	N/A	<9.9645E-02			0.099645	ug/g			U
30	SAMPLE	S10V001934		0 0	A		Calcium	SOLID	N/A	5.9037E+03			4.9823	ug/g			
30	SAMPLE	S10V001934		0 0	A		Cerium	SOLID	N/A	3.1348E+01			2.9894	ug/g			b
30	SAMPLE	S10V001934		0 0	A		Cobalt	SOLID	N/A	1.1306E+01			0.99645	ug/g			
30	SAMPLE	S10V001934		0 0	A		Chromium	SOLID	N/A	5.3430E+00			0.49823	ug/g			c
30	SAMPLE	S10V001934		0 0	A		Copper	SOLID	N/A	1.3549E+01			0.49823	ug/g			
30	SAMPLE	S10V001934		0 0	A		Iron	SOLID	N/A	3.1208E+04			0.49823	ug/g			
30	SAMPLE	S10V001934		0 0	A		Potassium	SOLID	N/A	5.8647E+02			49.823	ug/g			
30	SAMPLE	S10V001934		0 0	A		Lanthanum	SOLID	N/A	1.3046E+01			0.29894	ug/g			
30	SAMPLE	S10V001934		0 0	A		Lithium	SOLID	N/A	3.5618E+00			0.29894	ug/g			
30	SAMPLE	S10V001934		0 0	A		Magnesium	SOLID	N/A	4.3543E+03			4.9823	ug/g			
30	SAMPLE	S10V001934		0 0	A		Manganese	SOLID	N/A	3.8663E+02			0.29894	ug/g			
30	SAMPLE	S10V001934		0 0	A		Molybdenum	SOLID	N/A	<1.9929E+00			1.9929	ug/g			U
30	SAMPLE	S10V001934		0 0	A		Sodium	SOLID	N/A	6.2696E+02			9.9645	ug/g			c

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# 00023817

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
30	SAMPLE	S10V001934		0 0	A		Nickel	SOLID	N/A	6.6103E+00			1.9929	ug/g			J
30	SAMPLE	S10V001934		0 0	A		Phosphorus	SOLID	N/A	1.3458E+03			4.9823	ug/g			
30	SAMPLE	S10V001934		0 0	A		Sulfur	SOLID	N/A	1.4526E+02			9.9645	ug/g			
30	SAMPLE	S10V001934		0 0	A		Silicon	SOLID	N/A	6.8975E+01			2.9894	ug/g			bc
30	SAMPLE	S10V001934		0 0	A		Strontium	SOLID	N/A	2.0151E+01			0.29894	ug/g			bc
30	SAMPLE	S10V001934		0 0	A		Titanium	SOLID	N/A	2.4382E+03			0.49823	ug/g			
30	SAMPLE	S10V001934		0 0	A		Vanadium	SOLID	N/A	8.2553E+01			0.49823	ug/g			
30	SAMPLE	S10V001934		0 0	A		Yttrium	SOLID	N/A	1.5883E+01			0.19929	ug/g			
30	SAMPLE	S10V001934		0 0	A		Zinc	SOLID	N/A	5.3026E+01			0.49823	ug/g			
30	SAMPLE	S10V001934		0 0	A		Zirconium	SOLID	N/A	1.9306E+01			0.49823	ug/g			b
Sample Sequence 31																	
31	SAMPLE	S10V001954		0 0	A		Aluminum	SOLID	N/A	6.9339E+03			2.9527	ug/g			
31	SAMPLE	S10V001954		0 0	A		Barium	SOLID	N/A	8.9697E+01			0.29527	ug/g			
31	SAMPLE	S10V001954		0 0	A		Beryllium	SOLID	N/A	1.3622E-01			0.098423	ug/g			J
31	SAMPLE	S10V001954		0 0	A		Calcium	SOLID	N/A	8.9427E+03			4.9212	ug/g			
31	SAMPLE	S10V001954		0 0	A		Cerium	SOLID	N/A	2.2226E+01			2.9527	ug/g			Jb
31	SAMPLE	S10V001954		0 0	A		Cobalt	SOLID	N/A	1.0258E+01			0.98423	ug/g			
31	SAMPLE	S10V001954		0 0	A		Chromium	SOLID	N/A	2.6771E+01			0.49212	ug/g			c
31	SAMPLE	S10V001954		0 0	A		Copper	SOLID	N/A	1.1204E+01			0.49212	ug/g			
31	SAMPLE	S10V001954		0 0	A		Iron	SOLID	N/A	2.6785E+04			0.49212	ug/g			
31	SAMPLE	S10V001954		0 0	A		Potassium	SOLID	N/A	7.9155E+02			49.212	ug/g			
31	SAMPLE	S10V001954		0 0	A		Lanthanum	SOLID	N/A	9.3098E+00			0.29527	ug/g			
31	SAMPLE	S10V001954		0 0	A		Lithium	SOLID	N/A	6.8048E+00			0.29527	ug/g			
31	SAMPLE	S10V001954		0 0	A		Magnesium	SOLID	N/A	4.4332E+03			4.9212	ug/g			
31	SAMPLE	S10V001954		0 0	A		Manganese	SOLID	N/A	4.2410E+02			0.29527	ug/g			
31	SAMPLE	S10V001954		0 0	A		Molybdenum	SOLID	N/A	<1.9685E+00			1.9685	ug/g			U
31	SAMPLE	S10V001954		0 0	A		Sodium	SOLID	N/A	5.6930E+02			9.8423	ug/g			c
31	SAMPLE	S10V001954		0 0	A		Nickel	SOLID	N/A	1.8339E+01			1.9685	ug/g			J
31	SAMPLE	S10V001954		0 0	A		Phosphorus	SOLID	N/A	7.4831E+02			4.9212	ug/g			
31	SAMPLE	S10V001954		0 0	A		Sulfur	SOLID	N/A	7.3051E+01			9.8423	ug/g			J
31	SAMPLE	S10V001954		0 0	A		Silicon	SOLID	N/A	8.2630E+01			2.9527	ug/g			bc
31	SAMPLE	S10V001954		0 0	A		Strontium	SOLID	N/A	3.5088E+01			0.29527	ug/g			bc
31	SAMPLE	S10V001954		0 0	A		Titanium	SOLID	N/A	1.9803E+03			0.49212	ug/g			
31	SAMPLE	S10V001954		0 0	A		Vanadium	SOLID	N/A	7.5093E+01			0.49212	ug/g			
31	SAMPLE	S10V001954		0 0	A		Yttrium	SOLID	N/A	9.4325E+00			0.19685	ug/g			
31	SAMPLE	S10V001954		0 0	A		Zinc	SOLID	N/A	4.2797E+01			0.49212	ug/g			
31	SAMPLE	S10V001954		0 0	A		Zirconium	SOLID	N/A	1.8656E+01			0.49212	ug/g			b
Sample Sequence 32																	
32	SAMPLE	S10V002038		0 0	A		Aluminum	SOLID	N/A	7.3096E+03			2.9907	ug/g			
32	SAMPLE	S10V002038		0 0	A		Barium	SOLID	N/A	8.4821E+01			0.29907	ug/g			
32	SAMPLE	S10V002038		0 0	A		Beryllium	SOLID	N/A	1.6070E-01			0.099691	ug/g			J
32	SAMPLE	S10V002038		0 0	A		Calcium	SOLID	N/A	8.7720E+03			4.9845	ug/g			
32	SAMPLE	S10V002038		0 0	A		Cerium	SOLID	N/A	2.3311E+01			2.9907	ug/g			Jb

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00023817

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
32	SAMPLE	S10V002038		0 0	A		Cobalt	SOLID	N/A	1.0649E+01			0.99691	ug/g			
32	SAMPLE	S10V002038		0 0	A		Chromium	SOLID	N/A	2.2829E+01			0.49845	ug/g			c
32	SAMPLE	S10V002038		0 0	A		Copper	SOLID	N/A	1.0568E+01			0.49845	ug/g			
32	SAMPLE	S10V002038		0 0	A		Iron	SOLID	N/A	2.4863E+04			0.49845	ug/g			
32	SAMPLE	S10V002038		0 0	A		Potassium	SOLID	N/A	9.1460E+02			49.845	ug/g			
32	SAMPLE	S10V002038		0 0	A		Lanthanum	SOLID	N/A	9.3877E+00			0.29907	ug/g			
32	SAMPLE	S10V002038		0 0	A		Lithium	SOLID	N/A	7.2858E+00			0.29907	ug/g			
32	SAMPLE	S10V002038		0 0	A		Magnesium	SOLID	N/A	4.4892E+03			4.9845	ug/g			
32	SAMPLE	S10V002038		0 0	A		Manganese	SOLID	N/A	4.0886E+02			0.29907	ug/g			
32	SAMPLE	S10V002038		0 0	A		Molybdenum	SOLID	N/A	<1.9938E+00			1.9938	ug/g			U
32	SAMPLE	S10V002038		0 0	A		Sodium	SOLID	N/A	4.4409E+02			9.9691	ug/g			c
32	SAMPLE	S10V002038		0 0	A		Nickel	SOLID	N/A	1.4646E+01			1.9938	ug/g			J
32	SAMPLE	S10V002038		0 0	A		Phosphorus	SOLID	N/A	6.7305E+02			4.9845	ug/g			
32	SAMPLE	S10V002038		0 0	A		Sulfur	SOLID	N/A	6.2564E+01			9.9691	ug/g			J
32	SAMPLE	S10V002038		0 0	A		Silicon	SOLID	N/A	9.4543E+01			2.9907	ug/g			bc
32	SAMPLE	S10V002038		0 0	A		Strontium	SOLID	N/A	3.5855E+01			0.29907	ug/g			bc
32	SAMPLE	S10V002038		0 0	A		Titanium	SOLID	N/A	1.8478E+03			0.49845	ug/g			
32	SAMPLE	S10V002038		0 0	A		Vanadium	SOLID	N/A	7.1186E+01			0.49845	ug/g			
32	SAMPLE	S10V002038		0 0	A		Yttrium	SOLID	N/A	8.5540E+00			0.19938	ug/g			
32	SAMPLE	S10V002038		0 0	A		Zinc	SOLID	N/A	4.2013E+01			0.49845	ug/g			
32	SAMPLE	S10V002038		0 0	A		Zirconium	SOLID	N/A	1.5742E+01			0.49845	ug/g			b
Sample Sequence 33																	
33	SAMPLE	S10V002060		0 0	A		Aluminum	SOLID	N/A	7.5186E+03			2.9737	ug/g			
33	SAMPLE	S10V002060		0 0	A		Barium	SOLID	N/A	6.2363E+01			0.29737	ug/g			
33	SAMPLE	S10V002060		0 0	A		Beryllium	SOLID	N/A	1.7128E-01			0.099122	ug/g			J
33	SAMPLE	S10V002060		0 0	A		Calcium	SOLID	N/A	9.9426E+03			4.9561	ug/g			
33	SAMPLE	S10V002060		0 0	A		Cerium	SOLID	N/A	2.1342E+01			2.9737	ug/g			Jb
33	SAMPLE	S10V002060		0 0	A		Cobalt	SOLID	N/A	7.2314E+00			0.99122	ug/g			J
33	SAMPLE	S10V002060		0 0	A		Chromium	SOLID	N/A	2.1463E+01			0.49561	ug/g			c
33	SAMPLE	S10V002060		0 0	A		Copper	SOLID	N/A	1.2329E+01			0.49561	ug/g			
33	SAMPLE	S10V002060		0 0	A		Iron	SOLID	N/A	1.9123E+04			0.49561	ug/g			
33	SAMPLE	S10V002060		0 0	A		Potassium	SOLID	N/A	9.8534E+02			49.561	ug/g			
33	SAMPLE	S10V002060		0 0	A		Lanthanum	SOLID	N/A	9.0151E+00			0.29737	ug/g			
33	SAMPLE	S10V002060		0 0	A		Lithium	SOLID	N/A	8.3802E+00			0.29737	ug/g			
33	SAMPLE	S10V002060		0 0	A		Magnesium	SOLID	N/A	4.9370E+03			4.9561	ug/g			
33	SAMPLE	S10V002060		0 0	A		Manganese	SOLID	N/A	2.9787E+02			0.29737	ug/g			
33	SAMPLE	S10V002060		0 0	A		Molybdenum	SOLID	N/A	<1.9824E+00			1.9824	ug/g			U
33	SAMPLE	S10V002060		0 0	A		Sodium	SOLID	N/A	2.3162E+02			9.9122	ug/g			c
33	SAMPLE	S10V002060		0 0	A		Nickel	SOLID	N/A	1.8044E+01			1.9824	ug/g			J
33	SAMPLE	S10V002060		0 0	A		Phosphorus	SOLID	N/A	6.4026E+02			4.9561	ug/g			
33	SAMPLE	S10V002060		0 0	A		Sulfur	SOLID	N/A	8.1538E+01			9.9122	ug/g			J
33	SAMPLE	S10V002060		0 0	A		Silicon	SOLID	N/A	9.0152E+01			2.9737	ug/g			bc

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LABCORE Completed Batch Report for Batch# 00023817

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
33	SAMPLE	S10V002060		0 0	A		Strontium	SOLID	N/A	3.3672E+01			0.29737	ug/g			bc
33	SAMPLE	S10V002060		0 0	A		Titanium	SOLID	N/A	1.1052E+03			0.49561	ug/g			
33	SAMPLE	S10V002060		0 0	A		Vanadium	SOLID	N/A	4.3148E+01			0.49561	ug/g			
33	SAMPLE	S10V002060		0 0	A		Yttrium	SOLID	N/A	7.3020E+00			0.19824	ug/g			
33	SAMPLE	S10V002060		0 0	A		Zinc	SOLID	N/A	3.5817E+01			0.49561	ug/g			
33	SAMPLE	S10V002060		0 0	A		Zirconium	SOLID	N/A	1.0934E+01			0.49561	ug/g			b
Sample Sequence 34																	
34	SAMPLE	S10V002365		0 0	A		Aluminum	SOLID	N/A	7.9014E+03			2.9726	ug/g			
34	SAMPLE	S10V002365		0 0	A		Barium	SOLID	N/A	8.7164E+01			0.29726	ug/g			
34	SAMPLE	S10V002365		0 0	A		Beryllium	SOLID	N/A	2.1531E-01			0.099086	ug/g			J
34	SAMPLE	S10V002365		0 0	A		Calcium	SOLID	N/A	8.4104E+03			4.9543	ug/g			
34	SAMPLE	S10V002365		0 0	A		Cerium	SOLID	N/A	2.2041E+01			2.9726	ug/g			Jb
34	SAMPLE	S10V002365		0 0	A		Cobalt	SOLID	N/A	6.6451E+00			0.99086	ug/g			J
34	SAMPLE	S10V002365		0 0	A		Chromium	SOLID	N/A	2.8699E+01			0.49543	ug/g			c
34	SAMPLE	S10V002365		0 0	A		Copper	SOLID	N/A	1.0031E+01			0.49543	ug/g			
34	SAMPLE	S10V002365		0 0	A		Iron	SOLID	N/A	1.7784E+04			0.49543	ug/g			
34	SAMPLE	S10V002365		0 0	A		Potassium	SOLID	N/A	1.3849E+03			49.543	ug/g			
34	SAMPLE	S10V002365		0 0	A		Lanthanum	SOLID	N/A	1.0122E+01			0.29726	ug/g			
34	SAMPLE	S10V002365		0 0	A		Lithium	SOLID	N/A	1.0513E+01			0.29726	ug/g			
34	SAMPLE	S10V002365		0 0	A		Magnesium	SOLID	N/A	5.3341E+03			4.9543	ug/g			
34	SAMPLE	S10V002365		0 0	A		Manganese	SOLID	N/A	3.3193E+02			0.29726	ug/g			
34	SAMPLE	S10V002365		0 0	A		Molybdenum	SOLID	N/A	<1.9817E+00			1.9817	ug/g			U
34	SAMPLE	S10V002365		0 0	A		Sodium	SOLID	N/A	1.6484E+02			9.9086	ug/g			c
34	SAMPLE	S10V002365		0 0	A		Nickel	SOLID	N/A	1.8213E+01			1.9817	ug/g			J
34	SAMPLE	S10V002365		0 0	A		Phosphorus	SOLID	N/A	4.7981E+02			4.9543	ug/g			
34	SAMPLE	S10V002365		0 0	A		Sulfur	SOLID	N/A	6.2109E+01			9.9086	ug/g			J
34	SAMPLE	S10V002365		0 0	A		Silicon	SOLID	N/A	8.4764E+01			2.9726	ug/g			bc
34	SAMPLE	S10V002365		0 0	A		Strontium	SOLID	N/A	3.7676E+01			0.29726	ug/g			bc
34	SAMPLE	S10V002365		0 0	A		Titanium	SOLID	N/A	9.0662E+02			0.49543	ug/g			
34	SAMPLE	S10V002365		0 0	A		Vanadium	SOLID	N/A	3.5619E+01			0.49543	ug/g			
34	SAMPLE	S10V002365		0 0	A		Yttrium	SOLID	N/A	6.4010E+00			0.19817	ug/g			
34	SAMPLE	S10V002365		0 0	A		Zinc	SOLID	N/A	3.8631E+01			0.49543	ug/g			
34	SAMPLE	S10V002365		0 0	A		Zirconium	SOLID	N/A	7.2834E+00			0.49543	ug/g			b
Sample Sequence 35																	
35	CCV	S1011040079		0 0			Silver	LIQUID	1	9.6026E-01			5.00E-03	ug/mL	96.026	% Recovery	
35	CCV	S1011040079		0 0			Aluminum	LIQUID	5	4.9712E+00			0.03	ug/mL	99.423	% Recovery	
35	CCV	S1011040079		0 0			Arsenic	LIQUID	5	5.1182E+00			0.05	ug/mL	102.36	% Recovery	
35	CCV	S1011040079		0 0			Boron	LIQUID	5	5.0020E+00			0.03	ug/mL	100.04	% Recovery	
35	CCV	S1011040079		0 0			Barium	LIQUID	5	5.1680E+00			3.00E-03	ug/mL	103.36	% Recovery	
35	CCV	S1011040079		0 0			Beryllium	LIQUID	5	5.0476E+00			1.00E-03	ug/mL	100.95	% Recovery	
35	CCV	S1011040079		0 0			Bismuth	LIQUID	5	5.2541E+00			0.1	ug/mL	105.08	% Recovery	
35	CCV	S1011040079		0 0			Calcium	LIQUID	5	4.8377E+00			0.05	ug/mL	96.753	% Recovery	
35	CCV	S1011040079		0 0			Cadmium	LIQUID	5	5.2298E+00			5.00E-03	ug/mL	104.6	% 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# 00023817

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
36	CCV	S1011040079		0 1			Cerium	LIQUID	5	5.3973E+00			0.03	ug/mL	107.95	% Recovery	
35	CCV	S1011040079		0 0			Cobalt	LIQUID	5	5.2685E+00			0.01	ug/mL	105.37	% Recovery	
35	CCV	S1011040079		0 0			Chromium	LIQUID	5	5.3113E+00			5.00E-03	ug/mL	106.23	% Recovery	
35	CCV	S1011040079		0 0			Copper	LIQUID	5	5.0227E+00			5.00E-03	ug/mL	100.45	% Recovery	
36	CCV	S1011040079		0 1			Europium	LIQUID	5	4.9481E+00			5.00E-03	ug/mL	98.961	% Recovery	
35	CCV	S1011040079		0 0			Iron	LIQUID	5	5.1457E+00			5.00E-03	ug/mL	102.91	% Recovery	
35	CCV	S1011040079		0 0			Potassium	LIQUID	5	4.8428E+00			0.5	ug/mL	96.856	% Recovery	
35	CCV	S1011040079		0 0			Lanthanum	LIQUID	5	5.0415E+00			3.00E-03	ug/mL	100.83	% Recovery	
35	CCV	S1011040079		0 0			Lithium	LIQUID	5	4.8912E+00			3.00E-03	ug/mL	97.823	% Recovery	
35	CCV	S1011040079		0 0			Magnesium	LIQUID	5	5.0863E+00			0.05	ug/mL	101.73	% Recovery	
35	CCV	S1011040079		0 0			Manganese	LIQUID	5	5.1796E+00			3.00E-03	ug/mL	103.59	% Recovery	
35	CCV	S1011040079		0 0			Molybdenum	LIQUID	5	5.0773E+00			0.02	ug/mL	101.55	% Recovery	
35	CCV	S1011040079		0 0			Sodium	LIQUID	5	5.0109E+00			0.1	ug/mL	100.22	% Recovery	
36	CCV	S1011040079		0 1			Neodymium	LIQUID	5	5.1147E+00			0.01	ug/mL	102.29	% Recovery	
35	CCV	S1011040079		0 0			Nickel	LIQUID	5	5.2096E+00			0.02	ug/mL	104.19	% Recovery	
37	CCV	S1011040079		0 2			Niobium	LIQUID	5	5.2618E+00			0.03	ug/mL	105.24	% Recovery	
35	CCV	S1011040079		0 0			Phosphorus	LIQUID	5	4.9926E+00			0.05	ug/mL	99.852	% Recovery	
35	CCV	S1011040079		0 0			Lead	LIQUID	5	5.3802E+00			0.05	ug/mL	107.6	% Recovery	
36	CCV	S1011040079		0 1			Palladium	LIQUID	5	4.9234E+00			0.1	ug/mL	98.468	% Recovery	
36	CCV	S1011040079		0 1			Praseodymium	LIQUID	5	5.0710E+00			0.01	ug/mL	101.42	% Recovery	
36	CCV	S1011040079		0 1			Rubidium	LIQUID	5	4.6780E+00			1	ug/mL	93.56	% Recovery	
36	CCV	S1011040079		0 1			Rhodium	LIQUID	5	5.0333E+00			0.05	ug/mL	100.67	% Recovery	
36	CCV	S1011040079		0 1			Ruthenium	LIQUID	5	5.1689E+00			0.03	ug/mL	103.38	% Recovery	
35	CCV	S1011040079		0 0			Sulfur	LIQUID	5	5.1032E+00			0.1	ug/mL	102.06	% Recovery	
35	CCV	S1011040079		0 0			Antimony	LIQUID	5	4.9558E+00			0.05	ug/mL	99.117	% Recovery	
35	CCV	S1011040079		0 0			Selenium	LIQUID	5	5.2235E+00			0.1	ug/mL	104.47	% Recovery	
35	CCV	S1011040079		0 0			Silicon	LIQUID	5	4.6709E+00			0.03	ug/mL	93.419	% Recovery	
36	CCV	S1011040079		0 1			Samarium	LIQUID	5	5.1706E+00			0.02	ug/mL	103.41	% Recovery	
37	CCV	S1011040079		0 2			Tin	LIQUID	5	5.3426E+00			0.03	ug/mL	106.85	% Recovery	
35	CCV	S1011040079		0 0			Strontium	LIQUID	5	5.1116E+00			3.00E-03	ug/mL	102.23	% Recovery	
37	CCV	S1011040079		0 2			Tantalum	LIQUID	5	5.2866E+00			0.05	ug/mL	105.73	% Recovery	
37	CCV	S1011040079		0 2			Tellurium	LIQUID	5	5.4250E+00			0.1	ug/mL	108.5	% Recovery	
36	CCV	S1011040079		0 1			Thorium	LIQUID	5	4.9321E+00			0.05	ug/mL	98.642	% Recovery	
35	CCV	S1011040079		0 0			Titanium	LIQUID	5	5.0672E+00			5.00E-03	ug/mL	101.34	% Recovery	
36	CCV	S1011040079		0 1			Thallium	LIQUID	5	5.2191E+00			0.1	ug/mL	104.38	% Recovery	
36	CCV	S1011040079		0 1			Uranium	LIQUID	5	5.2898E+00			0.1	ug/mL	105.8	% Recovery	
35	CCV	S1011040079		0 0			Vanadium	LIQUID	5	5.2454E+00			5.00E-03	ug/mL	104.91	% Recovery	
37	CCV	S1011040079		0 2			Tungsten	LIQUID	5	5.2490E+00			0.2	ug/mL	104.98	% Recovery	
36	CCV	S1011040079		0 1			Yttrium	LIQUID	5	5.0712E+00			2.00E-03	ug/mL	101.42	% Recovery	
35	CCV	S1011040079		0 0			Zinc	LIQUID	5	5.0653E+00			5.00E-03	ug/mL	101.31	% Recovery	
35	CCV	S1011040079		0 0			Zirconium	LIQUID	5	4.8053E+00			5.00E-03	ug/mL	96.107	% Recovery	

Sample Sequence 38

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LABCORE Completed Batch Report for Batch# 00023817

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
38	CCB	S1011040080		0 0			Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
38	CCB	S1011040080		0 0			Aluminum	LIQUID		<3.0000E-02			0.03	ug/mL			
38	CCB	S1011040080		0 0			Arsenic	LIQUID		<5.0000E-02			0.05	ug/mL			
38	CCB	S1011040080		0 0			Boron	LIQUID		<3.0000E-02			0.03	ug/mL			
38	CCB	S1011040080		0 0			Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
38	CCB	S1011040080		0 0			Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL			
38	CCB	S1011040080		0 0			Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL			
38	CCB	S1011040080		0 0			Calcium	LIQUID		<5.0000E-02			0.05	ug/mL			
38	CCB	S1011040080		0 0			Cadmium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
38	CCB	S1011040080		0 0			Cerium	LIQUID		<3.0000E-02			0.03	ug/mL			
38	CCB	S1011040080		0 0			Cobalt	LIQUID		<1.0000E-02			0.01	ug/mL			
38	CCB	S1011040080		0 0			Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
38	CCB	S1011040080		0 0			Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
38	CCB	S1011040080		0 0			Europium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
38	CCB	S1011040080		0 0			Iron	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
38	CCB	S1011040080		0 0			Potassium	LIQUID		<5.0000E-01			0.5	ug/mL			
38	CCB	S1011040080		0 0			Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
38	CCB	S1011040080		0 0			Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
38	CCB	S1011040080		0 0			Magnesium	LIQUID		<5.0000E-02			0.05	ug/mL			
38	CCB	S1011040080		0 0			Manganese	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
38	CCB	S1011040080		0 0			Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL			
38	CCB	S1011040080		0 0			Sodium	LIQUID		<1.0000E-01			0.1	ug/mL			
38	CCB	S1011040080		0 0			Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
38	CCB	S1011040080		0 0			Nickel	LIQUID		<2.0000E-02			0.02	ug/mL			
38	CCB	S1011040080		0 0			Niobium	LIQUID		<3.0000E-02			0.03	ug/mL			
38	CCB	S1011040080		0 0			Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL			
38	CCB	S1011040080		0 0			Lead	LIQUID		<5.0000E-02			0.05	ug/mL			
38	CCB	S1011040080		0 0			Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
38	CCB	S1011040080		0 0			Rubidium	LIQUID		<1.0000E+00			1	ug/mL			
38	CCB	S1011040080		0 0			Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL			
38	CCB	S1011040080		0 0			Ruthenium	LIQUID		<3.0000E-02			0.03	ug/mL			
38	CCB	S1011040080		0 0			Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL			
38	CCB	S1011040080		0 0			Antimony	LIQUID		<5.0000E-02			0.05	ug/mL			
38	CCB	S1011040080		0 0			Selenium	LIQUID		<1.0000E-01			0.1	ug/mL			
38	CCB	S1011040080		0 0			Silicon	LIQUID		<3.0000E-02			0.03	ug/mL			
38	CCB	S1011040080		0 0			Samarium	LIQUID		<2.0000E-02			0.02	ug/mL			
38	CCB	S1011040080		0 0			Tin	LIQUID		<3.0000E-02			0.03	ug/mL			
38	CCB	S1011040080		0 0			Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
38	CCB	S1011040080		0 0			Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL			
38	CCB	S1011040080		0 0			Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL			
38	CCB	S1011040080		0 0			Thorium	LIQUID		<5.0000E-02			0.05	ug/mL			
38	CCB	S1011040080		0 0			Titanium	LIQUID		<5.0000E-03			5.00E-03	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# 00023817

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
38	CCB	S1011040080		0 0			Thallium	LIQUID		<1.0000E-01			0.1	ug/mL			
38	CCB	S1011040080		0 0			Uranium	LIQUID		<1.0000E-01			0.1	ug/mL			
38	CCB	S1011040080		0 0			Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
38	CCB	S1011040080		0 0			Tungsten	LIQUID		<2.0000E-01			0.2	ug/mL			
38	CCB	S1011040080		0 0			Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL			
38	CCB	S1011040080		0 0			Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
38	CCB	S1011040080		0 0			Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
Sample Sequence 39																	
39	SAMPLE	S10V002513		0 0	A		Aluminum	SOLID	N/A	6.1802E+03			2.9579	ug/g			
39	SAMPLE	S10V002513		0 0	A		Barium	SOLID	N/A	5.8618E+01			0.29579	ug/g			
39	SAMPLE	S10V002513		0 0	A		Beryllium	SOLID	N/A	1.7580E-01			0.098596	ug/g			J
39	SAMPLE	S10V002513		0 0	A		Calcium	SOLID	N/A	7.6655E+03			4.9298	ug/g			
39	SAMPLE	S10V002513		0 0	A		Cerium	SOLID	N/A	1.9096E+01			2.9579	ug/g			Jb
39	SAMPLE	S10V002513		0 0	A		Cobalt	SOLID	N/A	5.7391E+00			0.98596	ug/g			J
39	SAMPLE	S10V002513		0 0	A		Chromium	SOLID	N/A	1.7281E+01			0.49298	ug/g			c
39	SAMPLE	S10V002513		0 0	A		Copper	SOLID	N/A	9.0420E+00			0.49298	ug/g			
39	SAMPLE	S10V002513		0 0	A		Iron	SOLID	N/A	1.5992E+04			0.49298	ug/g			
39	SAMPLE	S10V002513		0 0	A		Potassium	SOLID	N/A	9.2304E+02			49.298	ug/g			
39	SAMPLE	S10V002513		0 0	A		Lanthanum	SOLID	N/A	8.5252E+00			0.29579	ug/g			
39	SAMPLE	S10V002513		0 0	A		Lithium	SOLID	N/A	8.6649E+00			0.29579	ug/g			
39	SAMPLE	S10V002513		0 0	A		Magnesium	SOLID	N/A	4.7012E+03			4.9298	ug/g			
39	SAMPLE	S10V002513		0 0	A		Manganese	SOLID	N/A	2.6680E+02			0.29579	ug/g			
39	SAMPLE	S10V002513		0 0	A		Molybdenum	SOLID	N/A	<1.9719E+00			1.9719	ug/g			U
39	SAMPLE	S10V002513		0 0	A		Sodium	SOLID	N/A	1.4031E+02			9.8596	ug/g			c
39	SAMPLE	S10V002513		0 0	A		Nickel	SOLID	N/A	1.4724E+01			1.9719	ug/g			J
39	SAMPLE	S10V002513		0 0	A		Phosphorus	SOLID	N/A	4.8333E+02			4.9298	ug/g			
39	SAMPLE	S10V002513		0 0	A		Sulfur	SOLID	N/A	6.2834E+01			9.8596	ug/g			J
39	SAMPLE	S10V002513		0 0	A		Silicon	SOLID	N/A	7.2772E+01			2.9579	ug/g			bc
39	SAMPLE	S10V002513		0 0	A		Strontium	SOLID	N/A	2.9369E+01			0.29579	ug/g			bc
39	SAMPLE	S10V002513		0 0	A		Titanium	SOLID	N/A	7.9543E+02			0.49298	ug/g			
39	SAMPLE	S10V002513		0 0	A		Vanadium	SOLID	N/A	3.0995E+01			0.49298	ug/g			
39	SAMPLE	S10V002513		0 0	A		Yttrium	SOLID	N/A	5.5305E+00			0.19719	ug/g			
39	SAMPLE	S10V002513		0 0	A		Zinc	SOLID	N/A	3.2023E+01			0.49298	ug/g			
39	SAMPLE	S10V002513		0 0	A		Zirconium	SOLID	N/A	6.4737E+00			0.49298	ug/g			b
Sample Sequence 40																	
40	SAMPLE	S10V002808		0 0	A		Aluminum	SOLID	N/A	5.3893E+03			2.9613	ug/g			
40	SAMPLE	S10V002808		0 0	A		Barium	SOLID	N/A	5.7028E+01			0.29613	ug/g			
40	SAMPLE	S10V002808		0 0	A		Beryllium	SOLID	N/A	1.1154E-01			0.098711	ug/g			J
40	SAMPLE	S10V002808		0 0	A		Calcium	SOLID	N/A	7.7697E+03			4.9355	ug/g			
40	SAMPLE	S10V002808		0 0	A		Cerium	SOLID	N/A	1.5900E+01			2.9613	ug/g			Jb
40	SAMPLE	S10V002808		0 0	A		Cobalt	SOLID	N/A	4.9413E+00			0.98711	ug/g			J
40	SAMPLE	S10V002808		0 0	A		Chromium	SOLID	N/A	1.1043E+01			0.49355	ug/g			c
40	SAMPLE	S10V002808		0 0	A		Copper	SOLID	N/A	9.3698E+00			0.49355	ug/g			

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LABCORE Completed Batch Report for Batch# 00023817

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
40	SAMPLE	S10V002808		0 0	A		Iron	SOLID	N/A	1.5666E+04			0.49355	ug/g			
40	SAMPLE	S10V002808		0 0	A		Potassium	SOLID	N/A	6.7356E+02			49.355	ug/g			
40	SAMPLE	S10V002808		0 0	A		Lanthanum	SOLID	N/A	7.3878E+00			0.29613	ug/g			
40	SAMPLE	S10V002808		0 0	A		Lithium	SOLID	N/A	6.9370E+00			0.29613	ug/g			
40	SAMPLE	S10V002808		0 0	A		Magnesium	SOLID	N/A	4.1207E+03			4.9355	ug/g			
40	SAMPLE	S10V002808		0 0	A		Manganese	SOLID	N/A	2.4977E+02			0.29613	ug/g			
40	SAMPLE	S10V002808		0 0	A		Molybdenum	SOLID	N/A	<1.9742E+00			1.9742	ug/g			U
40	SAMPLE	S10V002808		0 0	A		Sodium	SOLID	N/A	3.1211E+02			9.8711	ug/g			c
40	SAMPLE	S10V002808		0 0	A		Nickel	SOLID	N/A	8.6519E+00			1.9742	ug/g			J
40	SAMPLE	S10V002808		0 0	A		Phosphorus	SOLID	N/A	5.0759E+02			4.9355	ug/g			
40	SAMPLE	S10V002808		0 0	A		Sulfur	SOLID	N/A	1.0525E+02			9.8711	ug/g			
40	SAMPLE	S10V002808		0 0	A		Silicon	SOLID	N/A	4.6858E+01			2.9613	ug/g			bc
40	SAMPLE	S10V002808		0 0	A		Strontium	SOLID	N/A	2.4907E+01			0.29613	ug/g			bc
40	SAMPLE	S10V002808		0 0	A		Titanium	SOLID	N/A	9.8990E+02			0.49355	ug/g			
40	SAMPLE	S10V002808		0 0	A		Vanadium	SOLID	N/A	3.5083E+01			0.49355	ug/g			
40	SAMPLE	S10V002808		0 0	A		Yttrium	SOLID	N/A	6.2328E+00			0.19742	ug/g			
40	SAMPLE	S10V002808		0 0	A		Zinc	SOLID	N/A	2.9841E+01			0.49355	ug/g			
40	SAMPLE	S10V002808		0 0	A		Zirconium	SOLID	N/A	8.6703E+00			0.49355	ug/g			b
Sample Sequence 41																	
41	ICSA	S1011040077		0 0			Aluminum	LIQUID	200	1.9391E+02			0.03	ug/mL	96.953	% Recovery	
41	ICSA	S1011040077		0 0			Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
41	ICSA	S1011040077		0 0			Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL	N/A		
41	ICSA	S1011040077		0 0			Calcium	LIQUID	200	1.8971E+02			0.05	ug/mL	94.856	% Recovery	
41	ICSA	S1011040077		0 0			Cerium	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
41	ICSA	S1011040077		0 0			Cobalt	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
41	ICSA	S1011040077		0 0			Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
41	ICSA	S1011040077		0 0			Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
41	ICSA	S1011040077		0 0			Iron	LIQUID	200	1.8592E+02			5.00E-03	ug/mL	92.962	% Recovery	
41	ICSA	S1011040077		0 0			Potassium	LIQUID		<5.0000E-01			0.5	ug/mL	N/A		
41	ICSA	S1011040077		0 0			Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
41	ICSA	S1011040077		0 0			Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
41	ICSA	S1011040077		0 0			Magnesium	LIQUID	200	1.9321E+02			0.05	ug/mL	96.607	% Recovery	
41	ICSA	S1011040077		0 0			Manganese	LIQUID		5.0960E-02			3.00E-03	ug/mL	N/A		
41	ICSA	S1011040077		0 0			Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
41	ICSA	S1011040077		0 0			Sodium	LIQUID	200	1.7188E+02			0.1	ug/mL	85.94	% Recovery	
41	ICSA	S1011040077		0 0			Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
41	ICSA	S1011040077		0 0			Nickel	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
41	ICSA	S1011040077		0 0			Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
41	ICSA	S1011040077		0 0			Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
41	ICSA	S1011040077		0 0			Silicon	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
41	ICSA	S1011040077		0 0			Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
41	ICSA	S1011040077		0 0			Titanium	LIQUID		<5.0000E-03			5.00E-03	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# 00023817

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
41	ICSA	S1011040077		0 0			Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
41	ICSA	S1011040077		0 0			Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL	N/A		
41	ICSA	S1011040077		0 0			Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
41	ICSA	S1011040077		0 0			Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
Sample Sequence 42																	
42	ICSAB	S1011040078		0 0			Aluminum	LIQUID	200	1.9558E+02			0.03	ug/mL	97.788	% Recovery	
42	ICSAB	S1011040078		0 0			Barium	LIQUID	1	9.3149E-01			3.00E-03	ug/mL	93.149	% Recovery	
42	ICSAB	S1011040078		0 0			Beryllium	LIQUID	.1	8.9500E-02			1.00E-03	ug/mL	89.5	% Recovery	
42	ICSAB	S1011040078		0 0			Calcium	LIQUID	200	1.8876E+02			0.05	ug/mL	94.381	% Recovery	
42	ICSAB	S1011040078		0 0			Cerium	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
42	ICSAB	S1011040078		0 0			Cobalt	LIQUID	5	4.8458E+00			0.01	ug/mL	96.915	% Recovery	
42	ICSAB	S1011040078		0 0			Chromium	LIQUID	5	4.8214E+00			5.00E-03	ug/mL	96.427	% Recovery	
42	ICSAB	S1011040078		0 0			Copper	LIQUID	5	5.0069E+00			5.00E-03	ug/mL	100.14	% Recovery	
42	ICSAB	S1011040078		0 0			Iron	LIQUID	200	1.8734E+02			5.00E-03	ug/mL	93.668	% Recovery	
42	ICSAB	S1011040078		0 0			Potassium	LIQUID		<5.0000E-01			0.5	ug/mL	N/A		
42	ICSAB	S1011040078		0 0			Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
42	ICSAB	S1011040078		0 0			Lithium	LIQUID	1	8.9340E-01			3.00E-03	ug/mL	89.34	% Recovery	
42	ICSAB	S1011040078		0 0			Magnesium	LIQUID	200	1.9312E+02			0.05	ug/mL	96.562	% Recovery	
42	ICSAB	S1011040078		0 0			Manganese	LIQUID	5	4.8346E+00			3.00E-03	ug/mL	96.691	% Recovery	
42	ICSAB	S1011040078		0 0			Molybdenum	LIQUID	5	4.7507E+00			0.02	ug/mL	95.015	% Recovery	
42	ICSAB	S1011040078		0 0			Sodium	LIQUID	200	1.7126E+02			0.1	ug/mL	85.628	% Recovery	
42	ICSAB	S1011040078		0 0			Neodymium	LIQUID		8.1250E-02			0.01	ug/mL	N/A		
42	ICSAB	S1011040078		0 0			Nickel	LIQUID	5	4.7442E+00			0.02	ug/mL	94.885	% Recovery	
42	ICSAB	S1011040078		0 0			Phosphorus	LIQUID	1	9.6228E-01			0.05	ug/mL	96.228	% Recovery	
42	ICSAB	S1011040078		0 0			Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
42	ICSAB	S1011040078		0 0			Silicon	LIQUID	5	4.7522E+00			0.03	ug/mL	95.043	% Recovery	
42	ICSAB	S1011040078		0 0			Strontium	LIQUID	1	9.4510E-01			3.00E-03	ug/mL	94.51	% Recovery	
42	ICSAB	S1011040078		0 0			Titanium	LIQUID	50	4.7722E+01			5.00E-03	ug/mL	95.444	% Recovery	
42	ICSAB	S1011040078		0 0			Vanadium	LIQUID	1	9.7856E-01			5.00E-03	ug/mL	97.856	% Recovery	
42	ICSAB	S1011040078		0 0			Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL	N/A		
42	ICSAB	S1011040078		0 0			Zinc	LIQUID	5	4.8877E+00			5.00E-03	ug/mL	97.753	% Recovery	
42	ICSAB	S1011040078		0 0			Zirconium	LIQUID	5	4.4628E+00			5.00E-03	ug/mL	89.255	% Recovery	
Sample Sequence 43																	
43	CCV	S1011040082		0 0			Silver	LIQUID	1	9.6622E-01			5.00E-03	ug/mL	96.622	% Recovery	
43	CCV	S1011040082		0 0			Aluminum	LIQUID	5	5.0250E+00			0.03	ug/mL	100.5	% Recovery	
43	CCV	S1011040082		0 0			Arsenic	LIQUID	5	5.1855E+00			0.05	ug/mL	103.71	% Recovery	
43	CCV	S1011040082		0 0			Boron	LIQUID	5	5.0492E+00			0.03	ug/mL	100.98	% Recovery	
43	CCV	S1011040082		0 0			Barium	LIQUID	5	5.2529E+00			3.00E-03	ug/mL	105.06	% Recovery	
43	CCV	S1011040082		0 0			Beryllium	LIQUID	5	5.0969E+00			1.00E-03	ug/mL	101.94	% Recovery	
43	CCV	S1011040082		0 0			Bismuth	LIQUID	5	5.2108E+00			0.1	ug/mL	104.22	% Recovery	
43	CCV	S1011040082		0 0			Calcium	LIQUID	5	4.8223E+00			0.05	ug/mL	96.446	% Recovery	
43	CCV	S1011040082		0 0			Cadmium	LIQUID	5	5.2620E+00			5.00E-03	ug/mL	105.24	% Recovery	
44	CCV	S1011040082		0 1			Cerium	LIQUID	5	5.5187E+00			0.03	ug/mL	110.37	% Recovery	

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LABCORE Completed Batch Report for Batch# 00023817

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
43	CCV	S1011040082		0 0			Cobalt	LIQUID	5	5.2897E+00			0.01	ug/mL	105.79	% Recovery	
43	CCV	S1011040082		0 0			Chromium	LIQUID	5	5.3097E+00			5.00E-03	ug/mL	106.19	% Recovery	
43	CCV	S1011040082		0 0			Copper	LIQUID	5	5.1264E+00			5.00E-03	ug/mL	102.53	% Recovery	
44	CCV	S1011040082		0 1			Europium	LIQUID	5	5.0683E+00			5.00E-03	ug/mL	101.37	% Recovery	
43	CCV	S1011040082		0 0			Iron	LIQUID	5	5.1801E+00			5.00E-03	ug/mL	103.6	% Recovery	
43	CCV	S1011040082		0 0			Potassium	LIQUID	5	4.6751E+00			0.5	ug/mL	93.502	% Recovery	
43	CCV	S1011040082		0 0			Lanthanum	LIQUID	5	5.1212E+00			3.00E-03	ug/mL	102.42	% Recovery	
43	CCV	S1011040082		0 0			Lithium	LIQUID	5	5.0235E+00			3.00E-03	ug/mL	100.47	% Recovery	
43	CCV	S1011040082		0 0			Magnesium	LIQUID	5	5.1430E+00			0.05	ug/mL	102.86	% Recovery	
43	CCV	S1011040082		0 0			Manganese	LIQUID	5	5.2009E+00			3.00E-03	ug/mL	104.02	% Recovery	
43	CCV	S1011040082		0 0			Molybdenum	LIQUID	5	5.1278E+00			0.02	ug/mL	102.56	% Recovery	
43	CCV	S1011040082		0 0			Sodium	LIQUID	5	5.1512E+00			0.1	ug/mL	103.02	% Recovery	
44	CCV	S1011040082		0 1			Neodymium	LIQUID	5	5.1924E+00			0.01	ug/mL	103.85	% Recovery	
43	CCV	S1011040082		0 0			Nickel	LIQUID	5	5.1888E+00			0.02	ug/mL	103.78	% Recovery	
45	CCV	S1011040082		0 2			Niobium	LIQUID	5	5.2626E+00			0.03	ug/mL	105.25	% Recovery	
43	CCV	S1011040082		0 0			Phosphorus	LIQUID	5	5.1496E+00			0.05	ug/mL	102.99	% Recovery	
43	CCV	S1011040082		0 0			Lead	LIQUID	5	5.3641E+00			0.05	ug/mL	107.28	% Recovery	
44	CCV	S1011040082		0 1			Palladium	LIQUID	5	5.0000E+00			0.1	ug/mL	100	% Recovery	
44	CCV	S1011040082		0 1			Praseodymium	LIQUID	5	5.1731E+00			0.01	ug/mL	103.46	% Recovery	
44	CCV	S1011040082		0 1			Rhodium	LIQUID	5	5.0759E+00			0.05	ug/mL	101.52	% Recovery	
44	CCV	S1011040082		0 1			Ruthenium	LIQUID	5	5.2669E+00			0.03	ug/mL	105.34	% Recovery	
43	CCV	S1011040082		0 0			Sulfur	LIQUID	5	5.1408E+00			0.1	ug/mL	102.82	% Recovery	
43	CCV	S1011040082		0 0			Antimony	LIQUID	5	5.0248E+00			0.05	ug/mL	100.5	% Recovery	
43	CCV	S1011040082		0 0			Selenium	LIQUID	5	5.3036E+00			0.1	ug/mL	106.07	% Recovery	
43	CCV	S1011040082		0 0			Silicon	LIQUID	5	4.7228E+00			0.03	ug/mL	94.455	% Recovery	
44	CCV	S1011040082		0 1			Samarium	LIQUID	5	5.2649E+00			0.02	ug/mL	105.3	% Recovery	
45	CCV	S1011040082		0 2			Tin	LIQUID	5	5.3102E+00			0.03	ug/mL	106.2	% Recovery	
43	CCV	S1011040082		0 0			Strontium	LIQUID	5	5.1832E+00			3.00E-03	ug/mL	103.66	% Recovery	
45	CCV	S1011040082		0 2			Tantalum	LIQUID	5	5.2901E+00			0.05	ug/mL	105.8	% Recovery	
45	CCV	S1011040082		0 2			Tellurium	LIQUID	5	5.2859E+00			0.1	ug/mL	105.72	% Recovery	
44	CCV	S1011040082		0 1			Thorium	LIQUID	5	5.0305E+00			0.05	ug/mL	100.61	% Recovery	
43	CCV	S1011040082		0 0			Titanium	LIQUID	5	5.1040E+00			5.00E-03	ug/mL	102.08	% Recovery	
44	CCV	S1011040082		0 1			Thallium	LIQUID	5	5.3624E+00			0.1	ug/mL	107.25	% Recovery	
44	CCV	S1011040082		0 1			Uranium	LIQUID	5	5.4133E+00			0.1	ug/mL	108.27	% Recovery	
43	CCV	S1011040082		0 0			Vanadium	LIQUID	5	5.2758E+00			5.00E-03	ug/mL	105.52	% Recovery	
45	CCV	S1011040082		0 2			Tungsten	LIQUID	5	5.3820E+00			0.2	ug/mL	107.64	% Recovery	
44	CCV	S1011040082		0 1			Yttrium	LIQUID	5	5.1717E+00			2.00E-03	ug/mL	103.43	% Recovery	
43	CCV	S1011040082		0 0			Zinc	LIQUID	5	5.0828E+00			5.00E-03	ug/mL	101.66	% Recovery	
43	CCV	S1011040082		0 0			Zirconium	LIQUID	5	4.8564E+00			5.00E-03	ug/mL	97.129	% Recovery	
Sample Sequence 46																	
46	LLS	S1011040083		0 0			Silver	LIQUID	.02	1.9870E-02			5.00E-03	ug/mL	99.35	% Recovery	
47	LLS	S1011040083		0 1			Aluminum	LIQUID	.1	1.0482E-01			0.03	ug/mL	104.82	% Recovery	

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LABCORE Completed Batch Report for Batch# 00023817

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
46	LLS	S1011040083		0 0			Arsenic	LIQUID	.2	2.1963E-01			0.05	ug/mL	109.82	% Recovery	
48	LLS	S1011040083		0 2			Boron	LIQUID	.1	9.9190E-02			0.03	ug/mL	99.19	% Recovery	
47	LLS	S1011040083		0 1			Barium	LIQUID	.01	1.0040E-02			3.00E-03	ug/mL	100.4	% Recovery	
46	LLS	S1011040083		0 0			Beryllium	LIQUID	.001	1.0000E-03			1.00E-03	ug/mL	100	% Recovery	
46	LLS	S1011040083		0 0			Bismuth	LIQUID	.2	1.5181E-01			0.1	ug/mL	75.905	% Recovery	
46	LLS	S1011040083		0 0			Calcium	LIQUID	.2	1.4430E-01			0.05	ug/mL	72.15	% Recovery	
47	LLS	S1011040083		0 1			Cadmium	LIQUID	.01	9.6000E-03			5.00E-03	ug/mL	96	% Recovery	
47	LLS	S1011040083		0 1			Cerium	LIQUID	.2	2.1262E-01			0.03	ug/mL	106.31	% Recovery	
48	LLS	S1011040083		0 2			Cobalt	LIQUID	.04	3.7420E-02			0.01	ug/mL	93.55	% Recovery	
46	LLS	S1011040083		0 0			Chromium	LIQUID	.02	2.1400E-02			5.00E-03	ug/mL	107	% Recovery	
48	LLS	S1011040083		0 2			Copper	LIQUID	.02	2.0900E-02			5.00E-03	ug/mL	104.5	% Recovery	
49	LLS	S1011040083		0 3			Europium	LIQUID	.1	9.4980E-02			5.00E-03	ug/mL	94.98	% Recovery	
46	LLS	S1011040083		0 0			Iron	LIQUID	.05	4.9080E-02			5.00E-03	ug/mL	98.16	% Recovery	
47	LLS	S1011040083		0 1			Potassium	LIQUID	.5	4.9904E-01			0.1	ug/mL	99.808	% Recovery	
46	LLS	S1011040083		0 0			Lanthanum	LIQUID	.01	1.1330E-02			3.00E-03	ug/mL	113.3	% Recovery	
46	LLS	S1011040083		0 0			Lithium	LIQUID	.02	2.0870E-02			3.00E-03	ug/mL	104.35	% Recovery	
46	LLS	S1011040083		0 0			Magnesium	LIQUID	.2	1.9081E-01			0.05	ug/mL	95.405	% Recovery	
46	LLS	S1011040083		0 0			Manganese	LIQUID	.02	2.0520E-02			3.00E-03	ug/mL	102.6	% Recovery	
48	LLS	S1011040083		0 2			Molybdenum	LIQUID	.1	9.4330E-02			0.02	ug/mL	94.33	% Recovery	
46	LLS	S1011040083		0 0			Sodium	LIQUID	.2	2.1714E-01			0.1	ug/mL	108.57	% Recovery	
46	LLS	S1011040083		0 0			Neodymium	LIQUID	.1	1.0034E-01			0.01	ug/mL	100.34	% Recovery	
47	LLS	S1011040083		0 1			Nickel	LIQUID	.04	2.9050E-02			0.02	ug/mL	72.625	% Recovery	
51	LLS	S1011040083		0 5			Niobium	LIQUID	.1	1.1850E-01			0.03	ug/mL	118.5	% Recovery	
48	LLS	S1011040083		0 2			Phosphorus	LIQUID	.4	4.2754E-01			0.05	ug/mL	106.88	% Recovery	
46	LLS	S1011040083		0 0			Lead	LIQUID	.2	2.4034E-01			0.05	ug/mL	120.17	% Recovery	
50	LLS	S1011040083		0 4			Palladium	LIQUID	1	1.0912E+00			0.1	ug/mL	109.12	% Recovery	
49	LLS	S1011040083		0 3			Praseodymium	LIQUID	.1	1.0625E-01			0.01	ug/mL	106.25	% Recovery	
50	LLS	S1011040083		0 4			Rhodium	LIQUID	.1	9.6490E-02			0.05	ug/mL	96.49	% Recovery	
50	LLS	S1011040083		0 4			Ruthenium	LIQUID	.1	1.0059E-01			0.03	ug/mL	100.59	% Recovery	
48	LLS	S1011040083		0 2			Sulfur	LIQUID	.2	1.8623E-01			0.1	ug/mL	93.115	% Recovery	
48	LLS	S1011040083		0 2			Antimony	LIQUID	.1	9.1580E-02			0.05	ug/mL	91.58	% Recovery	
46	LLS	S1011040083		0 0			Selenium	LIQUID	.2	2.3213E-01			0.1	ug/mL	116.06	% Recovery	
48	LLS	S1011040083		0 2			Silicon	LIQUID	.1	9.5570E-02			0.03	ug/mL	95.57	% Recovery	
46	LLS	S1011040083		0 0			Samarium	LIQUID	.1	1.1457E-01			0.02	ug/mL	114.57	% Recovery	
51	LLS	S1011040083		0 5			Tin	LIQUID	.1	8.3360E-02			0.03	ug/mL	83.36	% Recovery	
46	LLS	S1011040083		0 0			Strontium	LIQUID	.02	2.0490E-02			3.00E-03	ug/mL	102.45	% Recovery	
51	LLS	S1011040083		0 5			Tantalum	LIQUID	1	1.0404E+00			0.05	ug/mL	104.04	% Recovery	
51	LLS	S1011040083		0 5			Tellurium	LIQUID	1	1.0379E+00			0.1	ug/mL	103.79	% Recovery	
49	LLS	S1011040083		0 3			Thorium	LIQUID	.1	9.3290E-02			0.05	ug/mL	93.29	% Recovery	
48	LLS	S1011040083		0 2			Titanium	LIQUID	.02	1.9850E-02			5.00E-03	ug/mL	99.25	% Recovery	
47	LLS	S1011040083		0 1			Thallium	LIQUID	.4	3.7931E-01			0.1	ug/mL	94.828	% Recovery	
48	LLS	S1011040083		0 2			Uranium	LIQUID	.5	5.3681E-01			0.1	ug/mL	107.36	% 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# 00023817

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
48	LLS	S1011040083		0 2			Vanadium	LIQUID	.05	5.0870E-02			5.00E-03	ug/mL	101.74	% Recovery	
51	LLS	S1011040083		0 5			Tungsten	LIQUID	1	1.0983E+00			0.2	ug/mL	109.83	% Recovery	
49	LLS	S1011040083		0 3			Yttrium	LIQUID	.1	9.9630E-02			2.00E-03	ug/mL	99.63	% Recovery	
48	LLS	S1011040083		0 2			Zinc	LIQUID	.02	1.7560E-02			5.00E-03	ug/mL	87.8	% Recovery	
48	LLS	S1011040083		0 2			Zirconium	LIQUID	.02	1.8950E-02			5.00E-03	ug/mL	94.75	% Recovery	
Sample Sequence 52																	
52	CCB	S1011040081		0 0			Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
52	CCB	S1011040081		0 0			Aluminum	LIQUID		<3.0000E-02			0.03	ug/mL			
52	CCB	S1011040081		0 0			Arsenic	LIQUID		<5.0000E-02			0.05	ug/mL			
52	CCB	S1011040081		0 0			Boron	LIQUID		<3.0000E-02			0.03	ug/mL			
52	CCB	S1011040081		0 0			Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
52	CCB	S1011040081		0 0			Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL			
53	CCB	S1011040081		0 1			Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL			
53	CCB	S1011040081		0 1			Calcium	LIQUID		<5.0000E-02			0.05	ug/mL			
52	CCB	S1011040081		0 0			Cadmium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
52	CCB	S1011040081		0 0			Cerium	LIQUID		<3.0000E-02			0.03	ug/mL			
53	CCB	S1011040081		0 1			Cobalt	LIQUID		<1.0000E-02			0.01	ug/mL			
52	CCB	S1011040081		0 0			Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
52	CCB	S1011040081		0 0			Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
52	CCB	S1011040081		0 0			Europium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
52	CCB	S1011040081		0 0			Iron	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
52	CCB	S1011040081		0 0			Potassium	LIQUID		<5.0000E-01			0.5	ug/mL			
52	CCB	S1011040081		0 0			Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
52	CCB	S1011040081		0 0			Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
53	CCB	S1011040081		0 1			Magnesium	LIQUID		<5.0000E-02			0.05	ug/mL			
52	CCB	S1011040081		0 0			Manganese	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
52	CCB	S1011040081		0 0			Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL			
52	CCB	S1011040081		0 0			Sodium	LIQUID		<1.0000E-01			0.1	ug/mL			
52	CCB	S1011040081		0 0			Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
52	CCB	S1011040081		0 0			Nickel	LIQUID		<2.0000E-02			0.02	ug/mL			
52	CCB	S1011040081		0 0			Niobium	LIQUID		<3.0000E-02			0.03	ug/mL			
52	CCB	S1011040081		0 0			Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL			
52	CCB	S1011040081		0 0			Lead	LIQUID		<5.0000E-02			0.05	ug/mL			
53	CCB	S1011040081		0 1			Palladium	LIQUID		<1.0000E-01			0.1	ug/mL			
53	CCB	S1011040081		0 1			Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
52	CCB	S1011040081		0 0			Rubidium	LIQUID		<1.0000E+00			1	ug/mL			
53	CCB	S1011040081		0 1			Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL			
53	CCB	S1011040081		0 1			Ruthenium	LIQUID		<3.0000E-02			0.03	ug/mL			
52	CCB	S1011040081		0 0			Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL			
53	CCB	S1011040081		0 1			Antimony	LIQUID		<5.0000E-02			0.05	ug/mL			
53	CCB	S1011040081		0 1			Selenium	LIQUID		<1.0000E-01			0.1	ug/mL			
52	CCB	S1011040081		0 0			Silicon	LIQUID		<3.0000E-02			0.03	ug/mL			

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

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LABCORE Completed Batch Report for Batch# 00023817

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
53	CCB	S1011040081		0 1			Samarium	LIQUID		<2.0000E-02			0.02	ug/mL			
53	CCB	S1011040081		0 1			Tin	LIQUID		<3.0000E-02			0.03	ug/mL			
52	CCB	S1011040081		0 0			Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
53	CCB	S1011040081		0 1			Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL			
53	CCB	S1011040081		0 1			Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL			
52	CCB	S1011040081		0 0			Thorium	LIQUID		<5.0000E-02			0.05	ug/mL			
52	CCB	S1011040081		0 0			Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
52	CCB	S1011040081		0 0			Thallium	LIQUID		<1.0000E-01			0.1	ug/mL			
52	CCB	S1011040081		0 0			Uranium	LIQUID		<1.0000E-01			0.1	ug/mL			
53	CCB	S1011040081		0 1			Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
53	CCB	S1011040081		0 1			Tungsten	LIQUID		<2.0000E-01			0.2	ug/mL			
52	CCB	S1011040081		0 0			Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL			
53	CCB	S1011040081		0 1			Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
52	CCB	S1011040081		0 0			Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00023817

Reviewer Signature **Date**

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

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LABCORE Completed Batch Report for Batch# 00023817

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1011040068	ICV				
2	S1011040068	ICV				
3	S1011040068	ICV				
4	S1011040070	LLS				
5	S1011040070	LLS				
6	S1011040070	LLS				
7	S1011040070	LLS				
8	S1011040070	LLS				
9	S1011040070	LLS				
10	S1011040069	ICB				
11	S1011040071	ICSA				
12	S1011040072	ICSAB				
13	S1009260007	BLNK-PREP				
14	S1009260008	STD-PREP				
15	S1009260008	STD-PREP				
16	S1011040073	SERDIL	S10V001894			
17	S10V001894	SAMPLE		20100584	B26JK9	C Farm WMC 2010-2
18	S1009260009	DUP	S10V001894			
19	S1009260010	SPK-PREDIG	S10V001894			
20	S1009260011	SPK-PREDIG	S10V001894			
21	S1011040075	CCV				
22	S1011040075	CCV				
23	S1011040075	CCV				
24	S1011040076	CCB				
25	S1011040074	SPK-POST	S10V001894			
26	S1011040074	SPK-POST	S10V001894			
27	S1011040074	SPK-POST	S10V001894			
28	S10V001877	SAMPLE		20100584	B26JK8	C Farm WMC 2010-2
29	S10V001914	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
30	S10V001934	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
31	S10V001954	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
32	S10V002038	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
33	S10V002060	SAMPLE		20100584	B26C34	C Farm WMC 2010-2
34	S10V002365	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
35	S1011040079	CCV				

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LABCORE Completed Batch Report for Batch# 00023817

36	S1011040079	CCV			
37	S1011040079	CCV			
38	S1011040080	CCB			
39	S10V002513	SAMPLE	20100584	B26C38	C Farm WMC 2010-2
40	S10V002808	SAMPLE	20100584	B26C40	C Farm WMC 2010-2
41	S1011040077	ICSA			
42	S1011040078	ICSAB			
43	S1011040082	CCV			
44	S1011040082	CCV			
45	S1011040082	CCV			
46	S1011040083	LLS			
47	S1011040083	LLS			
48	S1011040083	LLS			
49	S1011040083	LLS			
50	S1011040083	LLS			
51	S1011040083	LLS			
52	S1011040081	CCB			
53	S1011040081	CCB			

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LABCORE Completed Batch Report for Batch# 00024435

Analyst: Mull, Bryanna **Book#:**

Instrument: ICP/MS PQ-EXCELL

Method: MS PERIODIC TABLE, LA-506-102 Rev/Mod F-1

Specification: C Farm WMC 2010-2

Prep Batch: 00022546

Batch Comment:

Periodic Table BY ICPMS 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																	
2	ICV	S1012060022		0 1			Silver	LIQUID	.0004	4.1760E-04			2.00E-06	ug/mL	104.4	% Recovery	
2	ICV	S1012060022		0 1			Cadmium	LIQUID	.002	2.0080E-03			9.00E-06	ug/mL	100.4	% Recovery	
1	ICV	S1012060022		0 0			Lead	LIQUID	.002	1.8750E-03			1.50E-05	ug/mL	93.75	% Recovery	
2	ICV	S1012060022		0 1			Selenium	LIQUID	.002	1.9730E-03			1.35E-04	ug/mL	98.65	% Recovery	
3	ICV	S1012060022		0 2			Thallium	LIQUID	.002	2.0180E-03			2.00E-06	ug/mL	100.9	% Recovery	
Sample Sequence 4																	
7	LLS	S1012060024		0 3			Silver	LIQUID	.00001	1.0440E-05			2.00E-06	ug/mL	104.4	% Recovery	
6	LLS	S1012060024		0 2			Cadmium	LIQUID	.00002	2.3210E-05			9.00E-06	ug/mL	116.05	% Recovery	
4	LLS	S1012060024		0 0			Lead	LIQUID	.00005	5.0210E-05			1.50E-05	ug/mL	100.42	% Recovery	
8	LLS	S1012060024		0 4			Selenium	LIQUID	.0005	5.1380E-04			1.35E-04	ug/mL	102.76	% Recovery	
5	LLS	S1012060024		0 1			Thallium	LIQUID	.00002	2.0170E-05			2.00E-06	ug/mL	100.85	% Recovery	
Sample Sequence 9																	
10	ICB	S1012060023		0 1			Silver	LIQUID		<2.0000E-06			2.00E-06	ug/mL			
10	ICB	S1012060023		0 1			Cadmium	LIQUID		<9.0000E-06			9.00E-06	ug/mL			
9	ICB	S1012060023		0 0			Lead	LIQUID		<1.5000E-05			1.50E-05	ug/mL			
10	ICB	S1012060023		0 1			Selenium	LIQUID		<1.3500E-04			1.35E-04	ug/mL			
10	ICB	S1012060023		0 1			Thallium	LIQUID		<2.0000E-06			2.00E-06	ug/mL			
Sample Sequence 11																	
12	BLNK-PREP	S1009260007		0 1	A		Silver	LIQUID		<4.0000E-04			4.00E-04	ug/mL			
12	BLNK-PREP	S1009260007		0 1	A		Cadmium	LIQUID		<1.8000E-03			1.80E-03	ug/mL			
11	BLNK-PREP	S1009260007		0 0	A		Lead	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
12	BLNK-PREP	S1009260007		0 1	A		Selenium	LIQUID		<2.7000E-02			0.027	ug/mL			
12	BLNK-PREP	S1009260007		0 1	A		Thallium	LIQUID		<4.0000E-04			4.00E-04	ug/mL			
Sample Sequence 13																	
14	SERDIL	S1012060025	S10V001894	0 1			Silver	SOLID		5.6967E-02			0.019722	ug/g	6.0005	% Diff	
14	SERDIL	S1012060025	S10V001894	0 1			Cadmium	SOLID		<5.9166E-02			0.059166	ug/g	N/A		
13	SERDIL	S1012060025	S10V001894	0 0			Lead	SOLID		4.2875E+00			0.14791	ug/g	.76488	% Diff	
14	SERDIL	S1012060025	S10V001894	0 1			Selenium	SOLID		<1.3312E+00			1.3312	ug/g	N/A		
14	SERDIL	S1012060025	S10V001894	0 1			Thallium	SOLID		7.7054E-02			0.039444	ug/g	21.054	% Diff	
Sample Sequence 15																	
16	SAMPLE	S10V001894		0 1	A		Silver	SOLID	N/A	5.3742E-02			3.94E-03	ug/g			
16	SAMPLE	S10V001894		0 1	A		Cadmium	SOLID	N/A	6.4077E-02			0.011833	ug/g			J

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# 00024435

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
15	SAMPLE	S10V001894		0 0	A		Lead	SOLID	N/A	4.2550E+00			0.029583	ug/g			
16	SAMPLE	S10V001894		0 1	A		Selenium	SOLID	N/A	5.2589E-01			0.26625	ug/g			J
16	SAMPLE	S10V001894		0 1	A		Thallium	SOLID	N/A	6.3652E-02			7.89E-03	ug/g			J
Sample Sequence 17																	
18	DUP	S1009260009	S10V001894	0 1	A		Silver	SOLID	5.3742E-02	6.6657E-02			3.93E-03	ug/g	21.454	% RPD	
18	DUP	S1009260009	S10V001894	0 1	A		Cadmium	SOLID	6.4077E-02	8.7631E-02			0.011805	ug/g	31.051	% RPD	
17	DUP	S1009260009	S10V001894	0 0	A		Lead	SOLID	4.2550E+00	5.4715E+00			0.029512	ug/g	25.014	% RPD	
18	DUP	S1009260009	S10V001894	0 1	A		Selenium	SOLID	5.2589E-01	5.9102E-01			0.26561	ug/g	11.663	% RPD	
18	DUP	S1009260009	S10V001894	0 1	A		Thallium	SOLID	6.3652E-02	7.8236E-02			7.87E-03	ug/g	20.557	% RPD	
Sample Sequence 19																	
20	SAMPLE	S10V001877		0 1	A		Silver	SOLID	N/A	6.6707E-02			3.94E-03	ug/g			
20	SAMPLE	S10V001877		0 1	A		Cadmium	SOLID	N/A	8.4830E-02			0.011833	ug/g			J
19	SAMPLE	S10V001877		0 0	A		Lead	SOLID	N/A	5.3277E+00			0.029582	ug/g			
20	SAMPLE	S10V001877		0 1	A		Selenium	SOLID	N/A	6.1500E-01			0.26624	ug/g			J
20	SAMPLE	S10V001877		0 1	A		Thallium	SOLID	N/A	7.9585E-02			7.89E-03	ug/g			
Sample Sequence 21																	
22	SAMPLE	S10V001914		0 1	A		Silver	SOLID	N/A	6.2365E-02			4.00E-03	ug/g			
22	SAMPLE	S10V001914		0 1	A		Cadmium	SOLID	N/A	8.7667E-02			0.011991	ug/g			J
21	SAMPLE	S10V001914		0 0	A		Lead	SOLID	N/A	5.1453E+00			0.029978	ug/g			
22	SAMPLE	S10V001914		0 1	A		Selenium	SOLID	N/A	5.2312E-01			0.26981	ug/g			J
22	SAMPLE	S10V001914		0 1	A		Thallium	SOLID	N/A	8.3370E-02			7.99E-03	ug/g			
Sample Sequence 23																	
24	SAMPLE	S10V001934		0 1	A		Silver	SOLID	N/A	5.9139E-02			3.99E-03	ug/g			
24	SAMPLE	S10V001934		0 1	A		Cadmium	SOLID	N/A	7.0160E-02			0.011957	ug/g			J
23	SAMPLE	S10V001934		0 0	A		Lead	SOLID	N/A	2.4592E+00			0.029894	ug/g			
24	SAMPLE	S10V001934		0 1	A		Selenium	SOLID	N/A	9.6526E-01			0.26904	ug/g			J
24	SAMPLE	S10V001934		0 1	A		Thallium	SOLID	N/A	5.4566E-02			7.97E-03	ug/g			J
Sample Sequence 25																	
26	SAMPLE	S10V001954		0 1	A		Silver	SOLID	N/A	6.1770E-02			3.94E-03	ug/g			
26	SAMPLE	S10V001954		0 1	A		Cadmium	SOLID	N/A	6.6062E-02			0.011811	ug/g			J
25	SAMPLE	S10V001954		0 0	A		Lead	SOLID	N/A	3.3700E+00			0.029527	ug/g			
26	SAMPLE	S10V001954		0 1	A		Selenium	SOLID	N/A	6.0206E-01			0.26574	ug/g			J
26	SAMPLE	S10V001954		0 1	A		Thallium	SOLID	N/A	7.7400E-02			7.87E-03	ug/g			J
Sample Sequence 27																	
28	SAMPLE	S10V002038		0 1	A		Silver	SOLID	N/A	5.6595E-02			3.99E-03	ug/g			
28	SAMPLE	S10V002038		0 1	A		Cadmium	SOLID	N/A	6.1390E-02			0.011963	ug/g			J
27	SAMPLE	S10V002038		0 0	A		Lead	SOLID	N/A	3.7643E+00			0.029907	ug/g			
28	SAMPLE	S10V002038		0 1	A		Selenium	SOLID	N/A	5.3963E-01			0.26917	ug/g			J
28	SAMPLE	S10V002038		0 1	A		Thallium	SOLID	N/A	8.1916E-02			7.98E-03	ug/g			
Sample Sequence 29																	
30	CCV	S1012060027		0 1			Silver	LIQUID	.0004	3.8330E-04			2.00E-06	ug/mL	95.825	% Recovery	
30	CCV	S1012060027		0 1			Cadmium	LIQUID	.002	2.0130E-03			9.00E-06	ug/mL	100.65	% Recovery	
29	CCV	S1012060027		0 0			Lead	LIQUID	.002	1.8630E-03			1.50E-05	ug/mL	93.15	% 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# 00024435

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
30	CCV	S1012060027		0 1			Selenium	LIQUID	.002	2.1660E-03			1.35E-04	ug/mL	108.3	% Recovery	
31	CCV	S1012060027		0 2			Thallium	LIQUID	.002	1.8750E-03			2.00E-06	ug/mL	93.75	% Recovery	
Sample Sequence 32																	
33	CCB	S1012060028		0 1			Silver	LIQUID		<2.0000E-06			2.00E-06	ug/mL			
33	CCB	S1012060028		0 1			Cadmium	LIQUID		<9.0000E-06			9.00E-06	ug/mL			
32	CCB	S1012060028		0 0			Lead	LIQUID		<1.5000E-05			1.50E-05	ug/mL			
33	CCB	S1012060028		0 1			Selenium	LIQUID		<1.3500E-04			1.35E-04	ug/mL			
33	CCB	S1012060028		0 1			Thallium	LIQUID		<2.0000E-06			2.00E-06	ug/mL			
Sample Sequence 34																	
35	SAMPLE	S10V002060		0 1	A		Silver	SOLID	N/A	5.3100E-02			3.96E-03	ug/g			
35	SAMPLE	S10V002060		0 1	A		Cadmium	SOLID	N/A	6.4171E-02			0.011895	ug/g			J
34	SAMPLE	S10V002060		0 0	A		Lead	SOLID	N/A	3.6239E+00			0.029737	ug/g			
35	SAMPLE	S10V002060		0 1	A		Selenium	SOLID	N/A	4.6736E-01			0.26763	ug/g			J
35	SAMPLE	S10V002060		0 1	A		Thallium	SOLID	N/A	7.0020E-02			7.93E-03	ug/g			J
Sample Sequence 36																	
37	SAMPLE	S10V002365		0 1	A		Silver	SOLID	N/A	4.6055E-02			3.96E-03	ug/g			
37	SAMPLE	S10V002365		0 1	A		Cadmium	SOLID	N/A	5.8174E-02			0.01189	ug/g			J
36	SAMPLE	S10V002365		0 0	A		Lead	SOLID	N/A	3.7405E+00			0.029726	ug/g			
37	SAMPLE	S10V002365		0 1	A		Selenium	SOLID	N/A	3.4502E-01			0.26753	ug/g			J
37	SAMPLE	S10V002365		0 1	A		Thallium	SOLID	N/A	6.2197E-02			7.93E-03	ug/g			J
Sample Sequence 38																	
39	SAMPLE	S10V002513		0 1	A		Silver	SOLID	N/A	4.4329E-02			3.94E-03	ug/g			
39	SAMPLE	S10V002513		0 1	A		Cadmium	SOLID	N/A	6.3111E-02			0.011832	ug/g			J
38	SAMPLE	S10V002513		0 0	A		Lead	SOLID	N/A	3.7881E+00			0.029579	ug/g			
39	SAMPLE	S10V002513		0 1	A		Selenium	SOLID	N/A	4.6882E-01			0.26621	ug/g			J
39	SAMPLE	S10V002513		0 1	A		Thallium	SOLID	N/A	5.4129E-02			7.89E-03	ug/g			J
Sample Sequence 40																	
41	SAMPLE	S10V002808		0 1	A		Silver	SOLID	N/A	4.4548E-02			3.95E-03	ug/g			
41	SAMPLE	S10V002808		0 1	A		Cadmium	SOLID	N/A	6.8476E-02			0.011845	ug/g			J
40	SAMPLE	S10V002808		0 0	A		Lead	SOLID	N/A	4.5871E+00			0.029613	ug/g			
41	SAMPLE	S10V002808		0 1	A		Selenium	SOLID	N/A	4.3837E-01			0.26652	ug/g			J
41	SAMPLE	S10V002808		0 1	A		Thallium	SOLID	N/A	9.0557E-02			7.90E-03	ug/g			
Sample Sequence 42																	
43	STD-PREP	S1009260012		0 1	A		Silver	LIQUID	1	1.1940E+00			0.01	ug/mL	119.4	% Recovery	
43	STD-PREP	S1009260012		0 1	A		Cadmium	LIQUID	5	5.3420E+00			0.045	ug/mL	106.84	% Recovery	
42	STD-PREP	S1009260012		0 0	A		Lead	LIQUID	5	4.9720E+00			0.075	ug/mL	99.44	% Recovery	
44	STD-PREP	S1009260012		0 2	A		Thallium	LIQUID	5	4.9390E+00			0.01	ug/mL	98.78	% Recovery	
Sample Sequence 45																	
46	SPK-PREDIG	S1009260010	S10V001894	0 1	A		Silver	SOLID	9.8378718	1.1451E+01			0.098379	ug/g	115.85	% Recovery	
46	SPK-PREDIG	S1009260010	S10V001894	0 1	A		Cadmium	SOLID	49.189359	5.2190E+01			0.29514	ug/g	105.97	% Recovery	
45	SPK-PREDIG	S1009260010	S10V001894	0 0	A		Lead	SOLID	49.189359	5.4030E+01			0.73784	ug/g	101.19	% Recovery	
46	SPK-PREDIG	S1009260010	S10V001894	0 1	A		Selenium	SOLID	49.189359	5.7374E+01			6.6406	ug/g	115.57	% Recovery	
Sample Sequence 47																	

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LABCORE Completed Batch Report for Batch# 00024435

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
47	SPK-PREDIG	S1009260011	S10V001894	0 0	A		Thallium	SOLID	49.537321	4.9101E+01			0.19815	ug/g	98.992	% Recovery	
Sample Sequence 48																	
49	SPK-POST	S1012060026	S10V001894	0 1			Silver	SOLID	.04	4.8590E-02			2.00E-06	ug/mL	107.85	% Recovery	
49	SPK-POST	S1012060026	S10V001894	0 1			Cadmium	SOLID	.2	2.0500E-01			6.00E-06	ug/mL	99.251	% Recovery	
48	SPK-POST	S1012060026	S10V001894	0 0			Lead	SOLID	.2	6.1980E-01			1.50E-05	ug/mL	94.15	% Recovery	
49	SPK-POST	S1012060026	S10V001894	0 1			Selenium	SOLID	.2	2.6220E-01			1.35E-04	ug/mL	104.44	% Recovery	
50	SPK-POST	S1012060026	S10V001894	0 2			Thallium	SOLID	.2	1.9500E-01			4.00E-06	ug/mL	94.272	% Recovery	
Sample Sequence 51																	
52	CCV	S1012060029		0 1			Silver	LIQUID	.0004	3.6660E-04			2.00E-06	ug/mL	91.65	% Recovery	
52	CCV	S1012060029		0 1			Cadmium	LIQUID	.002	2.0100E-03			9.00E-06	ug/mL	100.5	% Recovery	
51	CCV	S1012060029		0 0			Lead	LIQUID	.002	1.8640E-03			1.50E-05	ug/mL	93.2	% Recovery	
52	CCV	S1012060029		0 1			Selenium	LIQUID	.002	2.0890E-03			1.35E-04	ug/mL	104.45	% Recovery	
53	CCV	S1012060029		0 2			Thallium	LIQUID	.002	1.8450E-03			2.00E-06	ug/mL	92.25	% Recovery	
Sample Sequence 54																	
57	LLS	S1012060031		0 3			Silver	LIQUID	.00001	1.1000E-05			2.00E-06	ug/mL	110	% Recovery	
56	LLS	S1012060031		0 2			Cadmium	LIQUID	.00002	2.3130E-05			9.00E-06	ug/mL	115.65	% Recovery	
54	LLS	S1012060031		0 0			Lead	LIQUID	.00005	5.2070E-05			1.50E-05	ug/mL	104.14	% Recovery	
58	LLS	S1012060031		0 4			Selenium	LIQUID	.0005	6.5430E-04			1.35E-04	ug/mL	130.86	% Recovery	
55	LLS	S1012060031		0 1			Thallium	LIQUID	.00002	1.8760E-05			2.00E-06	ug/mL	93.8	% Recovery	
Sample Sequence 59																	
60	CCB	S1012060030		0 1			Silver	LIQUID		<2.0000E-06			2.00E-06	ug/mL			
60	CCB	S1012060030		0 1			Cadmium	LIQUID		<9.0000E-06			9.00E-06	ug/mL			
59	CCB	S1012060030		0 0			Lead	LIQUID		<1.5000E-05			1.50E-05	ug/mL			
60	CCB	S1012060030		0 1			Selenium	LIQUID		<1.3500E-04			1.35E-04	ug/mL			
60	CCB	S1012060030		0 1			Thallium	LIQUID		<2.0000E-06			2.00E-06	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00024435

Reviewer Signature **Date**

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# 00024435

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1012060022	ICV				
2	S1012060022	ICV				
3	S1012060022	ICV				
4	S1012060024	LLS				
5	S1012060024	LLS				
6	S1012060024	LLS				
7	S1012060024	LLS				
8	S1012060024	LLS				
9	S1012060023	ICB				
10	S1012060023	ICB				
11	S1009260007	BLNK-PREP				
12	S1009260007	BLNK-PREP				
13	S1012060025	SERDIL	S10V001894			
14	S1012060025	SERDIL	S10V001894			
15	S10V001894	SAMPLE		20100584	B26JK9	C Farm WMC 2010-2
16	S10V001894	SAMPLE		20100584	B26JK9	C Farm WMC 2010-2
17	S1009260009	DUP	S10V001894			
18	S1009260009	DUP	S10V001894			
19	S10V001877	SAMPLE		20100584	B26JK8	C Farm WMC 2010-2
20	S10V001877	SAMPLE		20100584	B26JK8	C Farm WMC 2010-2
21	S10V001914	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
22	S10V001914	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
23	S10V001934	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
24	S10V001934	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
25	S10V001954	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
26	S10V001954	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
27	S10V002038	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
28	S10V002038	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
29	S1012060027	CCV				
30	S1012060027	CCV				
31	S1012060027	CCV				
32	S1012060028	CCB				
33	S1012060028	CCB				
34	S10V002060	SAMPLE		20100584	B26C34	C Farm WMC 2010-2
35	S10V002060	SAMPLE		20100584	B26C34	C Farm WMC 2010-2

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# 00024435

36	S10V002365	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
37	S10V002365	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
38	S10V002513	SAMPLE		20100584	B26C38	C Farm WMC 2010-2
39	S10V002513	SAMPLE		20100584	B26C38	C Farm WMC 2010-2
40	S10V002808	SAMPLE		20100584	B26C40	C Farm WMC 2010-2
41	S10V002808	SAMPLE		20100584	B26C40	C Farm WMC 2010-2
42	S1009260012	STD-PREP				
43	S1009260012	STD-PREP				
44	S1009260012	STD-PREP				
45	S1009260010	SPK-PREDIG	S10V001894			
46	S1009260010	SPK-PREDIG	S10V001894			
47	S1009260011	SPK-PREDIG	S10V001894			
48	S1012060026	SPK-POST	S10V001894			
49	S1012060026	SPK-POST	S10V001894			
50	S1012060026	SPK-POST	S10V001894			
51	S1012060029	CCV				
52	S1012060029	CCV				
53	S1012060029	CCV				
54	S1012060031	LLS				
55	S1012060031	LLS				
56	S1012060031	LLS				
57	S1012060031	LLS				
58	S1012060031	LLS				
59	S1012060030	CCB				
60	S1012060030	CCB				

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# 00024457

Analyst: Shaw, Levi **Book#:**

Instrument: ICP/MS AGILENT

Method: MS PERIODIC TABLE, LA-506-103 Rev/Mod B-0

Specification: C Farm WMC 2010-2

Prep Batch: 00022546

Batch Comment:

Periodic Table by ICPMS FOR C Farm 2010-2

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	S1012060059		0 0			Arsenic	LIQUID	.002	2.1780E-03			4.20E-05	ug/mL	108.9	% Recovery	
2	ICV	S1012060059		0 1			Selenium	LIQUID	.002	1.9090E-03			6.10E-05	ug/mL	95.45	% Recovery	
Sample Sequence 3																	
3	LLS	S1012060061		0 0			Arsenic	LIQUID	.0002	1.9120E-04			4.20E-05	ug/mL	95.6	% Recovery	
4	LLS	S1012060061		0 1			Selenium	LIQUID	.0002	3.3220E-04			6.10E-05	ug/mL	166.1	% Recovery	
Sample Sequence 5																	
5	ICB	S1012060060		0 0			Arsenic	LIQUID		<4.2000E-05			4.20E-05	ug/mL			
6	ICB	S1012060060		0 1			Selenium	LIQUID		1.3860E-04			6.10E-05	ug/mL			
Sample Sequence 7																	
7	BLNK-PREP	S1009260007		0 4	A		Arsenic	LIQUID		<8.4000E-03			8.40E-03	ug/mL			
Sample Sequence 8																	
8	SERDIL	S1012060062	S10V001894	0 0			Arsenic	SOLID		4.0676E+00			0.41416	ug/g	3.6951	% Diff	
Sample Sequence 9																	
9	SAMPLE	S10V001894		0 4	A		Arsenic	SOLID	N/A	3.9227E+00			0.082832	ug/g			
Sample Sequence 10																	
10	DUP	S1009260009	S10V001894	0 4	A		Arsenic	SOLID	3.9227E+00	5.2275E+00			0.082633	ug/g	28.520	% RPD	
Sample Sequence 11																	
11	SAMPLE	S10V001877		0 4	A		Arsenic	SOLID	N/A	4.9185E+00			0.082829	ug/g			
Sample Sequence 12																	
12	SAMPLE	S10V001914		0 4	A		Arsenic	SOLID	N/A	3.6674E+00			0.08394	ug/g			
Sample Sequence 13																	
13	SAMPLE	S10V001934		0 4	A		Arsenic	SOLID	N/A	3.0312E+00			0.083702	ug/g			
Sample Sequence 14																	
14	SAMPLE	S10V001954		0 3	A		Arsenic	SOLID	N/A	2.9488E+00			0.082676	ug/g			
Sample Sequence 15																	
15	SAMPLE	S10V002038		0 3	A		Arsenic	SOLID	N/A	2.8950E+00			0.08374	ug/g			
Sample Sequence 16																	
16	CCV	S1012060064		0 0			Arsenic	LIQUID	.002	2.0390E-03			4.20E-05	ug/mL	101.95	% Recovery	
Sample Sequence 17																	
17	CCB	S1012060065		0 0			Arsenic	LIQUID		<4.2000E-05			4.20E-05	ug/mL			
Sample Sequence 18																	
18	SAMPLE	S10V002060		0 2	A		Arsenic	SOLID	N/A	2.8547E+00			0.083262	ug/g			
Sample Sequence 19																	

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# 00024457

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
19	SAMPLE	S10V002365		0 2	A		Arsenic	SOLID	N/A	4.5183E+00			0.083233	ug/g			
Sample Sequence 20																	
20	SAMPLE	S10V002513		0 2	A		Arsenic	SOLID	N/A	3.4726E+00			0.082821	ug/g			
Sample Sequence 21																	
21	SAMPLE	S10V002808		0 2	A		Arsenic	SOLID	N/A	2.5467E+00			0.082917	ug/g			
Sample Sequence 22																	
22	STD-PREP	S1009260012		0 3	A		Arsenic	LIQUID	5	5.2900E+00			0.21	ug/mL	105.8	% Recovery	
23	STD-PREP	S1009260012		0 4	A		Selenium	LIQUID	5	5.1850E+00			0.305	ug/mL	103.7	% Recovery	
Sample Sequence 24																	
24	SPK-PREDIG	S1009260010	S10V001894	0 2	A		Arsenic	SOLID	49.189359	5.6371E+01			2.066	ug/g	106.63	% Recovery	
Sample Sequence 25																	
25	SPK-POST	S1012060063	S10V001894	0 0			Arsenic	SOLID	.2	5.6660E-01			4.20E-05	ug/mL	84.4	% Recovery	
Sample Sequence 26																	
26	CCV	S1012060066		0 0			Arsenic	LIQUID	.002	1.9920E-03			4.20E-05	ug/mL	99.6	% Recovery	
27	CCV	S1012060066		0 1			Selenium	LIQUID	.002	2.0470E-03			6.10E-05	ug/mL	102.35	% Recovery	
Sample Sequence 28																	
28	LLS	S1012060068		0 0			Arsenic	LIQUID	.0002	1.9260E-04			4.20E-05	ug/mL	96.3	% Recovery	
29	LLS	S1012060068		0 1			Selenium	LIQUID	.0002	2.9160E-04			6.10E-05	ug/mL	145.8	% Recovery	
Sample Sequence 30																	
30	CCB	S1012060067		0 0			Arsenic	LIQUID		<4.2000E-05			4.20E-05	ug/mL			
31	CCB	S1012060067		0 1			Selenium	LIQUID		8.6840E-05			6.10E-05	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00024457

Reviewer Signature **Date**

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

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LABCORE Completed Batch Report for Batch# 00024457

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1012060059	ICV				
2	S1012060059	ICV				
3	S1012060061	LLS				
4	S1012060061	LLS				
5	S1012060060	ICB				
6	S1012060060	ICB				
7	S1009260007	BLNK-PREP				
8	S1012060062	SERDIL	S10V001894			
9	S10V001894	SAMPLE		20100584	B26JK9	C Farm WMC 2010-2
10	S1009260009	DUP	S10V001894			
11	S10V001877	SAMPLE		20100584	B26JK8	C Farm WMC 2010-2
12	S10V001914	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
13	S10V001934	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
14	S10V001954	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
15	S10V002038	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
16	S1012060064	CCV				
17	S1012060065	CCB				
18	S10V002060	SAMPLE		20100584	B26C34	C Farm WMC 2010-2
19	S10V002365	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
20	S10V002513	SAMPLE		20100584	B26C38	C Farm WMC 2010-2
21	S10V002808	SAMPLE		20100584	B26C40	C Farm WMC 2010-2
22	S1009260012	STD-PREP				
23	S1009260012	STD-PREP				
24	S1009260010	SPK-PREDIG	S10V001894			
25	S1012060063	SPK-POST	S10V001894			
26	S1012060066	CCV				
27	S1012060066	CCV				
28	S1012060068	LLS				
29	S1012060068	LLS				
30	S1012060067	CCB				
31	S1012060067	CCB				

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# 00022891

Analyst: Shaw, Levi

Book#:

Instrument: ICP/MS PQ-EXCELL

Method: MS PERIODIC TABLE, LA-506-102 Rev/Mod F-1

Specification: C Farm WMC 2010-2

Prep Batch: 00022547

Batch Comment:

Antimony on C-Farm WMC 2010-2 Solids. LND

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	S1010060086		0 0			Antimony	LIQUID	.002	2.0310E-03			2.00E-06	ug/mL	101.55	% Recovery	
Sample Sequence 2																	
2	LLS	S1010060088		0 0			Antimony	LIQUID	.00001	1.7690E-05			2.00E-06	ug/mL	176.9	% Recovery	
Sample Sequence 3																	
3	ICB	S1010060087		0 0			Antimony	LIQUID		2.3120E-06			2.00E-06	ug/mL			
Sample Sequence 4																	
4	BLNK-PREP	S1009260017		0 0	A		Antimony	LIQUID		<2.0000E-04			2.00E-04	ug/mL			
Sample Sequence 5																	
5	SERDIL	S1010060089	S10V001874	0 0			Antimony	SOLID		2.1790E-01			0.047879	ug/g	1.9736	% Diff	
Sample Sequence 6																	
6	SAMPLE	S10V001874		0 0	A		Antimony	SOLID	N/A	2.1368E-01			9.58E-03	ug/g			J
Sample Sequence 7																	
7	DUP	S1009260019	S10V001874	0 0	A		Antimony	SOLID	2.1368E-01	2.0317E-01			9.48E-03	ug/g	5.0444	% RPD	
Sample Sequence 8																	
8	SAMPLE	S10V001891		0 0	A		Antimony	SOLID	N/A	1.9173E-01			9.66E-03	ug/g			J
Sample Sequence 9																	
9	SAMPLE	S10V001911		0 0	A		Antimony	SOLID	N/A	2.0176E-01			9.62E-03	ug/g			J
Sample Sequence 10																	
10	SAMPLE	S10V001931		0 0	A		Antimony	SOLID	N/A	7.7916E-02			9.97E-03	ug/g			J
Sample Sequence 11																	
11	SAMPLE	S10V001951		0 0	A		Antimony	SOLID	N/A	1.1063E-01			9.70E-03	ug/g			J
Sample Sequence 12																	
12	SAMPLE	S10V001971		0 0	A		Antimony	SOLID	N/A	1.2481E-01			9.94E-03	ug/g			J
Sample Sequence 13																	
13	CCV	S1010060091		0 0			Antimony	LIQUID	.002	2.0260E-03			2.00E-06	ug/mL	101.3	% Recovery	
Sample Sequence 14																	
14	CCB	S1010060092		0 0			Antimony	LIQUID		2.7580E-06			2.00E-06	ug/mL			
Sample Sequence 15																	
15	SAMPLE	S10V002057		0 0	A		Antimony	SOLID	N/A	1.2359E-01			9.83E-03	ug/g			J
Sample Sequence 16																	
16	SAMPLE	S10V002077		0 0	A		Antimony	SOLID	N/A	1.8879E-01			9.83E-03	ug/g			J
Sample Sequence 17																	
17	SAMPLE	S10V002510		0 0	A		Antimony	SOLID	N/A	1.5668E-01			9.72E-03	ug/g			J
Sample Sequence 18																	

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LABCORE Completed Batch Report for Batch# 00022891

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
18	SAMPLE	S10V002805		0 0	A		Antimony	SOLID	N/A	1.2670E-01			9.99E-03	ug/g			J
Sample Sequence 19																	
19	STD-PREP	S1009260018		0 0	A		Antimony	LIQUID	1	1.0200E+00			2.00E-03	ug/mL	102	% Recovery	
Sample Sequence 20																	
20	SPK-PREDIG	S1009260020	S10V001874	0 0	A		Antimony	SOLID	48.118564	4.6184E+01			0.096237	ug/g	95.536	% Recovery	
Sample Sequence 21																	
21	SPK-POST	S1010060090	S10V001874	0 0			Antimony	SOLID	.1	1.0880E-01			2.00E-06	ug/mL	104.34	% Recovery	
Sample Sequence 22																	
22	CCV	S1010060093		0 0			Antimony	LIQUID	.002	2.0190E-03			2.00E-06	ug/mL	100.95	% Recovery	
Sample Sequence 23																	
23	CCB	S1010060094		0 0			Antimony	LIQUID		<2.0000E-06			2.00E-06	ug/mL			
Sample Sequence 24																	
24	CCV	S1011150016		0 0			Antimony	LIQUID	.002	2.0430E-03			2.00E-06	ug/mL	102.15	% Recovery	
Sample Sequence 25																	
25	LLS	S1010060095		0 0			Antimony	LIQUID	.00001	1.6550E-05			2.00E-06	ug/mL	165.5	% Recovery	
Sample Sequence 26																	
26	CCB	S1011150015		0 0			Antimony	LIQUID		<2.0000E-06			2.00E-06	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00022891

Reviewer Signature **Date**

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LABCORE Completed Batch Report for Batch# 00022891

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1010060086	ICV				
2	S1010060088	LLS				
3	S1010060087	ICB				
4	S1009260017	BLNK-PREP				
5	S1010060089	SERDIL	S10V001874			
6	S10V001874	SAMPLE		20100584	B26JK8	C Farm WMC 2010-2
7	S1009260019	DUP	S10V001874			
8	S10V001891	SAMPLE		20100584	B26JK9	C Farm WMC 2010-2
9	S10V001911	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
10	S10V001931	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
11	S10V001951	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
12	S10V001971	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
13	S1010060091	CCV				
14	S1010060092	CCB				
15	S10V002057	SAMPLE		20100584	B26C34	C Farm WMC 2010-2
16	S10V002077	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
17	S10V002510	SAMPLE		20100584	B26C38	C Farm WMC 2010-2
18	S10V002805	SAMPLE		20100584	B26C40	C Farm WMC 2010-2
19	S1009260018	STD-PREP				
20	S1009260020	SPK-PREDIG	S10V001874			
21	S1010060090	SPK-POST	S10V001874			
22	S1010060093	CCV				
23	S1010060094	CCB				
24	S1011150016	CCV				
25	S1010060095	LLS				
26	S1011150015	CCB				

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LABCORE Completed Batch Report for Batch# 00023367

Analyst: Shaw, Levi **Book#:**

Instrument: ICP/MS PQ-EXCELL

Method: MS ACTINIDES, LA-506-102 Rev/Mod F-1

Specification: C Farm WMC 2010-2

Prep Batch: 00022546

Batch Comment:

ICP-MS analysis of actinides for C Farm WMC 2010-2 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	S1010200064		0 0			Thorium-232	LIQUID	.001	1.0040E-03			5.00E-07	ug/mL	100.4	% Recovery	
1	ICV	S1010200064		0 0			Uranium-235	LIQUID	.0000072	7.1850E-06			1.00E-08	ug/mL	99.792	% Recovery	
1	ICV	S1010200064		0 0			Neptunium-237	LIQUID	.0011	1.0190E-03			1.00E-07	ug/mL	92.636	% Recovery	
1	ICV	S1010200064		0 0			Uranium-238	LIQUID	.0009928	9.7500E-04			5.00E-07	ug/mL	98.207	% Recovery	
Sample Sequence 2																	
2	LLS	S1010200066		0 0			Thorium-232	LIQUID	.000005	5.4530E-06			5.00E-07	ug/mL	109.06	% Recovery	
2	LLS	S1010200066		0 0			Uranium-235	LIQUID	.000000036	2.7000E-08			1.00E-08	ug/mL	75	% Recovery	
2	LLS	S1010200066		0 0			Neptunium-237	LIQUID	.0000049175	5.2560E-06			1.00E-07	ug/mL	106.88	% Recovery	
2	LLS	S1010200066		0 0			Uranium-238	LIQUID	.000004964	5.2150E-06			5.00E-07	ug/mL	105.06	% Recovery	
Sample Sequence 3																	
3	ICB	S1010200065		0 0			Thorium-230	LIQUID		<7.0000E-09			7.00E-09	ug/mL			
3	ICB	S1010200065		0 0			Thorium-232	LIQUID		<5.0000E-07			5.00E-07	ug/mL			
3	ICB	S1010200065		0 0			Uranium-233	LIQUID		<1.0000E-08			1.00E-08	ug/mL			
3	ICB	S1010200065		0 0			Uranium-234	LIQUID		<5.0000E-09			5.00E-09	ug/mL			
3	ICB	S1010200065		0 0			Uranium-235	LIQUID		<1.0000E-08			1.00E-08	ug/mL			
3	ICB	S1010200065		0 0			Uranium-236	LIQUID		<4.0000E-09			4.00E-09	ug/mL			
3	ICB	S1010200065		0 0			Neptunium-237	LIQUID		1.2400E-07			1.00E-07	ug/mL			
3	ICB	S1010200065		0 0			Uranium-238	LIQUID		<5.0000E-07			5.00E-07	ug/mL			
Sample Sequence 4																	
4	BLNK-PREP	S1009260007		0 0	A		Uranium-233	LIQUID		<4.0000E-06			4.00E-06	ug/mL			
4	BLNK-PREP	S1009260007		0 0	A		Uranium-234	LIQUID		<2.0000E-06			2.00E-06	ug/mL			
4	BLNK-PREP	S1009260007		0 0	A		Uranium-235	LIQUID		<4.0000E-06			4.00E-06	ug/mL			
4	BLNK-PREP	S1009260007		0 0	A		Uranium-236	LIQUID		1.6170E-06			1.60E-06	ug/mL			
4	BLNK-PREP	S1009260007		0 0	A		Neptunium-237	LIQUID		<4.0000E-05			4.00E-05	ug/mL			
4	BLNK-PREP	S1009260007		0 0	A		Uranium-238	LIQUID		<2.0000E-04			2.00E-04	ug/mL			
Sample Sequence 5																	
5	SERDIL	S1010200067	S10V001894	0 0			Uranium-233	LIQUID		2.2986E-04			1.97E-04	ug/g	109.44	% Diff	
5	SERDIL	S1010200067	S10V001894	0 0			Uranium-234	LIQUID		<9.8610E-05			9.86E-05	ug/g	N/A		
5	SERDIL	S1010200067	S10V001894	0 0			Uranium-235	LIQUID		2.7325E-03			1.97E-04	ug/g	14.363	% Diff	
5	SERDIL	S1010200067	S10V001894	0 0			Uranium-236	LIQUID		<7.8888E-05			7.89E-05	ug/g	N/A		
5	SERDIL	S1010200067	S10V001894	0 0			Neptunium-237	LIQUID		<1.9722E-03			1.97E-03	ug/g	N/A		
5	SERDIL	S1010200067	S10V001894	0 0			Uranium-238	LIQUID		3.5352E-01			9.86E-03	ug/g	4.5017	% Diff	

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LABCORE Completed Batch Report for Batch# 00023367

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 6																	
6	SAMPLE	S10V001894		0 0	A		Uranium-233	SOLID	N/A	1.0975E-04			3.94E-05	ug/g			J
6	SAMPLE	S10V001894		0 0	A		Uranium-234	SOLID	N/A	4.0824E-05			1.97E-05	ug/g			J
6	SAMPLE	S10V001894		0 0	A		Uranium-235	SOLID	N/A	2.3893E-03			3.94E-05	ug/g			
6	SAMPLE	S10V001894		0 0	A		Uranium-236	SOLID	N/A	<1.5778E-05			1.58E-05	ug/g			U
6	SAMPLE	S10V001894		0 0	A		Neptunium-237	SOLID	N/A	<3.9444E-04			3.94E-04	ug/g			U
6	SAMPLE	S10V001894		0 0	A		Uranium-238	SOLID	N/A	3.7018E-01			1.97E-03	ug/g			
Sample Sequence 7																	
7	DUP	S1009260009	S10V001894	0 0	A		Uranium-233	SOLID	1.0975E-04	1.1087E-04			3.93E-05	ug/g	1.0120	% RPD	
7	DUP	S1009260009	S10V001894	0 0	A		Uranium-234	SOLID	4.0824E-05	<1.9675E-05			1.97E-05	ug/g			
7	DUP	S1009260009	S10V001894	0 0	A		Uranium-235	SOLID	2.3893E-03	3.2050E-03			3.93E-05	ug/g	29.162	% RPD	
7	DUP	S1009260009	S10V001894	0 0	A		Uranium-236	SOLID	<1.5778E-05	<1.5740E-05			1.57E-05	ug/g			
7	DUP	S1009260009	S10V001894	0 0	A		Neptunium-237	SOLID	<3.9444E-04	<3.9349E-04			3.93E-04	ug/g			
7	DUP	S1009260009	S10V001894	0 0	A		Uranium-238	SOLID	3.7018E-01	4.7662E-01			1.97E-03	ug/g	25.139	% RPD	
Sample Sequence 8																	
8	SAMPLE	S10V001877		0 0	A		Uranium-233	SOLID	N/A	1.4909E-04			3.94E-05	ug/g			J
8	SAMPLE	S10V001877		0 0	A		Uranium-234	SOLID	N/A	5.5456E-05			1.97E-05	ug/g			J
8	SAMPLE	S10V001877		0 0	A		Uranium-235	SOLID	N/A	3.2353E-03			3.94E-05	ug/g			
8	SAMPLE	S10V001877		0 0	A		Uranium-236	SOLID	N/A	<1.5777E-05			1.58E-05	ug/g			U
8	SAMPLE	S10V001877		0 0	A		Neptunium-237	SOLID	N/A	<3.9442E-04			3.94E-04	ug/g			U
8	SAMPLE	S10V001877		0 0	A		Uranium-238	SOLID	N/A	4.6710E-01			1.97E-03	ug/g			
Sample Sequence 9																	
9	SAMPLE	S10V001914		0 0	A		Uranium-233	SOLID	N/A	1.4300E-04			4.00E-05	ug/g			J
9	SAMPLE	S10V001914		0 0	A		Uranium-234	SOLID	N/A	4.2100E-05			2.00E-05	ug/g			J
9	SAMPLE	S10V001914		0 0	A		Uranium-235	SOLID	N/A	3.5604E-03			4.00E-05	ug/g			
9	SAMPLE	S10V001914		0 0	A		Uranium-236	SOLID	N/A	<1.5988E-05			1.60E-05	ug/g			U
9	SAMPLE	S10V001914		0 0	A		Neptunium-237	SOLID	N/A	<3.9971E-04			4.00E-04	ug/g			U
9	SAMPLE	S10V001914		0 0	A		Uranium-238	SOLID	N/A	5.2802E-01			2.00E-03	ug/g			
Sample Sequence 10																	
10	SAMPLE	S10V001934		0 0	A		Uranium-233	SOLID	N/A	5.9697E-05			3.99E-05	ug/g			J
10	SAMPLE	S10V001934		0 0	A		Uranium-234	SOLID	N/A	4.8866E-05			1.99E-05	ug/g			J
10	SAMPLE	S10V001934		0 0	A		Uranium-235	SOLID	N/A	3.4567E-03			3.99E-05	ug/g			
10	SAMPLE	S10V001934		0 0	A		Uranium-236	SOLID	N/A	2.6904E-05			1.59E-05	ug/g			BJ
10	SAMPLE	S10V001934		0 0	A		Neptunium-237	SOLID	N/A	<3.9858E-04			3.99E-04	ug/g			U
10	SAMPLE	S10V001934		0 0	A		Uranium-238	SOLID	N/A	4.7381E-01			1.99E-03	ug/g			
Sample Sequence 11																	
11	SAMPLE	S10V001954		0 0	A		Uranium-233	SOLID	N/A	1.4065E-04			3.94E-05	ug/g			J
11	SAMPLE	S10V001954		0 0	A		Uranium-234	SOLID	N/A	<1.9685E-05			1.97E-05	ug/g			U
11	SAMPLE	S10V001954		0 0	A		Uranium-235	SOLID	N/A	3.2932E-03			3.94E-05	ug/g			
11	SAMPLE	S10V001954		0 0	A		Uranium-236	SOLID	N/A	<1.5748E-05			1.57E-05	ug/g			U
11	SAMPLE	S10V001954		0 0	A		Neptunium-237	SOLID	N/A	<3.9369E-04			3.94E-04	ug/g			U
11	SAMPLE	S10V001954		0 0	A		Uranium-238	SOLID	N/A	5.0422E-01			1.97E-03	ug/g			
Sample Sequence 12																	

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LABCORE Completed Batch Report for Batch# 00023367

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
12	SAMPLE	S10V002038		0 0	A		Uranium-233	SOLID	N/A	1.8672E-04			3.99E-05	ug/g			J
12	SAMPLE	S10V002038		0 0	A		Uranium-234	SOLID	N/A	9.0330E-05			1.99E-05	ug/g			J
12	SAMPLE	S10V002038		0 0	A		Uranium-235	SOLID	N/A	6.3693E-03			3.99E-05	ug/g			
12	SAMPLE	S10V002038		0 0	A		Uranium-236	SOLID	N/A	2.0148E-05			1.60E-05	ug/g			BJ
12	SAMPLE	S10V002038		0 0	A		Neptunium-237	SOLID	N/A	<3.9876E-04			3.99E-04	ug/g			U
12	SAMPLE	S10V002038		0 0	A		Uranium-238	SOLID	N/A	9.8146E-01			1.99E-03	ug/g			
Sample Sequence 13																	
13	CCV	S1010200069		0 0			Thorium-232	LIQUID	.001	9.9710E-04			5.00E-07	ug/mL	99.71	% Recovery	
13	CCV	S1010200069		0 0			Uranium-235	LIQUID	.0000072	7.2610E-06			1.00E-08	ug/mL	100.85	% Recovery	
13	CCV	S1010200069		0 0			Neptunium-237	LIQUID	.0011	1.0110E-03			1.00E-07	ug/mL	91.909	% Recovery	
13	CCV	S1010200069		0 0			Uranium-238	LIQUID	.0009928	9.6930E-04			5.00E-07	ug/mL	97.633	% Recovery	
Sample Sequence 14																	
14	CCB	S1010200070		0 0			Thorium-230	LIQUID		<7.0000E-09			7.00E-09	ug/mL			
14	CCB	S1010200070		0 0			Thorium-232	LIQUID		<5.0000E-07			5.00E-07	ug/mL			
14	CCB	S1010200070		0 0			Uranium-233	LIQUID		<1.0000E-08			1.00E-08	ug/mL			
14	CCB	S1010200070		0 0			Uranium-234	LIQUID		<5.0000E-09			5.00E-09	ug/mL			
14	CCB	S1010200070		0 0			Uranium-235	LIQUID		<1.0000E-08			1.00E-08	ug/mL			
14	CCB	S1010200070		0 0			Uranium-236	LIQUID		<4.0000E-09			4.00E-09	ug/mL			
14	CCB	S1010200070		0 0			Neptunium-237	LIQUID		<1.0000E-07			1.00E-07	ug/mL			
14	CCB	S1010200070		0 0			Uranium-238	LIQUID		<5.0000E-07			5.00E-07	ug/mL			
Sample Sequence 15																	
15	SAMPLE	S10V002060		0 0	A		Uranium-233	SOLID	N/A	1.5057E-04			3.96E-05	ug/g			J
15	SAMPLE	S10V002060		0 0	A		Uranium-234	SOLID	N/A	7.0386E-05			1.98E-05	ug/g			J
15	SAMPLE	S10V002060		0 0	A		Uranium-235	SOLID	N/A	3.5862E-03			3.96E-05	ug/g			
15	SAMPLE	S10V002060		0 0	A		Uranium-236	SOLID	N/A	2.0241E-05			1.59E-05	ug/g			BJ
15	SAMPLE	S10V002060		0 0	A		Neptunium-237	SOLID	N/A	<3.9649E-04			3.96E-04	ug/g			U
15	SAMPLE	S10V002060		0 0	A		Uranium-238	SOLID	N/A	5.0225E-01			1.98E-03	ug/g			
Sample Sequence 16																	
16	SAMPLE	S10V002365		0 0	A		Uranium-233	SOLID	N/A	1.0553E-04			3.96E-05	ug/g			J
16	SAMPLE	S10V002365		0 0	A		Uranium-234	SOLID	N/A	2.8060E-05			1.97E-05	ug/g			J
16	SAMPLE	S10V002365		0 0	A		Uranium-235	SOLID	N/A	3.4320E-03			3.95E-05	ug/g			
16	SAMPLE	S10V002365		0 0	A		Uranium-236	SOLID	N/A	<1.5797E-05			1.58E-05	ug/g			U
16	SAMPLE	S10V002365		0 0	A		Neptunium-237	SOLID	N/A	<3.9494E-04			3.95E-04	ug/g			U
16	SAMPLE	S10V002365		0 0	A		Uranium-238	SOLID	N/A	5.0838E-01			1.97E-03	ug/g			
Sample Sequence 17																	
17	SAMPLE	S10V002513		0 0	A		Uranium-233	SOLID	N/A	1.7432E-04			3.94E-05	ug/g			J
17	SAMPLE	S10V002513		0 0	A		Uranium-234	SOLID	N/A	4.2278E-05			1.97E-05	ug/g			J
17	SAMPLE	S10V002513		0 0	A		Uranium-235	SOLID	N/A	3.1245E-03			3.94E-05	ug/g			
17	SAMPLE	S10V002513		0 0	A		Uranium-236	SOLID	N/A	<1.5775E-05			1.58E-05	ug/g			U
17	SAMPLE	S10V002513		0 0	A		Neptunium-237	SOLID	N/A	<3.9438E-04			3.94E-04	ug/g			U
17	SAMPLE	S10V002513		0 0	A		Uranium-238	SOLID	N/A	4.1450E-01			1.97E-03	ug/g			
Sample Sequence 18																	
18	SAMPLE	S10V002808		0 0	A		Uranium-233	SOLID	N/A	9.0468E-05			3.95E-05	ug/g			J

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LABCORE Completed Batch Report for Batch# 00023367

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
18	SAMPLE	S10V002808		0 0	A		Uranium-234	SOLID	N/A	5.6630E-05			1.97E-05	ug/g			J
18	SAMPLE	S10V002808		0 0	A		Uranium-235	SOLID	N/A	3.1341E-03			3.95E-05	ug/g			
18	SAMPLE	S10V002808		0 0	A		Uranium-236	SOLID	N/A	<1.5794E-05			1.58E-05	ug/g			U
18	SAMPLE	S10V002808		0 0	A		Neptunium-237	SOLID	N/A	<3.9484E-04			3.95E-04	ug/g			U
18	SAMPLE	S10V002808		0 0	A		Uranium-238	SOLID	N/A	4.4568E-01			1.97E-03	ug/g			
Sample Sequence 19																	
20	STD-PREP	S1009260008		0 1	A		Uranium-235	LIQUID	.000144	1.4000E-04			2.00E-07	ug/mL	97.222	% Recovery	
19	STD-PREP	S1009260008		0 0	A		Neptunium-237	LIQUID	.0175	1.7550E-02			2.00E-06	ug/mL	100.29	% Recovery	
20	STD-PREP	S1009260008		0 1	A		Uranium-238	LIQUID	.019856	2.1000E-02			1.00E-05	ug/mL	105.76	% Recovery	
Sample Sequence 21																	
21	SPK-PREDIG	S1009260013	S10V001894	0 0	A		Neptunium-237	SOLID	.493744324716	4.9138E-01			3.95E-04	ug/g	99.52	% Recovery	
Sample Sequence 22																	
22	SPK-PREDIG	S1009260015	S10V001894	0 0	A		Uranium-235	SOLID	.014304730464	1.6182E-02			3.97E-05	ug/g	96.422	% Recovery	
22	SPK-PREDIG	S1009260015	S10V001894	0 0	A		Uranium-238	SOLID	1.972463389536	2.4507E+00			1.99E-03	ug/g	105.48	% Recovery	
Sample Sequence 23																	
23	SPK-POST	S1010200068	S10V001894	0 0			Uranium-235	LIQUID	.00288	3.0910E-03			1.00E-08	ug/mL	98.913	% Recovery	
23	SPK-POST	S1010200068	S10V001894	0 0			Neptunium-237	LIQUID	.3034	3.8890E-01			1.00E-07	ug/mL	128.18	% Recovery	
23	SPK-POST	S1010200068	S10V001894	0 0			Uranium-238	LIQUID	.39712	4.3950E-01			5.00E-07	ug/mL	101.22	% Recovery	
Sample Sequence 24																	
24	CCV	S1010200071		0 0			Thorium-232	LIQUID	.001	1.0110E-03			5.00E-07	ug/mL	101.1	% Recovery	
24	CCV	S1010200071		0 0			Uranium-235	LIQUID	.0000072	7.3180E-06			1.00E-08	ug/mL	101.64	% Recovery	
24	CCV	S1010200071		0 0			Neptunium-237	LIQUID	.0011	1.0210E-03			1.00E-07	ug/mL	92.818	% Recovery	
24	CCV	S1010200071		0 0			Uranium-238	LIQUID	.0009928	9.8270E-04			5.00E-07	ug/mL	98.983	% Recovery	
Sample Sequence 25																	
25	CCB	S1010200072		0 0			Thorium-230	LIQUID		1.0000E-08			7.00E-09	ug/mL			
25	CCB	S1010200072		0 0			Thorium-232	LIQUID		1.0660E-06			5.00E-07	ug/mL			
25	CCB	S1010200072		0 0			Uranium-233	LIQUID		<1.0000E-08			1.00E-08	ug/mL			
25	CCB	S1010200072		0 0			Uranium-234	LIQUID		<5.0000E-09			5.00E-09	ug/mL			
25	CCB	S1010200072		0 0			Uranium-235	LIQUID		<1.0000E-08			1.00E-08	ug/mL			
25	CCB	S1010200072		0 0			Uranium-236	LIQUID		<4.0000E-09			4.00E-09	ug/mL			
25	CCB	S1010200072		0 0			Neptunium-237	LIQUID		2.6700E-07			1.00E-07	ug/mL			
25	CCB	S1010200072		0 0			Uranium-238	LIQUID		<5.0000E-07			5.00E-07	ug/mL			
Sample Sequence 26																	
26	CCV	S1010200075		0 0			Thorium-232	LIQUID	.001	1.0050E-03			5.00E-07	ug/mL	100.5	% Recovery	
26	CCV	S1010200075		0 0			Uranium-235	LIQUID	.0000072	7.0790E-06			1.00E-08	ug/mL	98.319	% Recovery	
26	CCV	S1010200075		0 0			Neptunium-237	LIQUID	.0011	1.0160E-03			1.00E-07	ug/mL	92.364	% Recovery	
26	CCV	S1010200075		0 0			Uranium-238	LIQUID	.0009928	9.7560E-04			5.00E-07	ug/mL	98.268	% Recovery	
Sample Sequence 27																	
27	LLS	S1010200076		0 0			Thorium-232	LIQUID	.000005	5.2800E-06			5.00E-07	ug/mL	105.6	% Recovery	
27	LLS	S1010200076		0 0			Uranium-235	LIQUID	.000000036	6.1000E-08			1.00E-08	ug/mL	169.44	% Recovery	
27	LLS	S1010200076		0 0			Neptunium-237	LIQUID	.0000049175	5.0380E-06			1.00E-07	ug/mL	102.45	% Recovery	

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00023367

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
27	LLS	S1010200076		0 0			Uranium-238	LIQUID	.000004964	5.0000E-06			5.00E-07	ug/mL	100.73	% Recovery	
Sample Sequence 28																	
28	CCB	S1010200074		0 0			Thorium-230	LIQUID		2.3000E-08			7.00E-09	ug/mL			
28	CCB	S1010200074		0 0			Thorium-232	LIQUID		5.2000E-07			5.00E-07	ug/mL			
28	CCB	S1010200074		0 0			Uranium-233	LIQUID		1.0000E-08			1.00E-08	ug/mL			
28	CCB	S1010200074		0 0			Uranium-234	LIQUID		<5.0000E-09			5.00E-09	ug/mL			
28	CCB	S1010200074		0 0			Uranium-235	LIQUID		<1.0000E-08			1.00E-08	ug/mL			
28	CCB	S1010200074		0 0			Uranium-236	LIQUID		<4.0000E-09			4.00E-09	ug/mL			
28	CCB	S1010200074		0 0			Neptunium-237	LIQUID		<1.0000E-07			1.00E-07	ug/mL			
28	CCB	S1010200074		0 0			Uranium-238	LIQUID		<5.0000E-07			5.00E-07	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00023367

Reviewer Signature **Date**

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

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LABCORE Completed Batch Report for Batch# 00023367

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1010200064	ICV				
2	S1010200066	LLS				
3	S1010200065	ICB				
4	S1009260007	BLNK-PREP				
5	S1010200067	SERDIL	S10V001894			
6	S10V001894	SAMPLE		20100584	B26JK9	C Farm WMC 2010-2
7	S1009260009	DUP	S10V001894			
8	S10V001877	SAMPLE		20100584	B26JK8	C Farm WMC 2010-2
9	S10V001914	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
10	S10V001934	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
11	S10V001954	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
12	S10V002038	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
13	S1010200069	CCV				
14	S1010200070	CCB				
15	S10V002060	SAMPLE		20100584	B26C34	C Farm WMC 2010-2
16	S10V002365	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
17	S10V002513	SAMPLE		20100584	B26C38	C Farm WMC 2010-2
18	S10V002808	SAMPLE		20100584	B26C40	C Farm WMC 2010-2
19	S1009260008	STD-PREP				
20	S1009260008	STD-PREP				
21	S1009260013	SPK-PREDIG	S10V001894			
22	S1009260015	SPK-PREDIG	S10V001894			
23	S1010200068	SPK-POST	S10V001894			
24	S1010200071	CCV				
25	S1010200072	CCB				
26	S1010200075	CCV				
27	S1010200076	LLS				
28	S1010200074	CCB				

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

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LABCORE Completed Batch Report for Batch# 00023808

Analyst: Shaw, Levi **Book#:**

Instrument: ICP/MS PQ-EXCELL

Method: MS ACTINIDES, LA-506-102 Rev/Mod F-1

Specification: C Farm WMC 2010-2

Prep Batch: 00023398

Batch Comment:

ICPMS-PQ for C-Farm WMC 2010-2 Solids for U/Th. LND

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	S1011040048		0 0			Thorium-232	LIQUID	.001	1.0080E-03			5.00E-07	ug/mL	100.8	% Recovery	
Sample Sequence 2																	
2	LLS	S1011040050		0 0			Thorium-232	LIQUID	.000005	5.7490E-06			5.00E-07	ug/mL	114.98	% Recovery	
Sample Sequence 3																	
3	ICB	S1011040049		0 0			Thorium-230	LIQUID		<7.0000E-09			7.00E-09	ug/mL			
3	ICB	S1011040049		0 0			Thorium-232	LIQUID		<5.0000E-07			5.00E-07	ug/mL			
Sample Sequence 4																	
4	BLNK-PREP	S1010200168		0 0	A		Thorium-230	LIQUID		4.1590E-06			2.80E-06	ug/mL			
4	BLNK-PREP	S1010200168		0 0	A		Thorium-232	LIQUID		<2.0000E-04			2.00E-04	ug/mL			
Sample Sequence 5																	
5	SAMPLE	S10V001877		0 2	A		Thorium-230	SOLID	N/A	<2.8003E-05			2.80E-05	ug/g			U
5	SAMPLE	S10V001877		0 2	A		Thorium-232	SOLID	N/A	2.9103E+00			2.00E-03	ug/g			
Sample Sequence 6																	
6	SAMPLE	S10V001914		0 3	A		Thorium-230	SOLID	N/A	<2.7904E-05			2.79E-05	ug/g			U
6	SAMPLE	S10V001914		0 3	A		Thorium-232	SOLID	N/A	3.9355E+00			1.99E-03	ug/g			
Sample Sequence 7																	
7	SAMPLE	S10V001934		0 3	A		Thorium-230	SOLID	N/A	3.4724E-05			2.77E-05	ug/g			BJ
7	SAMPLE	S10V001934		0 3	A		Thorium-232	SOLID	N/A	1.8741E+00			1.98E-03	ug/g			
Sample Sequence 8																	
8	SAMPLE	S10V001954		0 2	A		Thorium-230	SOLID	N/A	<2.7984E-05			2.80E-05	ug/g			U
8	SAMPLE	S10V001954		0 2	A		Thorium-232	SOLID	N/A	3.2172E+00			2.00E-03	ug/g			
Sample Sequence 9																	
9	SAMPLE	S10V002038		0 2	A		Thorium-230	SOLID	N/A	<2.7790E-05			2.78E-05	ug/g			U
9	SAMPLE	S10V002038		0 2	A		Thorium-232	SOLID	N/A	2.8207E+00			1.99E-03	ug/g			
Sample Sequence 10																	
10	CCV	S1011040053		0 0			Thorium-232	LIQUID	.001	1.0140E-03			5.00E-07	ug/mL	101.4	% Recovery	
Sample Sequence 11																	
11	CCB	S1011040054		0 0			Thorium-230	LIQUID		<7.0000E-09			7.00E-09	ug/mL			
11	CCB	S1011040054		0 0			Thorium-232	LIQUID		<5.0000E-07			5.00E-07	ug/mL			
Sample Sequence 12																	
12	SAMPLE	S10V002060		0 1	A		Thorium-230	SOLID	N/A	<2.8016E-05			2.80E-05	ug/g			U
12	SAMPLE	S10V002060		0 1	A		Thorium-232	SOLID	N/A	2.5935E+00			2.00E-03	ug/g			
Sample Sequence 13																	

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LABCORE Completed Batch Report for Batch# 00023808

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
13	SAMPLE	S10V002513		0 1	A		Thorium-230	SOLID	N/A	<2.7820E-05			2.78E-05	ug/g			U
13	SAMPLE	S10V002513		0 1	A		Thorium-232	SOLID	N/A	4.1819E+00			1.99E-03	ug/g			
Sample Sequence 14																	
14	SAMPLE	S10V002808		0 1	A		Thorium-230	SOLID	N/A	<2.7887E-05			2.79E-05	ug/g			U
14	SAMPLE	S10V002808		0 1	A		Thorium-232	SOLID	N/A	2.4252E+00			1.99E-03	ug/g			
Sample Sequence 15																	
15	SAMPLE	S10V002365		0 1	A		Thorium-230	SOLID	N/A	<2.7756E-05			2.78E-05	ug/g			U
15	SAMPLE	S10V002365		0 1	A		Thorium-232	SOLID	N/A	3.7838E+00			1.98E-03	ug/g			
Sample Sequence 16																	
16	STD-PREP	S1010200169		0 0	A		Thorium-232	LIQUID	.02	2.1430E-02			1.00E-05	ug/mL	107.15	% Recovery	
Sample Sequence 17																	
17	SPK-PREDIG	S1010200171	S10V001894	0 0	A		Thorium-232	SOLID	1.99381916	5.3245E+00			1.99E-03	ug/g	113.61	% Recovery	
Sample Sequence 18																	
18	SPK-POST	S1011040052	S10V001894	0 0			Thorium-232	SOLID	.4	7.4010E-01			5.00E-07	ug/mL	108.52	% Recovery	
Sample Sequence 19																	
19	CCV	S1011040058		0 0			Thorium-232	LIQUID	.001	1.0080E-03			5.00E-07	ug/mL	100.8	% Recovery	
Sample Sequence 20																	
20	CCB	S1011040057		0 0			Thorium-230	LIQUID		<7.0000E-09			7.00E-09	ug/mL			
20	CCB	S1011040057		0 0			Thorium-232	LIQUID		5.2000E-07			5.00E-07	ug/mL			
Sample Sequence 21																	
21	CCV	S1011040055		0 0			Thorium-232	LIQUID	.001	9.9030E-04			5.00E-07	ug/mL	99.03	% Recovery	
Sample Sequence 22																	
22	LLS	S1011040061		0 0			Thorium-232	LIQUID	.000005	6.6410E-06			5.00E-07	ug/mL	132.82	% Recovery	
Sample Sequence 23																	
23	CCB	S1011040056		0 0			Thorium-230	LIQUID		<7.0000E-09			7.00E-09	ug/mL			
23	CCB	S1011040056		0 0			Thorium-232	LIQUID		8.0400E-07			5.00E-07	ug/mL			
Sample Sequence 24																	
24	ICV	S1011040060		0 0			Thorium-232	LIQUID	.001	9.7840E-04			5.00E-07	ug/mL	97.84	% Recovery	
Sample Sequence 25																	
25	LLS	S1011040064		0 0			Thorium-232	LIQUID	.000005	5.5980E-06			5.00E-07	ug/mL	111.96	% Recovery	
Sample Sequence 26																	
26	ICB	S1011040059		0 0			Thorium-230	LIQUID		2.0000E-08			7.00E-09	ug/mL			
26	ICB	S1011040059		0 0			Thorium-232	LIQUID		<5.0000E-07			5.00E-07	ug/mL			
Sample Sequence 27																	
27	SERDIL	S1011040051	S10V001894	0 0			Thorium-230	SOLID		2.7174E-04			1.40E-04	ug/g	203.18	% Diff	
27	SERDIL	S1011040051	S10V001894	0 0			Thorium-232	SOLID		2.9743E+00			1.00E-02	ug/g	2.7769	% Diff	
Sample Sequence 28																	
28	SAMPLE	S10V001894		0 2	A		Thorium-230	SOLID	N/A	8.9630E-05			2.80E-05	ug/g			BJ
28	SAMPLE	S10V001894		0 2	A		Thorium-232	SOLID	N/A	3.0593E+00			2.00E-03	ug/g			
Sample Sequence 29																	
29	DUP	S1010200170	S10V001894	0 0	A		Thorium-230	SOLID	8.9630E-05	7.9587E-05			2.79E-05	ug/g	11.870	% RPD	
29	DUP	S1010200170	S10V001894	0 0	A		Thorium-232	SOLID	3.0593E+00	3.2824E+00			1.99E-03	ug/g	7.0351	% RPD	
Sample Sequence 30																	
30	CCV	S1011040063		0 0			Thorium-232	LIQUID	.001	9.3640E-04			5.00E-07	ug/mL	93.64	% Recovery	
Sample Sequence 31																	

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LABCORE Completed Batch Report for Batch# 00023808

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
31	CCB	S1011040062		0 0			Thorium-230	LIQUID		2.0000E-08			7.00E-09	ug/mL			
31	CCB	S1011040062		0 0			Thorium-232	LIQUID		6.0900E-07			5.00E-07	ug/mL			
Sample Sequence 32																	
32	CCV	S1011040066		0 0			Thorium-232	LIQUID	.001	9.1690E-04			5.00E-07	ug/mL	91.69	% Recovery	
Sample Sequence 33																	
33	LLS	S1011040067		0 0			Thorium-232	LIQUID	.000005	5.9130E-06			5.00E-07	ug/mL	118.26	% Recovery	
Sample Sequence 34																	
34	CCB	S1011040065		0 0			Thorium-230	LIQUID		9.0000E-09			7.00E-09	ug/mL			
34	CCB	S1011040065		0 0			Thorium-232	LIQUID		6.6000E-07			5.00E-07	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00023808

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

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LABCORE Completed Batch Report for Batch# 00023808

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1011040048	ICV				
2	S1011040050	LLS				
3	S1011040049	ICB				
4	S1010200168	BLNK-PREP				
5	S10V001877	SAMPLE		20100584	B26JK8	C Farm WMC 2010-2
6	S10V001914	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
7	S10V001934	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
8	S10V001954	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
9	S10V002038	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
10	S1011040053	CCV				
11	S1011040054	CCB				
12	S10V002060	SAMPLE		20100584	B26C34	C Farm WMC 2010-2
13	S10V002513	SAMPLE		20100584	B26C38	C Farm WMC 2010-2
14	S10V002808	SAMPLE		20100584	B26C40	C Farm WMC 2010-2
15	S10V002365	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
16	S1010200169	STD-PREP				
17	S1010200171	SPK-PREDIG	S10V001894			
18	S1011040052	SPK-POST	S10V001894			
19	S1011040058	CCV				
20	S1011040057	CCB				
21	S1011040055	CCV				
22	S1011040061	LLS				
23	S1011040056	CCB				
24	S1011040060	ICV				
25	S1011040064	LLS				
26	S1011040059	ICB				
27	S1011040051	SERDIL	S10V001894			
28	S10V001894	SAMPLE		20100584	B26JK9	C Farm WMC 2010-2
29	S1010200170	DUP	S10V001894			
30	S1011040063	CCV				
31	S1011040062	CCB				
32	S1011040066	CCV				
33	S1011040067	LLS				
34	S1011040065	CCB				

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

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LABCORE Completed Batch Report for Batch# 00024040

Analyst: Mull, Bryanna **Book#:**

Instrument: ICP/MS PQ-EXCELL

Method: MS FISSION PRODUCTS, LA-506-102 Rev/Mod F-1

Specification: C Farm WMC 2010-2

Prep Batch: 00022545

Batch Comment:

ICP-MS analyasis of fission products for C Farm WMC 2010-2 acid 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																	
2	ICV	S1011150079		0 1			Technetium-99	LIQUID	.001	9.8870E-04			3.00E-07	ug/mL	98.87	% Recovery	
1	ICV	S1011150079		0 0			Tin-117	LIQUID	.001	1.0500E-03			1.00E-05	ug/mL	105	% Recovery	
Sample Sequence 3																	
4	LLS	S1011150081		0 1			Technetium-99	LIQUID	.000002	2.2650E-06			3.00E-07	ug/mL	113.25	% Recovery	
3	LLS	S1011150081		0 0			Tin-117	LIQUID	.000016	1.8500E-05			1.00E-05	ug/mL	115.62	% Recovery	
Sample Sequence 5																	
5	ICB	S1011150080		0 0			Technetium-99	LIQUID		<3.0000E-07			3.00E-07	ug/mL			
5	ICB	S1011150080		0 0			Tin-117	LIQUID		<1.0000E-05			1.00E-05	ug/mL			
5	ICB	S1011150080		0 0			Tin-126	LIQUID		<2.0000E-07			2.00E-07	ug/mL			
Sample Sequence 6																	
6	BLNK-PREP	S1009260001		0 0	A		Technetium-99	LIQUID		<3.0000E-05			3.00E-05	ug/mL			
6	BLNK-PREP	S1009260001		0 0	A		Tin-117	LIQUID		<1.0000E-03			1.00E-03	ug/mL			
6	BLNK-PREP	S1009260001		0 0	A		Tin-126	LIQUID		<2.0000E-05			2.00E-05	ug/mL			
Sample Sequence 7																	
7	SERDIL	S1011150082	S10V001916	0 0			Technetium-99	SOLID		<1.4829E-03			1.48E-03	ug/g	N/A		
7	SERDIL	S1011150082	S10V001916	0 0			Tin-117	SOLID		<4.9432E-02			0.049432	ug/g	N/A		
7	SERDIL	S1011150082	S10V001916	0 0			Tin-126	SOLID		<9.8863E-04			9.89E-04	ug/g	N/A		
Sample Sequence 8																	
8	SAMPLE	S10V001916		0 0	A		Technetium-99	SOLID	N/A	<2.9659E-04			2.97E-04	ug/g			U
8	SAMPLE	S10V001916		0 0	A		Tin-117	SOLID	N/A	<9.8863E-03			9.89E-03	ug/g			Ub
8	SAMPLE	S10V001916		0 0	A		Tin-126	SOLID	N/A	5.4928E-04			1.98E-04	ug/g			BJb
Sample Sequence 9																	
9	DUP	S1009260003	S10V001916	0 0	A		Technetium-99	SOLID	<2.9659E-04	<2.9789E-04			2.98E-04	ug/g			
9	DUP	S1009260003	S10V001916	0 0	A		Tin-117	SOLID	<9.8863E-03	<9.9297E-03			9.93E-03	ug/g			
9	DUP	S1009260003	S10V001916	0 0	A		Tin-126	SOLID	5.4928E-04	5.2707E-04			1.99E-04	ug/g	4.1275	% RPD	
Sample Sequence 10																	
10	SAMPLE	S10V001879		0 0	A		Technetium-99	SOLID	N/A	<2.9982E-04			3.00E-04	ug/g			U
10	SAMPLE	S10V001879		0 0	A		Tin-117	SOLID	N/A	1.0204E-02			9.99E-03	ug/g			Jb
10	SAMPLE	S10V001879		0 0	A		Tin-126	SOLID	N/A	4.8911E-04			2.00E-04	ug/g			BJb
Sample Sequence 11																	
12	CCV	S1011150084		0 1			Technetium-99	LIQUID	.001	9.9760E-04			3.00E-07	ug/mL	99.76	% Recovery	
11	CCV	S1011150084		0 0			Tin-117	LIQUID	.001	1.0510E-03			1.00E-05	ug/mL	105.1	% Recovery	
Sample Sequence 13																	

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00024040

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
13	CCB	S1011150085		0 0			Technetium-99	LIQUID		<3.0000E-07			3.00E-07	ug/mL			
13	CCB	S1011150085		0 0			Tin-117	LIQUID		<1.0000E-05			1.00E-05	ug/mL			
13	CCB	S1011150085		0 0			Tin-126	LIQUID		2.4200E-07			2.00E-07	ug/mL			
Sample Sequence 14																	
14	SAMPLE	S10V001896		0 0	A		Technetium-99	SOLID	N/A	<2.9966E-04			3.00E-04	ug/g			U
14	SAMPLE	S10V001896		0 0	A		Tin-117	SOLID	N/A	1.1457E-02			9.99E-03	ug/g			Jb
14	SAMPLE	S10V001896		0 0	A		Tin-126	SOLID	N/A	5.8653E-04			2.00E-04	ug/g			BJb
Sample Sequence 15																	
15	SAMPLE	S10V001936		0 0	A		Technetium-99	SOLID	N/A	<2.9619E-04			2.96E-04	ug/g			Ub
15	SAMPLE	S10V001936		0 0	A		Tin-117	SOLID	N/A	1.3200E-02			9.87E-03	ug/g			Jb
15	SAMPLE	S10V001936		0 0	A		Tin-126	SOLID	N/A	<1.9746E-04			1.97E-04	ug/g			U
Sample Sequence 16																	
16	SAMPLE	S10V001956		0 0	A		Technetium-99	SOLID	N/A	<2.9548E-04			2.95E-04	ug/g			U
16	SAMPLE	S10V001956		0 0	A		Tin-117	SOLID	N/A	<9.8493E-03			9.85E-03	ug/g			Ub
16	SAMPLE	S10V001956		0 0	A		Tin-126	SOLID	N/A	3.1488E-04			1.97E-04	ug/g			BJb
Sample Sequence 17																	
17	SAMPLE	S10V002040		0 0	A		Technetium-99	SOLID	N/A	<2.9666E-04			2.97E-04	ug/g			U
17	SAMPLE	S10V002040		0 0	A		Tin-117	SOLID	N/A	<9.8887E-03			9.89E-03	ug/g			Ub
17	SAMPLE	S10V002040		0 0	A		Tin-126	SOLID	N/A	2.9350E-04			1.98E-04	ug/g			BJb
Sample Sequence 18																	
18	SAMPLE	S10V002062		0 0	A		Technetium-99	SOLID	N/A	<2.9748E-04			2.97E-04	ug/g			U
18	SAMPLE	S10V002062		0 0	A		Tin-117	SOLID	N/A	<9.9159E-03			9.92E-03	ug/g			Ub
18	SAMPLE	S10V002062		0 0	A		Tin-126	SOLID	N/A	4.2956E-04			1.98E-04	ug/g			BJb
Sample Sequence 19																	
19	SAMPLE	S10V002370		0 0	A		Technetium-99	SOLID	N/A	<2.9868E-04			2.99E-04	ug/g			U
19	SAMPLE	S10V002370		0 0	A		Tin-117	SOLID	N/A	<9.9560E-03			9.96E-03	ug/g			Ub
19	SAMPLE	S10V002370		0 0	A		Tin-126	SOLID	N/A	4.2154E-04			1.99E-04	ug/g			BJb
Sample Sequence 20																	
20	SAMPLE	S10V002515		0 0	A		Technetium-99	SOLID	N/A	<2.9855E-04			2.99E-04	ug/g			U
20	SAMPLE	S10V002515		0 0	A		Tin-117	SOLID	N/A	<9.9518E-03			9.95E-03	ug/g			Ub
20	SAMPLE	S10V002515		0 0	A		Tin-126	SOLID	N/A	3.3786E-04			1.99E-04	ug/g			BJb
Sample Sequence 21																	
21	SAMPLE	S10V002810		0 0	A		Technetium-99	SOLID	N/A	<2.9600E-04			2.96E-04	ug/g			U
21	SAMPLE	S10V002810		0 0	A		Tin-117	SOLID	N/A	<9.8666E-03			9.87E-03	ug/g			Ub
21	SAMPLE	S10V002810		0 0	A		Tin-126	SOLID	N/A	2.6156E-04			1.97E-04	ug/g			BJb
Sample Sequence 22																	
22	STD-PREP	S1009260006		0 0	A		Technetium-99	LIQUID	.0005249	5.7470E-04			3.00E-07	ug/mL	109.49	% Recovery	
23	STD-PREP	S1009260006		0 1	A		Tin-117	LIQUID	.00308	3.3170E-03			2.00E-05	ug/mL	107.69	% Recovery	
Sample Sequence 24																	
24	CCV	S1011150086		0 0			Technetium-99	LIQUID	.001	9.8980E-04			3.00E-07	ug/mL	98.98	% Recovery	
25	CCV	S1011150086		0 1			Tin-117	LIQUID	.001	1.0700E-03			1.00E-05	ug/mL	107	% Recovery	
Sample Sequence 26																	
26	CCB	S1011150087		0 0			Technetium-99	LIQUID		<3.0000E-07			3.00E-07	ug/mL			
26	CCB	S1011150087		0 0			Tin-117	LIQUID		<1.0000E-05			1.00E-05	ug/mL			

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00024040

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
26	CCB	S1011150087		0 0			Tin-126	LIQUID		2.5800E-07			2.00E-07	ug/mL			
Sample Sequence 27																	
27	SPK-PREDIG	S1009260004	S10V001916	0 0	A		Technetium-99	SOLID	.0052090983	5.8790E-03			2.98E-04	ug/g	112.86	% Recovery	
Sample Sequence 28																	
28	SPK-PREDIG	S1009260005	S10V001916	0 0	A		Tin-117	SOLID	.15383385864	8.1302E-02			9.99E-03	ug/g	52.851	% Recovery	
Sample Sequence 29																	
30	SPK-POST	S1011150083	S10V001916	0 1			Technetium-99	SOLID	.1	9.0630E-02			3.00E-07	ug/mL	90.63	% Recovery	
29	SPK-POST	S1011150083	S10V001916	0 0			Tin-117	SOLID	.1	1.0620E-01			1.00E-05	ug/mL	106.2	% Recovery	
Sample Sequence 31																	
32	CCV	S1011150089		0 1			Technetium-99	LIQUID	.001	9.8390E-04			3.00E-07	ug/mL	98.39	% Recovery	
31	CCV	S1011150089		0 0			Tin-117	LIQUID	.001	1.0620E-03			1.00E-05	ug/mL	106.2	% Recovery	
Sample Sequence 33																	
34	LLS	S1011150090		0 1			Technetium-99	LIQUID	.000002	2.2150E-06			3.00E-07	ug/mL	110.75	% Recovery	
33	LLS	S1011150090		0 0			Tin-117	LIQUID	.000016	1.8130E-05			1.00E-05	ug/mL	113.31	% Recovery	
Sample Sequence 35																	
35	CCB	S1011150088		0 0			Technetium-99	LIQUID		<3.0000E-07			3.00E-07	ug/mL			
35	CCB	S1011150088		0 0			Tin-117	LIQUID		<1.0000E-05			1.00E-05	ug/mL			
35	CCB	S1011150088		0 0			Tin-126	LIQUID		<2.0000E-07			2.00E-07	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00024040

Reviewer Signature **Date**

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LABCORE Completed Batch Report for Batch# 00024040

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1011150079	ICV				
2	S1011150079	ICV				
3	S1011150081	LLS				
4	S1011150081	LLS				
5	S1011150080	ICB				
6	S1009260001	BLNK-PREP				
7	S1011150082	SERDIL	S10V001916			
8	S10V001916	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
9	S1009260003	DUP	S10V001916			
10	S10V001879	SAMPLE		20100584	B26JK8	C Farm WMC 2010-2
11	S1011150084	CCV				
12	S1011150084	CCV				
13	S1011150085	CCB				
14	S10V001896	SAMPLE		20100584	B26JK9	C Farm WMC 2010-2
15	S10V001936	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
16	S10V001956	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
17	S10V002040	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
18	S10V002062	SAMPLE		20100584	B26C34	C Farm WMC 2010-2
19	S10V002370	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
20	S10V002515	SAMPLE		20100584	B26C38	C Farm WMC 2010-2
21	S10V002810	SAMPLE		20100584	B26C40	C Farm WMC 2010-2
22	S1009260006	STD-PREP				
23	S1009260006	STD-PREP				
24	S1011150086	CCV				
25	S1011150086	CCV				
26	S1011150087	CCB				
27	S1009260004	SPK-PREDIG	S10V001916			
28	S1009260005	SPK-PREDIG	S10V001916			
29	S1011150083	SPK-POST	S10V001916			
30	S1011150083	SPK-POST	S10V001916			
31	S1011150089	CCV				
32	S1011150089	CCV				
33	S1011150090	LLS				
34	S1011150090	LLS				
35	S1011150088	CCB				

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# 00023951

Analyst: Shaw, Levi **Book#:**

Instrument: ICP/MS AGILENT

Method: MS TC-99, LA-506-103 Rev/Mod B-0

Specification: C Farm WMC 2010-2

Prep Batch: 00023834

Batch Comment:

ICP-MS analysis of Tc99 for C Farm WMC 2010-2 water 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	S1011090111		0 0			Technetium-99	LIQUID	.001	1.0040E-03			4.00E-07	ug/mL	100.4	% Recovery	
Sample Sequence 2																	
2	LLS	S1011090113		0 0			Technetium-99	LIQUID	.000001856	1.6220E-06			4.00E-07	ug/mL	87.392	% Recovery	
Sample Sequence 3																	
3	ICB	S1011090112		0 0			Technetium-99	LIQUID		<4.0000E-07			4.00E-07	ug/mL			
Sample Sequence 4																	
4	BLNK-PREP	S1011040136		0 0	WV		Technetium-99	LIQUID		<4.0000E-06			4.00E-06	ug/mL			
Sample Sequence 5																	
5	SERDIL	S1011090114	S10V001889	0 0			Technetium-99	SOLID		<1.9716E-05			1.97E-05	ug/g	N/A		
Sample Sequence 6																	
6	SAMPLE	S10V001889		0 0	WV		Technetium-99	SOLID	N/A	<3.9433E-06			3.94E-06	ug/g			U
Sample Sequence 7																	
7	DUP	S1011040137	S10V001889	0 0	WV		Technetium-99	SOLID	<3.9433E-06	<3.9298E-06			3.93E-06	ug/g			
Sample Sequence 8																	
8	SAMPLE	S10V001909		0 0	WV		Technetium-99	SOLID	N/A	<4.1246E-06			4.12E-06	ug/g			U
Sample Sequence 9																	
9	SAMPLE	S10V001929		0 0	WV		Technetium-99	SOLID	N/A	<3.8579E-06			3.86E-06	ug/g			U
Sample Sequence 10																	
10	SAMPLE	S10V001949		0 0	WV		Technetium-99	SOLID	N/A	<4.0053E-06			4.01E-06	ug/g			U
Sample Sequence 11																	
11	SAMPLE	S10V001969		0 0	WV		Technetium-99	SOLID	N/A	<3.9554E-06			3.96E-06	ug/g			U
Sample Sequence 12																	
12	CCV	S1011090116		0 0			Technetium-99	LIQUID	.001	1.0160E-03			4.00E-07	ug/mL	101.6	% Recovery	
Sample Sequence 13																	
13	CCB	S1011090117		0 0			Technetium-99	LIQUID		<4.0000E-07			4.00E-07	ug/mL			
Sample Sequence 14																	
14	SAMPLE	S10V002055		0 0	WV		Technetium-99	SOLID	N/A	<4.1443E-06			4.14E-06	ug/g			U
Sample Sequence 15																	
15	SAMPLE	S10V002075		0 0	WV		Technetium-99	SOLID	N/A	<4.1637E-06			4.16E-06	ug/g			U
Sample Sequence 16																	
16	SAMPLE	S10V002508		0 0	WV		Technetium-99	SOLID	N/A	<3.8556E-06			3.86E-06	ug/g			U
Sample Sequence 17																	
17	SAMPLE	S10V002803		0 0	WV		Technetium-99	SOLID	N/A	7.1143E-06			3.99E-06	ug/g			J
Sample Sequence 18																	

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LABCORE Completed Batch Report for Batch# 00023951

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
18	SAMPLE	S10V001872		0 0	WV		Technetium-99	SOLID	N/A	<3.9389E-06			3.94E-06	ug/g			U
Sample Sequence 19																	
19	STD-PREP	S1011090118		0 0			Technetium-99	LIQUID	.0010274	1.1254E-03			8.00E-07	ug/mL	109.54	% Recovery	
Sample Sequence 20																	
20	SPK-POST	S1011090115	S10V001889	0 0			Technetium-99	SOLID	.007424	7.4330E-03			4.00E-07	ug/mL	100.12	% Recovery	
Sample Sequence 21																	
21	CCV	S1011090120		0 0			Technetium-99	LIQUID	.001	9.9050E-04			4.00E-07	ug/mL	99.05	% Recovery	
Sample Sequence 22																	
22	LLS	S1011090121		0 0			Technetium-99	LIQUID	.000001856	2.1090E-06			4.00E-07	ug/mL	113.63	% Recovery	
Sample Sequence 23																	
23	CCB	S1011090119		0 0			Technetium-99	LIQUID		<4.0000E-07			4.00E-07	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00023951

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# 00023951

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1011090111	ICV				
2	S1011090113	LLS				
3	S1011090112	ICB				
4	S1011040136	BLNK-PREP				
5	S1011090114	SERDIL	S10V001889			
6	S10V001889	SAMPLE		20100584	B26JK9	C Farm WMC 2010-2
7	S1011040137	DUP	S10V001889			
8	S10V001909	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
9	S10V001929	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
10	S10V001949	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
11	S10V001969	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
12	S1011090116	CCV				
13	S1011090117	CCB				
14	S10V002055	SAMPLE		20100584	B26C34	C Farm WMC 2010-2
15	S10V002075	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
16	S10V002508	SAMPLE		20100584	B26C38	C Farm WMC 2010-2
17	S10V002803	SAMPLE		20100584	B26C40	C Farm WMC 2010-2
18	S10V001872	SAMPLE		20100584	B26JK8	C Farm WMC 2010-2
19	S1011090118	STD-PREP				
20	S1011090115	SPK-POST	S10V001889			
21	S1011090120	CCV				
22	S1011090121	LLS				
23	S1011090119	CCB				

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# 00022200

Analyst: Hexum, Troy

Book#: 121N, 122N11B

Instrument: Hg by FIMS

Method: HG, LA-325-110 Rev/Mod A-0

Specification: C Farm WMC 2010-2

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	S1009140101		0 0			Mercury	LIQUID	.01	9.6260E-03			1.00E-04	ug/mL	96.26	% Recovery	
Sample Sequence 2																	
2	ICB	S1009140102		0 0			Mercury	LIQUID		<1.0000E-04			1.00E-04	ug/mL			
Sample Sequence 3																	
3	LLS	S1009140103		0 0			Mercury	LIQUID	.001	1.0720E-03			1.00E-04	ug/mL	107.2	% Recovery	
Sample Sequence 4																	
4	SAMPLE	S10V001869		0 1			Mercury	SOLID	N/A	<9.3677E-03			9.37E-03	ug/g			U
Sample Sequence 5																	
5	SPK-PREDIG	S1009140111	S10V001869	0 0			Mercury	SOLID	.49975	4.5657E-01			1.00E-02	ug/g	91.36	% Recovery	
Sample Sequence 6																	
6	SPKPRE-DUP	S1009140112	S10V001869	0 0			Mercury	SOLID	.4928535	4.5136E-01			9.86E-03	ug/g	91.58	% Recovery	
															0.24052	% RPD	
Sample Sequence 7																	
7	SAMPLE	S10V001886		0 1			Mercury	SOLID	N/A	<9.5284E-03			9.53E-03	ug/g			U
Sample Sequence 8																	
8	SAMPLE	S10V001906		0 1			Mercury	SOLID	N/A	<9.5057E-03			9.51E-03	ug/g			U
Sample Sequence 9																	
9	SAMPLE	S10V001926		0 1			Mercury	SOLID	N/A	<9.0785E-03			9.08E-03	ug/g			U
Sample Sequence 10																	
10	SAMPLE	S10V001946		0 1			Mercury	SOLID	N/A	<9.1408E-03			9.14E-03	ug/g			U
Sample Sequence 11																	
11	SAMPLE	S10V001966		0 1			Mercury	SOLID	N/A	<9.0950E-03			9.10E-03	ug/g			U
Sample Sequence 12																	
12	SAMPLE	S10V002050		0 1			Mercury	SOLID	N/A	<9.9950E-03			1.00E-02	ug/g			U
Sample Sequence 13																	
13	CCV	S1009140107		0 0			Mercury	LIQUID	.01	8.7660E-03			1.00E-04	ug/mL	87.66	% Recovery	
Sample Sequence 14																	
14	CCB	S1009140108		0 0			Mercury	LIQUID		<1.0000E-04			1.00E-04	ug/mL			
Sample Sequence 15																	
15	SAMPLE	S10V002072		0 1			Mercury	SOLID	N/A	<8.9286E-03			8.93E-03	ug/g			U
Sample Sequence 16																	
16	SAMPLE	S10V002467		0 1			Mercury	SOLID	N/A	<9.6339E-03			9.63E-03	ug/g			U
Sample Sequence 17																	
17	SAMPLE	S10V002486		0 1			Mercury	SOLID	N/A	<9.9256E-03			9.93E-03	ug/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# 00022200

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 18																	
18	SAMPLE	S10V002505		0 1			Mercury	SOLID	N/A	<9.2550E-03			9.26E-03	ug/g			U
Sample Sequence 19																	
19	SAMPLE	S10V002800		0 1			Mercury	SOLID	N/A	<8.9008E-03			8.90E-03	ug/g			U
Sample Sequence 20																	
20	CCV	S1009140110		0 0			Mercury	LIQUID	.01	8.8160E-03			1.00E-04	ug/mL	88.16	% Recovery	
Sample Sequence 21																	
21	CCB	S1009140109		0 0			Mercury	LIQUID		<1.0000E-04			1.00E-04	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00022200

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# 00022200

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1009140101	ICV				
2	S1009140102	ICB				
3	S1009140103	LLS				
4	S10V001869	SAMPLE		20100584	B26JK8	C Farm WMC 2010-2
5	S1009140111	SPK-PREDIG	S10V001869			
6	S1009140112	SPKPRE-DUP	S10V001869			
7	S10V001886	SAMPLE		20100584	B26JK9	C Farm WMC 2010-2
8	S10V001906	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
9	S10V001926	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
10	S10V001946	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
11	S10V001966	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
12	S10V002050	SAMPLE		20100584	B26C34	C Farm WMC 2010-2
13	S1009140107	CCV				
14	S1009140108	CCB				
15	S10V002072	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
16	S10V002467	SAMPLE		20100660	B26C59	C Farm WMC 2010-2
17	S10V002486	SAMPLE		20100660	B26C61	C Farm WMC 2010-2
18	S10V002505	SAMPLE		20100584	B26C38	C Farm WMC 2010-2
19	S10V002800	SAMPLE		20100584	B26C40	C Farm WMC 2010-2
20	S1009140110	CCV				
21	S1009140109	CCB				

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

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

Date: 30 May 2011
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: WMA C
Subject: General Chemistry - Sample Data Group (SDG) 20100584

INTRODUCTION

This memorandum presents the results of data validation for SDG 20100584 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
B26C30	8/29/2010	Soil	C	See note 1
B26C38	9/01/2010	Soil	C	See note 1

1 – 300.7 (ammonium), 9014 (cyanide), 9045D (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 Waste Management Area C, RPP-PLAN-40564, Rev. 2 (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 soil samples are as follows:

- All anions – analysis within 48 hours of sample preparation
- Ammonium – analysis within 7 days of sample collection
- pH – analysis as soon as possible after sample collection (24 hours is a reasonable limit)
- Sulfide – analysis within 7 days of sample collection
- Cyanide – analysis within 14 days of sample collection

Sample preservation for soil requires chilling to approximately 4 degrees Celsius.

The samples were analyzed within the prescribed holding times and properly preserved with the following exceptions. Samples B26C30 and B26C38 were analyzed for pH 22 and 19 days, respectively, after sample collection. Based on professional judgment, these 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. The chloride and ammonium laboratory blank results were > the method detection limits (MDLs). The chloride results for samples B26C30 and B26C38 were detects >5X the laboratory blank result and should not be qualified. The ammonium results for samples B26C30 and B26C38 were detects <5X the laboratory blank result and would be qualified as non-detects at the sample concentrations (19.9 ug/g and 2.10 ug/g, respectively) and flagged "U," but were further flagged "UJ" due to lack of MS and laboratory duplicate data.

Trip Blanks

No trip blanks were submitted for validation.

Field Blanks

No field blanks were submitted for validation.

Equipment Blanks

No equipment blanks were submitted for validation.

- **Accuracy**

Accuracy is evaluated by reviewing matrix spike sample results and laboratory control sample results. According to the SAP, the matrix spike sample accuracy limits are 75% to 125% and the laboratory control sample accuracy limits are 80% to 120%. 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 with the following exception. For ammonium batch 21960, the parent sample was inadvertently spiked with MS spiking solution. Therefore, MS data was not reported and samples B26C30 and B26C38 should be qualified as estimates and flagged "UJ" due to lack of MS data.

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 soil duplicate RPDs exceed the limits and have associated results <5X the SAP required detection limits with differences <2X the required detection limits no precision infraction occurred.

Laboratory Duplicate Samples

All laboratory duplicate results were acceptable with the following exception. For ammonium batch 21960, the parent sample was inadvertently spiked with MS spiking solution. Therefore, laboratory duplicate data was not reported and samples B26C30 and B26C38 should be qualified as estimates and flagged "UJ" due to lack of laboratory duplicate data.

Field Duplicate Samples

No field duplicates were submitted for validation.

Field Split Samples

No field splits were submitted for validation.

- **Detection Limits**

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

All reported sample MDLs with associated non-detected sample results were below the RDLs.

- **Completeness**

SDG 20100584 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 several results as estimates were due to holding time infractions, a laboratory blank infraction, and lack of ammonium QC data. See the table in Appendix 2 for a listing of all affected sample results.

REFERENCES

GRP-GD-003, Rev. 0, Change 0, *Data Validation for Chemical Analyses*, August 2010.

RPP-PLAN-40564, Rev. 2, *Field Sampling and Analysis Plan for Waste Management Area C*, December 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, but 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 RL. 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.

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

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

- **N** — The analysis indicates the presence of an analyte that has been tentatively identified.

- **NJ** — The analysis indicates the presence of an analyte that has been tentatively identified and the associated numerical value represents its approximate concentration.

- **NJ+** — The analysis indicates the presence of an analyte that has been tentatively identified. The associated value is estimated with a suspected positive bias due to a quality control deficiency identified during data validation.

- **NJ-** — The analysis indicates the presence of an analyte that has been tentatively identified. The associated value is estimated with a suspected negative bias due to a quality control deficiency identified during data validation.

- **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: 20100584	Reviewer: AQA	Project: WMA C	Page 1 of 1
Analyte(s)	**DV Flag**	**Samples Affected**	**Reason**
pH	J	B26C30, B26C38	Analysis beyond the holding time
Ammonium	19.9UJ	B26C30	Lab blank contamination, and lack of MS and laboratory duplicate data.
Ammonium	2.10UJ	B26C38	Lab blank contamination, and lack of MS and laboratory duplicate data.

Comments: None

Appendix 3

Annotated Laboratory Reports

Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C30
Sample Depth: 14-16

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5-30-2011

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V001946			%WATERA	%WATER-APD	%	n/a	n/a	4.910	n/a	n/a	n/a	n/a	0.01000	n/a	
S10V001946			57-12-5	Cyanide	ug/g	99.7	<0.0370	<2.64	n/a	n/a	n/a	n/a	2.64	n/a	U
S10V001946			7439-97-6	Mercury	ug/g	96.3	<1.00E-04	<9.14E-03	n/a	n/a	n/a	n/a	9.14E-03	n/a	U
S10V001946			PH	pH J	unitless	n/a	n/a	9.71	n/a	n/a	n/a	n/a	0.0100	n/a	
S10V001946			12597-04-5	Sulfide	ug/g	82.8	<0.180	12.7	n/a	n/a	n/a	n/a	7.03	n/a	B
S10V001948			13966-00-2	Potassium-40	uCi/g	n/a	n/a	9.70E-06	1.11E-05	n/a	n/a	n/a	7.18E-06	47.56	
S10V001948			10198-40-0	Cobalt-60	uCi/g	99.1	<2.73E-07	<3.54E-07	<3.54E-07	n/a	n/a	n/a	3.54E-07	n/a	U
S10V001948			14234-35-6	Antimony-125	uCi/g	n/a	<7.34E-07	<9.18E-07	<8.55E-07	n/a	n/a	n/a	9.18E-07	n/a	U
S10V001948			10045-97-3	Cesium-137	uCi/g	101	<3.64E-07	<4.56E-07	<4.19E-07	n/a	n/a	n/a	4.56E-07	n/a	U
S10V001948			14683-23-9	Europium-152	uCi/g	n/a	<1.35E-06	<1.82E-06	<1.56E-06	n/a	n/a	n/a	1.82E-06	n/a	U
S10V001948			15585-10-1	Europium-154	uCi/g	n/a	<8.57E-07	<1.22E-06	<1.09E-06	n/a	n/a	n/a	1.22E-06	n/a	U
S10V001948			14391-16-3	Europium-155	uCi/g	n/a	<4.62E-07	<5.93E-07	<5.36E-07	n/a	n/a	n/a	5.93E-07	n/a	U
S10V001948			14274-82-9	Thorium-228	uCi/g	n/a	<8.13E-06	<1.08E-05	<9.98E-06	n/a	n/a	n/a	1.08E-05	n/a	U
S10V001948			15065-10-8	Thorium-234	uCi/g	n/a	<2.85E-06	<3.55E-06	<3.42E-06	n/a	n/a	n/a	3.55E-06	n/a	U
S10V001948			15046-84-1	Iodine-129	uCi/g	111	<1.83E-07	<2.23E-07	n/a	n/a	n/a	n/a	2.23E-07	n/a	U
S10V001949		WV	14133-76-7	Technetium-99	ug/g	110	<4.00E-06	<4.01E-06	n/a	n/a	n/a	n/a	4.01E-06	n/a	U
S10V001950		W	14762-75-5	Carbon-14	uCi/g	91.6	<1.40E-06	<1.29E-06	n/a	n/a	n/a	n/a	1.29E-06	n/a	U
S10V001950		W	10028-17-8	Tritium	uCi/g	92.9	<3.75E-07	<5.10E-05	n/a	n/a	n/a	n/a	5.10E-05	n/a	U
S10V001951		A	7440-36-0	Antimony	ug/g	102	<2.00E-04	0.111	n/a	n/a	n/a	n/a	9.70E-03	n/a	J
S10V001952		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	60.1	<77.4	<77.3	n/a	n/a	n/a	n/a	77.3	n/a	U
S10V001952		O	95-50-1	1,2-Dichlorobenzene	ug/kg	n/a	<101	<101	n/a	n/a	n/a	n/a	101	n/a	U
S10V001952		O	121-14-2	2,4-Dinitrotoluene	ug/kg	77.8	<38.1	<38.1	n/a	n/a	n/a	n/a	38.1	n/a	U
S10V001952		O	95-95-4	2,4,5-Trichlorophenol	ug/kg	n/a	<44.0	<44.0	n/a	n/a	n/a	n/a	44.0	n/a	U
S10V001952		O	88-06-2	2,4,6-Trichlorophenol	ug/kg	n/a	<49.5	<49.5	n/a	n/a	n/a	n/a	49.5	n/a	U
S10V001952		O	95-48-7	2-Methylphenol	ug/kg	n/a	<57.5	<57.5	n/a	n/a	n/a	n/a	57.5	n/a	U
S10V001952		O	88-75-5	2-Nitrophenol	ug/kg	n/a	<53.7	<53.7	n/a	n/a	n/a	n/a	53.7	n/a	U
S10V001952		O	65794-96-9	3 &4 Methylphenol	ug/kg	n/a	<51.4	<51.4	n/a	n/a	n/a	n/a	51.4	n/a	U
S10V001952		O	83-32-9	Acenaphthene	ug/kg	68.0	<17.6	<17.6	n/a	n/a	n/a	n/a	17.6	n/a	U
S10V001952		O	56-55-3	Benzo(a)anthracene	ug/kg	n/a	<37.8	<37.8	n/a	n/a	n/a	n/a	37.8	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
M - RPD Outside Range
N - MS/MSD Outside Range
C - Blank Contamination
B - Blank Contamination
B - Estimated
J - Estimated
T - MS/MSD Outside Range

Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C30
Sample Depth: 14-16

LS
5-30-2011

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V001952		O	205-99-2	Benzo(b)fluoranthene	ug/kg	n/a	<48.9	<48.9	n/a	n/a	n/a	n/a	48.9	n/a	U
S10V001952		O	50-32-8	Benzo(a)pyrene	ug/kg	n/a	<41.2	<41.2	n/a	n/a	n/a	n/a	41.2	n/a	U
S10V001952		O	117-81-7	Bis(2-ethylhexyl) phthalate	ug/kg	n/a	<590	<590	n/a	n/a	n/a	n/a	590	n/a	U
S10V001952		O	207-08-9	Benzo(k)fluoranthene	ug/kg	n/a	<39.1	<39.1	n/a	n/a	n/a	n/a	39.1	n/a	U
S10V001952		O	85-68-7	Butylbenzylphthalate	ug/kg	n/a	<50.0	<50.0	n/a	n/a	n/a	n/a	50.0	n/a	U
S10V001952		O	59-50-7	4-Chloro-3-methylphenol	ug/kg	62.7	<43.2	<43.2	n/a	n/a	n/a	n/a	43.2	n/a	U
S10V001952		O	95-57-8	2-Chlorophenol	ug/kg	68.0	<66.5	<66.4	n/a	n/a	n/a	n/a	66.4	n/a	U
S10V001952		O	218-01-9	Chrysene	ug/kg	n/a	<81.4	<81.3	n/a	n/a	n/a	n/a	81.3	n/a	U
S10V001952		O	53-70-3	Dibenz[a,h]anthracene	ug/kg	n/a	<51.1	<51.1	n/a	n/a	n/a	n/a	51.1	n/a	U
S10V001952		O	84-74-2	Di-n-butylphthalate	ug/kg	n/a	<562	<562	n/a	n/a	n/a	n/a	562	n/a	U
S10V001952		O	117-84-0	Di-n-octylphthalate	ug/kg	n/a	<47.7	<47.7	n/a	n/a	n/a	n/a	47.7	n/a	U
S10V001952		O	621-64-7	N-Nitroso-di-n-dipropylamine	ug/kg	63.8	<58.1	<58.1	n/a	n/a	n/a	n/a	58.1	n/a	U
S10V001952		O	206-44-0	Fluoranthene	ug/kg	n/a	<35.4	<35.4	n/a	n/a	n/a	n/a	35.4	n/a	U
S10V001952		O	87-68-3	Hexachlorobutadiene	ug/kg	n/a	<69.7	<69.6	n/a	n/a	n/a	n/a	69.6	n/a	U
S10V001952		O	67-72-1	Hexachloroethane	ug/kg	n/a	<112	<112	n/a	n/a	n/a	n/a	112	n/a	U
S10V001952		O	193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	n/a	<51.0	<51.0	n/a	n/a	n/a	n/a	51.0	n/a	U
S10V001952		O	91-20-3	Naphthalene	ug/kg	n/a	<62.6	<62.5	n/a	n/a	n/a	n/a	62.5	n/a	U
S10V001952		O	98-95-3	Nitrobenzene	ug/kg	n/a	<64.6	<64.5	n/a	n/a	n/a	n/a	64.5	n/a	U
S10V001952		O	129-00-0	Pyrene	ug/kg	86.3	<62.9	<62.8	n/a	n/a	n/a	n/a	62.8	n/a	U
S10V001952		O	110-86-1	Pyridine	ug/kg	n/a	<65.0	<64.9	n/a	n/a	n/a	n/a	64.9	n/a	U
S10V001952		O	126-73-8	Tributyl phosphate	ug/kg	n/a	<108	<108	n/a	n/a	n/a	n/a	108	n/a	U
S10V001952		O	128-37-0	BHT	ug/kg	n/a	<236	<235	n/a	n/a	n/a	n/a	235	n/a	U
S10V001952		O	110-80-5	2-Ethoxyethanol	ug/kg	n/a	<182	<182	n/a	n/a	n/a	n/a	182	n/a	U
S10V001952		O	1319-77-3	Total Methylphenols	ug/kg	n/a	<107	<107	n/a	n/a	n/a	n/a	107	n/a	U
S10V001952		O	108-94-1	Cyclohexanone	ug/kg	n/a	<558	<558	n/a	n/a	n/a	n/a	558	n/a	U
S10V001952		O	59-89-2	N-Nitrosomorpholine	ug/kg	n/a	<191	<191	n/a	n/a	n/a	n/a	191	n/a	U
S10V001952		O	78-83-1	Isobutanol	ug/kg	n/a	<460	<460	n/a	n/a	n/a	n/a	460	n/a	U
S10V001953		W	16984-48-8	Fluoride	ug/g	101	<1.61E-03	1.50	n/a	n/a	n/a	n/a	0.0161	n/a	
S10V001953		W	GLYCOLAT	Glycolate	ug/g	99.6	<9.37E-03	<0.0937	n/a	n/a	n/a	n/a	0.0937	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
M - RPD Outside Range
N - MS/MSD Outside Range
C - Blank Contamination
B - Blank Contamination
B - Estimated
J - Estimated
T - MS/MSD Outside Range

Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C30
Sample Depth: 14-16

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5-30-2011

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V001953	W	71-50-1	Acetate	ug/g	97.2	<6.04E-03	0.520	n/a	n/a	n/a	n/a	0.0604	n/a	B
S10V001953	W	FORMATE	Formate	ug/g	101	<4.67E-03	0.731	n/a	n/a	n/a	n/a	0.0467	n/a	B
S10V001953	W	16887-00-6	Chloride	ug/g	99.4	0.0107	2.09	n/a	n/a	n/a	n/a	0.0998	n/a	
S10V001953	W	14797-65-0	Nitrite	ug/g	100	<0.0192	1.12	n/a	n/a	n/a	n/a	0.192	n/a	B
S10V001953	W	14808-79-8	Sulfate	ug/g	101	<0.0187	43.9	n/a	n/a	n/a	n/a	0.187	n/a	
S10V001953	W	338-70-5	Oxalate	ug/g	101	<0.0231	<0.231	n/a	n/a	n/a	n/a	0.231	n/a	U
S10V001953	W	24959-67-9	Bromide	ug/g	98.4	<0.0580	<0.580	n/a	n/a	n/a	n/a	0.580	n/a	U
S10V001953	W	14797-55-8	Nitrate	ug/g	99.2	<0.0208	7.74	n/a	n/a	n/a	n/a	0.208	n/a	
S10V001953	W	14265-44-2	Phosphate	ug/g	99.0	<0.0167	1.18	n/a	n/a	n/a	n/a	0.167	n/a	B
S10V001954	A	7429-90-5	Aluminum	ug/g	98.0	<0.0300	6.93E+03	n/a	n/a	n/a	n/a	2.95	n/a	
S10V001954	A	7440-39-3	Barium	ug/g	88.6	<3.00E-03	89.7	n/a	n/a	n/a	n/a	0.295	n/a	
S10V001954	A	7440-41-7	Beryllium	ug/g	89.5	<1.00E-03	0.136	n/a	n/a	n/a	n/a	0.0984	n/a	B
S10V001954	A	7440-70-2	Calcium	ug/g	89.6	0.101	8.94E+03	n/a	n/a	n/a	n/a	4.92	n/a	
S10V001954	A	7440-45-1	Cerium	ug/g	92.7	<0.0300	22.2	n/a	n/a	n/a	n/a	2.95	n/a	BN
S10V001954	A	7440-48-4	Cobalt	ug/g	80.7	<0.0100	10.3	n/a	n/a	n/a	n/a	0.984	n/a	
S10V001954	A	7440-47-3	Chromium	ug/g	80.7	<5.00E-03	26.8	n/a	n/a	n/a	n/a	0.492	n/a	M
S10V001954	A	7440-50-8	Copper	ug/g	90.0	<5.00E-03	11.2	n/a	n/a	n/a	n/a	0.492	n/a	
S10V001954	A	7439-89-6	Iron	ug/g	83.3	0.0115	2.68E+04	n/a	n/a	n/a	n/a	0.492	n/a	
S10V001954	A	7440-09-7	Potassium	ug/g	94.0	<0.500	792	n/a	n/a	n/a	n/a	49.2	n/a	
S10V001954	A	7439-91-0	Lanthanum	ug/g	90.2	<3.00E-03	9.31	n/a	n/a	n/a	n/a	0.295	n/a	
S10V001954	A	7439-93-2	Lithium	ug/g	88.9	<3.00E-03	6.80	n/a	n/a	n/a	n/a	0.295	n/a	
S10V001954	A	7439-95-4	Magnesium	ug/g	96.8	<0.0500	4.43E+03	n/a	n/a	n/a	n/a	4.92	n/a	
S10V001954	A	7439-96-5	Manganese	ug/g	80.2	<3.00E-03	424	n/a	n/a	n/a	n/a	0.295	n/a	
S10V001954	A	7439-98-7	Molybdenum	ug/g	82.2	<0.0200	<1.97	n/a	n/a	n/a	n/a	1.97	n/a	U
S10V001954	A	7440-23-5	Sodium	ug/g	87.1	<0.100	569	n/a	n/a	n/a	n/a	9.84	n/a	M
S10V001954	A	7440-02-0	Nickel	ug/g	98.9	<0.0200	18.3	n/a	n/a	n/a	n/a	1.97	n/a	B
S10V001954	A	7723-14-0	Phosphorus	ug/g	81.1	<0.0500	748	n/a	n/a	n/a	n/a	4.92	n/a	
S10V001954	A	7704-34-9	Sulfur	ug/g	81.2	<0.100	73.1	n/a	n/a	n/a	n/a	9.84	n/a	B
S10V001954	A	7440-21-3	Silicon	ug/g	94.7	<0.0300	82.6	n/a	n/a	n/a	n/a	2.95	n/a	NM

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Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C30
Sample Depth: 14-16

LS
5-30-2011

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V001954		A	7440-24-6	Strontium	ug/g	88.7	<3.00E-03	35.1	n/a	n/a	n/a	n/a	0.295	n/a	NM
S10V001954		A	7440-32-6	Titanium	ug/g	82.5	<5.00E-03	1.98E+03	n/a	n/a	n/a	n/a	0.492	n/a	
S10V001954		A	7440-62-2	Vanadium	ug/g	84.5	<5.00E-03	75.1	n/a	n/a	n/a	n/a	0.492	n/a	
S10V001954		A	7440-65-5	Yttrium	ug/g	82.8	<2.00E-03	9.43	n/a	n/a	n/a	n/a	0.197	n/a	
S10V001954		A	7440-66-6	Zinc	ug/g	81.5	<5.00E-03	42.8	n/a	n/a	n/a	n/a	0.492	n/a	
S10V001954		A	7440-67-7	Zirconium	ug/g	99.0	<5.00E-03	18.7	n/a	n/a	n/a	n/a	0.492	n/a	N
S10V001954		A	14269-63-7	Thorium-230	ug/g	n/a	4.16E-06	<2.80E-05	n/a	n/a	n/a	n/a	2.80E-05	n/a	U
S10V001954		A	TH-232	Thorium-232	ug/g	107	<2.00E-04	3.22	n/a	n/a	n/a	n/a	2.00E-03	n/a	
S10V001954		A	13968-55-3	Uranium-233	ug/g	n/a	<4.00E-06	1.41E-04	n/a	n/a	n/a	n/a	3.94E-05	n/a	
S10V001954		A	13966-29-5	Uranium-234	ug/g	n/a	<2.00E-06	<1.97E-05	n/a	n/a	n/a	n/a	1.97E-05	n/a	U
S10V001954		A	15117-96-1	Uranium-235	ug/g	97.2	<4.00E-06	3.29E-03	n/a	n/a	n/a	n/a	3.94E-05	n/a	
S10V001954		A	13982-70-2	Uranium-236	ug/g	n/a	1.62E-06	<1.57E-05	n/a	n/a	n/a	n/a	1.57E-05	n/a	U
S10V001954		A	13994-20-2	Neptunium-237	ug/g	100	<4.00E-05	<3.94E-04	n/a	n/a	n/a	n/a	3.94E-04	n/a	U
S10V001954		A	U-238	Uranium-238	ug/g	106	<2.00E-04	0.504	n/a	n/a	n/a	n/a	1.97E-03	n/a	
S10V001954		A	7440-22-4	Silver	ug/g	119	<4.00E-04	0.0618	n/a	n/a	n/a	n/a	3.94E-03	n/a	
S10V001954		A	7440-38-2	Arsenic	ug/g	106	<8.40E-03	2.95	n/a	n/a	n/a	n/a	0.0827	n/a	
S10V001954		A	7440-43-9	Cadmium	ug/g	107	<1.80E-03	0.0661	n/a	n/a	n/a	n/a	0.0118	n/a	B
S10V001954		A	7439-92-1	Lead	ug/g	99.4	<3.00E-03	3.37	n/a	n/a	n/a	n/a	0.0295	n/a	
S10V001954		A	7782-49-2	Selenium	ug/g	104	<0.0270	0.602	n/a	n/a	n/a	n/a	0.266	n/a	B
S10V001954		A	7440-28-0	Thallium	ug/g	98.8	<4.00E-04	0.0774	n/a	n/a	n/a	n/a	7.87E-03	n/a	B
S10V001955		S	14798-03-9	Ammonium 19.9UJ	ug/g	92.3	1.43	19.9	n/a	n/a	n/a	n/a	0.467	n/a	C
S10V001956		A	14133-76-7	Technetium-99	ug/g	109	<3.00E-05	<2.95E-04	n/a	n/a	n/a	n/a	2.95E-04	n/a	U
S10V001956		A	SN-117	Tin-117	ug/g	108	<1.00E-03	<9.85E-03	n/a	n/a	n/a	n/a	9.85E-03	n/a	UN
S10V001956		A	15832-50-5	Tin-126	ug/g	n/a	<2.00E-05	3.15E-04	n/a	n/a	n/a	n/a	1.97E-04	n/a	BN
S10V001957		E	CM-243/244	Curium-243/244	uCi/g	n/a	<2.10E-07	<2.22E-07	<2.05E-07	n/a	n/a	n/a	2.22E-07	n/a	U
S10V001957		E	14596-10-2	Americium-241	uCi/g	93.7	<5.25E-07	<5.55E-07	<5.12E-07	n/a	n/a	n/a	5.55E-07	n/a	U
S10V001957		E	15510-73-3	Curium-242	uCi/g	n/a	<2.10E-07	<2.22E-07	<2.05E-07	n/a	n/a	n/a	2.22E-07	n/a	U
S10V001957		E	PU-239/240	Plutonium-239/240	uCi/g	97.1	<6.08E-07	<3.40E-07	<3.45E-07	n/a	n/a	n/a	3.40E-07	n/a	U
S10V001957		E	13981-16-3	Plutonium-238	uCi/g	n/a	<6.08E-07	<3.40E-07	<3.45E-07	n/a	n/a	n/a	3.40E-07	n/a	U

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Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C38
Sample Depth: 116-118

LS
5-30-2011

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S10V002505~~			~~%WATERA~~	~~%WATER-APD~~	~~%~~	~~n/a~~	~~n/a~~	~~3.190~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.01000~~	~~n/a~~	
S10V002505			57-12-5	Cyanide	ug/g	89.7	<0.0370	<2.66	n/a	n/a	n/a	n/a	2.66	n/a	U
~~S10V002505~~			~~7439-97-6~~	~~Mercury~~	~~ug/g~~	~~87.7~~	~~<1.00E-04~~	~~<9.26E-03~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~9.26E-03~~	~~n/a~~	~~U~~
S10V002505			PH	pH J	unitless	n/a	n/a	9.29	n/a	n/a	n/a	n/a	0.0100	n/a	
S10V002505			12597-04-5	Sulfide	ug/g	92.5	<0.180	8.75	n/a	n/a	n/a	n/a	7.16	n/a	B
~~S10V002507~~			~~13966-00-2~~	~~Potassium-40~~	~~uCi/g~~	~~n/a~~	~~n/a~~	~~1.40E-05~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~5.83E-06~~	~~28.54~~	
S10V002507			10198-40-0	Cobalt-60	uCi/g	99.1	<2.73E-07	<3.13E-07	n/a	n/a	n/a	n/a	3.13E-07	n/a	U
S10V002507			14234-35-6	Antimony-125	uCi/g	n/a	<7.34E-07	<7.89E-07	n/a	n/a	n/a	n/a	7.89E-07	n/a	U
S10V002507			10045-97-3	Cesium-137	uCi/g	101	<3.64E-07	<3.67E-07	n/a	n/a	n/a	n/a	3.67E-07	n/a	U
S10V002507			14683-23-9	Europium-152	uCi/g	n/a	<1.35E-06	<1.51E-06	n/a	n/a	n/a	n/a	1.51E-06	n/a	U
S10V002507			15585-10-1	Europium-154	uCi/g	n/a	<8.57E-07	<9.72E-07	n/a	n/a	n/a	n/a	9.72E-07	n/a	U
S10V002507			14391-16-3	Europium-155	uCi/g	n/a	<4.62E-07	<4.80E-07	n/a	n/a	n/a	n/a	4.80E-07	n/a	U
S10V002507			15092-94-1	Lead-212	uCi/g	n/a	n/a	6.69E-07	n/a	n/a	n/a	n/a	4.52E-07	31.92	
S10V002507			15067-28-4	Lead-214	uCi/g	n/a	n/a	6.44E-07	n/a	n/a	n/a	n/a	7.48E-07	45.90	U
S10V002507			14274-82-9	Thorium-228	uCi/g	n/a	<8.13E-06	<9.24E-06	n/a	n/a	n/a	n/a	9.24E-06	n/a	U
S10V002507			15065-10-8	Thorium-234	uCi/g	n/a	<2.85E-06	<3.16E-06	n/a	n/a	n/a	n/a	3.16E-06	n/a	U
S10V002507			15046-84-1	Iodine-129	uCi/g	113	<1.93E-07	<1.53E-07	n/a	n/a	n/a	n/a	1.53E-07	n/a	U
S10V002508		WV	14133-76-7	Technetium-99	ug/g	110	<4.00E-06	<3.86E-06	n/a	n/a	n/a	n/a	3.86E-06	n/a	U
S10V002509		W	14762-75-5	Carbon-14	uCi/g	91.6	<1.40E-06	<1.33E-06	n/a	n/a	n/a	n/a	1.33E-06	n/a	U
S10V002509		W	10028-17-8	Tritium	uCi/g	92.9	<3.75E-07	8.92E-05	n/a	n/a	n/a	n/a	5.18E-05	88.485	
S10V002510		A	7440-36-0	Antimony	ug/g	102	<2.00E-04	0.157	n/a	n/a	n/a	n/a	9.72E-03	n/a	J
S10V002511		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	77.1	<77.4	<76.4	n/a	n/a	n/a	n/a	76.4	n/a	U
S10V002511		O	95-50-1	1,2-Dichlorobenzene	ug/kg	n/a	<101	<99.4	n/a	n/a	n/a	n/a	99.4	n/a	U
S10V002511		O	121-14-2	2,4-Dinitrotoluene	ug/kg	108	<38.1	<37.6	n/a	n/a	n/a	n/a	37.6	n/a	UT
S10V002511		O	95-95-4	2,4,5-Trichlorophenol	ug/kg	n/a	<44.0	<43.4	n/a	n/a	n/a	n/a	43.4	n/a	U
S10V002511		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
S10V002511		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
S10V002511		O	88-75-5	2-Nitrophenol	ug/kg	n/a	<53.7	<53.0	n/a	n/a	n/a	n/a	53.0	n/a	U
~~S10V002511~~		~~O~~	~~65794-96-9~~	~~3 &4 Methylphenol~~	~~ug/kg~~	~~n/a~~	~~<51.4~~	~~<50.7~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~50.7~~	~~n/a~~	~~U~~

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Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C38
Sample Depth: 116-118

LS
5-30-2011

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002512	W	16984-48-8	Fluoride	ug/g	101	<1.61E-03	0.648	n/a	n/a	n/a	n/a	0.0161	n/a	
S10V002512	W	GLYCOLAT	Glycolate	ug/g	99.6	<9.37E-03	<0.0937	n/a	n/a	n/a	n/a	0.0937	n/a	U
S10V002512	W	71-50-1	Acetate	ug/g	97.2	<6.04E-03	0.196	n/a	n/a	n/a	n/a	0.0604	n/a	B
S10V002512	W	FORMATE	Formate	ug/g	101	<4.67E-03	0.144	n/a	n/a	n/a	n/a	0.0467	n/a	B
S10V002512	W	16887-00-6	Chloride	ug/g	99.4	0.0107	2.09	n/a	n/a	n/a	n/a	0.0998	n/a	
S10V002512	W	14797-65-0	Nitrite	ug/g	100	<0.0192	0.437	n/a	n/a	n/a	n/a	0.192	n/a	B
S10V002512	W	14808-79-8	Sulfate	ug/g	101	<0.0187	42.3	n/a	n/a	n/a	n/a	0.187	n/a	
S10V002512	W	338-70-5	Oxalate	ug/g	101	<0.0231	<0.231	n/a	n/a	n/a	n/a	0.231	n/a	U
S10V002512	W	24959-67-9	Bromide	ug/g	98.4	<0.0580	<0.580	n/a	n/a	n/a	n/a	0.580	n/a	U
S10V002512	W	14797-55-8	Nitrate	ug/g	99.2	<0.0208	5.90	n/a	n/a	n/a	n/a	0.208	n/a	
S10V002512	W	14265-44-2	Phosphate	ug/g	99.0	<0.0167	0.344	n/a	n/a	n/a	n/a	0.167	n/a	B
S10V002513	A	7429-90-5	Aluminum	ug/g	98.0	<0.0300	6.18E+03	n/a	n/a	n/a	n/a	2.96	n/a	
S10V002513	A	7440-39-3	Barium	ug/g	88.6	<3.00E-03	58.6	n/a	n/a	n/a	n/a	0.296	n/a	
S10V002513	A	7440-41-7	Beryllium	ug/g	89.5	<1.00E-03	0.176	n/a	n/a	n/a	n/a	0.0986	n/a	B
S10V002513	A	7440-70-2	Calcium	ug/g	89.6	0.101	7.67E+03	n/a	n/a	n/a	n/a	4.93	n/a	
S10V002513	A	7440-45-1	Cerium	ug/g	92.7	<0.0300	19.1	n/a	n/a	n/a	n/a	2.96	n/a	BN
S10V002513	A	7440-48-4	Cobalt	ug/g	80.7	<0.0100	5.74	n/a	n/a	n/a	n/a	0.986	n/a	B
S10V002513	A	7440-47-3	Chromium	ug/g	80.7	<5.00E-03	17.3	n/a	n/a	n/a	n/a	0.493	n/a	M
S10V002513	A	7440-50-8	Copper	ug/g	90.0	<5.00E-03	9.04	n/a	n/a	n/a	n/a	0.493	n/a	
S10V002513	A	7439-89-6	Iron	ug/g	83.3	0.0115	1.60E+04	n/a	n/a	n/a	n/a	0.493	n/a	
S10V002513	A	7440-09-7	Potassium	ug/g	94.0	<0.500	923	n/a	n/a	n/a	n/a	49.3	n/a	
S10V002513	A	7439-91-0	Lanthanum	ug/g	90.2	<3.00E-03	8.53	n/a	n/a	n/a	n/a	0.296	n/a	
S10V002513	A	7439-93-2	Lithium	ug/g	88.9	<3.00E-03	8.66	n/a	n/a	n/a	n/a	0.296	n/a	
S10V002513	A	7439-95-4	Magnesium	ug/g	96.8	<0.0500	4.70E+03	n/a	n/a	n/a	n/a	4.93	n/a	
S10V002513	A	7439-96-5	Manganese	ug/g	80.2	<3.00E-03	267	n/a	n/a	n/a	n/a	0.296	n/a	
S10V002513	A	7439-98-7	Molybdenum	ug/g	82.2	<0.0200	<1.97	n/a	n/a	n/a	n/a	1.97	n/a	U
S10V002513	A	7440-23-5	Sodium	ug/g	87.1	<0.100	140	n/a	n/a	n/a	n/a	9.86	n/a	M
S10V002513	A	7440-02-0	Nickel	ug/g	98.9	<0.0200	14.7	n/a	n/a	n/a	n/a	1.97	n/a	B
S10V002513	A	7723-14-0	Phosphorus	ug/g	81.1	<0.0500	483	n/a	n/a	n/a	n/a	4.93	n/a	

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
M - RPD Outside Range
N - MS/MSD Outside Range
C - Blank Contamination
B - Blank Contamination
B - Estimated
J - Estimated
T - MS/MSD Outside Range

Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C38
Sample Depth: 116-118

LS
5-30-2011

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002513		A	7704-34-9	Sulfur	ug/g	81.2	<0.100	62.8	n/a	n/a	n/a	n/a	9.86	n/a	B
S10V002513		A	7440-21-3	Silicon	ug/g	94.7	<0.0300	72.8	n/a	n/a	n/a	n/a	2.96	n/a	NM
S10V002513		A	7440-24-6	Strontium	ug/g	88.7	<3.00E-03	29.4	n/a	n/a	n/a	n/a	0.296	n/a	NM
S10V002513		A	7440-32-6	Titanium	ug/g	82.5	<5.00E-03	795	n/a	n/a	n/a	n/a	0.493	n/a	
S10V002513		A	7440-62-2	Vanadium	ug/g	84.5	<5.00E-03	31.0	n/a	n/a	n/a	n/a	0.493	n/a	
S10V002513		A	7440-65-5	Yttrium	ug/g	82.8	<2.00E-03	5.53	n/a	n/a	n/a	n/a	0.197	n/a	
S10V002513		A	7440-66-6	Zinc	ug/g	81.5	<5.00E-03	32.0	n/a	n/a	n/a	n/a	0.493	n/a	
S10V002513		A	7440-67-7	Zirconium	ug/g	99.0	<5.00E-03	6.47	n/a	n/a	n/a	n/a	0.493	n/a	N
S10V002513		A	14269-63-7	Thorium-230	ug/g	n/a	4.16E-06	<2.78E-05	n/a	n/a	n/a	n/a	2.78E-05	n/a	U
S10V002513		A	TH-232	Thorium-232	ug/g	107	<2.00E-04	4.18	n/a	n/a	n/a	n/a	1.99E-03	n/a	
S10V002513		A	13968-55-3	Uranium-233	ug/g	n/a	<4.00E-06	1.74E-04	n/a	n/a	n/a	n/a	3.94E-05	n/a	
S10V002513		A	13966-29-5	Uranium-234	ug/g	n/a	<2.00E-06	4.23E-05	n/a	n/a	n/a	n/a	1.97E-05	n/a	
S10V002513		A	15117-96-1	Uranium-235	ug/g	97.2	<4.00E-06	3.12E-03	n/a	n/a	n/a	n/a	3.94E-05	n/a	
S10V002513		A	13982-70-2	Uranium-236	ug/g	n/a	1.62E-06	<1.58E-05	n/a	n/a	n/a	n/a	1.58E-05	n/a	U
S10V002513		A	13994-20-2	Neptunium-237	ug/g	100	<4.00E-05	<3.94E-04	n/a	n/a	n/a	n/a	3.94E-04	n/a	U
S10V002513		A	U-238	Uranium-238	ug/g	106	<2.00E-04	0.414	n/a	n/a	n/a	n/a	1.97E-03	n/a	
S10V002513		A	7440-22-4	Silver	ug/g	119	<4.00E-04	0.0443	n/a	n/a	n/a	n/a	3.94E-03	n/a	
S10V002513		A	7440-38-2	Arsenic	ug/g	106	<8.40E-03	3.47	n/a	n/a	n/a	n/a	0.0828	n/a	
S10V002513		A	7440-43-9	Cadmium	ug/g	107	<1.80E-03	0.0631	n/a	n/a	n/a	n/a	0.0118	n/a	B
S10V002513		A	7439-92-1	Lead	ug/g	99.4	<3.00E-03	3.79	n/a	n/a	n/a	n/a	0.0296	n/a	
S10V002513		A	7782-49-2	Selenium	ug/g	104	<0.0270	0.469	n/a	n/a	n/a	n/a	0.266	n/a	B
S10V002513		A	7440-28-0	Thallium	ug/g	98.8	<4.00E-04	0.0541	n/a	n/a	n/a	n/a	7.89E-03	n/a	B
S10V002514		S	14798-03-9	Ammonium 2.10UJ	ug/g	92.3	1.43	2.10	n/a	n/a	n/a	n/a	0.478	n/a	CB
S10V002515		A	14133-76-7	Technetium-99	ug/g	109	<3.00E-05	<2.99E-04	n/a	n/a	n/a	n/a	2.99E-04	n/a	U
S10V002515		A	SN-117	Tin-117	ug/g	108	<1.00E-03	<9.95E-03	n/a	n/a	n/a	n/a	9.95E-03	n/a	UN
S10V002515		A	15832-50-5	Tin-126	ug/g	n/a	<2.00E-05	3.38E-04	n/a	n/a	n/a	n/a	1.99E-04	n/a	BN
S10V002516		E	CM-243/244	Curium-243/244	uCi/g	n/a	<2.10E-07	<1.66E-07	n/a	n/a	n/a	n/a	1.66E-07	n/a	U
S10V002516		E	14596-10-2	Americium-241	uCi/g	93.7	<5.25E-07	<4.16E-07	n/a	n/a	n/a	n/a	4.16E-07	n/a	U
S10V002516		E	15510-73-3	Curium-242	uCi/g	n/a	<2.10E-07	<1.66E-07	n/a	n/a	n/a	n/a	1.66E-07	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
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C - Blank Contamination
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B - Estimated
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T - MS/MSD 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 HOLE C7680 IN SUPPORT OF RCRA SOIL CHARACTERIZATION

1.0 INTRODUCTION

This final report presents the results for the samples taken from Waste Management Area C between August 26, 2010 and September 1, 2010. 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-38777, *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); SW-846, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*; 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 other 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	Additional Organic Analyses QC Results
Attachment 5	Tentatively Identified Compounds (TIC) for Organic Analyses
Attachment 6	Geological Report
Attachment 7	Characterization Change Notices (CCN) and Correspondence
Attachment 8	Receipt Paperwork

2.0 SAMPLE RECEIPT AND BREAKDOWN

2.1 SAMPLE RECEIPT

A total of eight core intervals and two surface grab samples from core hole C7680 along with nine field blanks and six trip blanks were received by the 222-S Laboratory between August 26, 2010 and September 1, 2010. The samples were delivered in a cooler with ice or, in the case of the volatile organic soil samples, in a freezer. The temperatures of the temperature blanks were measured and recorded on the sample receipt check list and/or the chain of custody form.

The chain of custody requested that conductivity be analyzed on the soil samples. Since this analysis was not listed in the SAP or FSAP, it was not performed. The client has indicated that

this analysis may be performed later after a CCN is issued to cover the change to the FSAP (see Attachment 7).

2.2 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. The VOA samples were made from the shoe section of each core interval following SW-846 5035. 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 Attachment 6. Provided sufficient samples existed, the composite for each core interval was analyzed as described in the SAP and FSAP. One core interval, I002, had less than full recovery (see Attachment 2 and Attachment 8).

WRPS shipped subsamples of the composites to Test America Laboratories, Inc. (TAL) in St. Louis, Missouri and Knoxville, Tennessee to be analyzed for dibutyl and monobutyl phosphate, total petroleum hydrocarbons (diesel and gasoline range), ethylene glycol, chlorinated pesticides, and polychlorinated biphenyls (Aroclors and congeners). TAL subsequently subcontracted the monobutyl and dibutyl phosphate analyses to Southwest Research Institute. The results of these analyses will be released in the final WRPS report.

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 5. 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 (MDA) 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 SW-846 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 standard water digest.

"WV" indicates samples that were prepared by a Vadose 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 from FEAD CP-15383, *Common Requirements of the Format for Electronic Analytical Data,* that are defined as follows:

> "B" for organic or radiochemistry results is used to indicate that the analyte was detected in the method or preparation blank and in the sample.
>
> "B" for inorganic results is used to indicate that the reported result should be considered an estimate because it is below the quantitation limit. The "B" flag is applied to sample concentrations that are greater than the MDL but less than the quantitation limit.
>
> "C" for inorganic results 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 or equal to 20% of the reported sample result.
>
> "J" for organic results is used to indicate 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.
>
> "T" for GC/MS results is used to indicate the matrix spike (MS) recovery or matrix spike duplicate (MSD) recovery is outside control limits.
>
> "U" for all results is used to indicate that the reported result is less than the calculated detection limit.
>
> "N" for all but GC/MS is used to indicate that the MS recovery or MSD recovery was outside of the specified range in the QAPP or SAP.
>
> "N" for GC/MS is used to indicate a TIC which has been named.
>
> "M" for inorganic results is used to indicate that the relative percent difference (RPD) between the sample and the duplicate is greater than 30%.

Manual calculations using rounded results from the Data Summary Report (Attachment 1) 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 1 to 10 g of sample was digested depending on the analysis being performed. The digestate was then filtered and diluted to a final volume. This digestion was used for all radiochemical analyses except ^{3}H, ^{14}C, and ^{129}I. This digestion is a leach of the acid soluble species only.

3.1.2 SW-846 3050B - Acid Digestion-Heating Block

This acid digestion follows SW-846 3050B using a heating block and nitric and hydrochloric acids. An aliquot of approximately 5 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) analyses. 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. A separate digestion for antimony was prepared using additional hydrochloric acid, as recommended in SW-846.

3.1.3 Water Digestion

A water digestion or leach was prepared for the anions by ion chromatography, ^{14}C, and ^{3}H 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.

3.1.4 Vadose Water Digestion

A 70-g sample of soil was leached using a ratio of one part water to one part soil. To maintain a one-to-one ratio, the amount of water added to the sample was adjusted based on the percent moisture of the soil. The slurries were placed on a shaker table for about 1 hour. They were then transferred to a centrifuge tube and centrifuged at 4,000 rpm for 30 minutes. The leachates were filtered using a disposable vacuum filtration system. The filtrates were transferred to a clean bottle and then analyzed for ^{99}Tc by ICP/MS analysis.

3.2 INORGANIC ANALYSES

3.2.1 Cyanide

The cyanide analysis by distillation and spectrophotometry was performed on the grab samples and liner composite samples. All analyses met the SW-846 holding time of 14 days. There was no required reporting limit in the SAP for cyanide. The target detection limit was 0.5 µg/g, which is lower than what the current laboratory procedure (lachet micro-distillation) is reporting as reached. There were no notable quality control (QC) issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.2.2 Sulfide

Sulfide analysis by distillation and ion selective electrode was performed on the grab samples and liner composite samples. All analyses met the SW-846 holding time of 7 days. There was no required reporting limit in the SAP for sulfide. The target detection limit was 5 µg/g. All sample results had adjusted MDLs of approximately 7 µg/g. There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.2.3 pH Analysis

The pH analysis was performed on the grab samples and 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 after the water leach was performed. The sampling to analysis time varied from 19 to 25 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 variation in time has no apparent effect on the results.

3.2.4 Mercury

Analysis for mercury by cold-vapor/atomic absorption was performed on the grab samples and liner composite samples. All results met the QC requirements in the FSAP, SAP, and QAPP. All analyses met the holding time of 28 days. This analysis met the required and target detection limits.

3.2.5 Ion Chromatography – Ammonium

Analysis for ammonium was performed using a distillation preparation of the grab samples and the liner composite samples. There is no regulatory holding time limit promulgated for ammonium in soil. The SAP lists an administrative holding time of 7 days. The laboratory believes that after distillation and preservation, the holding time is 28 days, based on U.S. Environmental Protection Agency drinking water and waste water holding times for preserved samples. All samples met these holding times. However, sample B26C26 did not produce usable results and is discussed below in batch 21960. These analyses met the target detection limit listed in the SAP. There was no required reporting limit in the SAP or FSAP for ammonium.

Batch 21732: Ammonium was detected in the preparation blanks at a level below the quantitation limit and above the MDL. Ammonium was also detected in the samples above the quantitation limit but at more than 5 times the level of the blank; therefore, these results have not been flagged with a “C”.

Batch 21960: This batch experienced a major analytical error that was not discovered for several months. During the final review of this batch, which occurred several months after the analysis, it was discovered that for sample B26C26, it appeared that the spike standard was added to both the sample and MS. All the samples for core hole C7680 were reanalyzed months past the holding, and it was obvious from the results that most of the original ammonium had dissipated and results were unusable. These issues were discussed with the client and it was agreed that no result should be reported for sample B26C26 (see Attachment 7). The seven remaining sample results in the original batch were reported. Ammonium was detected in the preparation blanks at a level above the quantitation limit. Ammonium was also detected in three of the samples above the quantitation limit but at more than 5 times the level of the blank. All results have not been flagged with a “C”.

3.2.6 Ion Chromatography – Anions and Small Organic Acids

Ion chromatography analysis was performed on all grab samples and liner composite samples. The laboratory met all of the required and target detection limits. All analyses were within the applicable SW-846 holding times. The sample spikes used for the standard water digestions are predigestion spikes.

Batch 21990: The result for chloride in the preparation blank was slightly above the MDL and below the quantitation limit. All sample results were above the quantitation limit and were greater than 5 times the blank; therefore, no "C" flags were applied.

3.2.7 Inductively Coupled Plasma/Atomic Emission Spectroscopy

The ICP/AES analysis was performed on an acid-digest (SW-846 3050B) of all grab samples and liner composite samples. The ICP/AES analysis was unable to obtain the required detection limit for antimony, arsenic, cadmium, lead, selenium, silver, and thallium for the soil sample. These elements have been reported from separate ICP/MS analyses. Total uranium has not been reported by the ICP/AES analysis since it cannot meet the required detection limits in the SAP. The isotopic uranium analysis by ICP/MS met the required detection limit for ^{238}U, which is essentially total uranium. The overall data usability was not affected. For all other metals reported by ICP/AES, all target and required detection limits were met. SW-846 lists the holding times for ICP/AES metals as 6 months. All analyses met the holding times. All primary metal constituents are reported. Secondary constituents are only reported if the results were above the MDL and had a valid calibration.

Batch 23817: The interference check standard-A produced positive results for phosphorous, neodymium, and manganese, which are not contained in this standard. This could indicate a positive interference. However, since in the interference check standard-AB (ICSAB) phosphorous and manganese were recovered at 100% and 99%, there appears to be no positive interference. The ICSAB also produced a result above the quantitation limit for neodymium. This indicates that spectral interference was occurring. Neodymium results in the sample were not reported due to the high probability that they were the result of this interference. A low level of iron was detected in the preparation blank, but reanalysis was not required since these levels were less than 20% of the lowest sample result.

The MS recoveries for aluminum, calcium, iron, magnesium, potassium, manganese, phosphorous, and titanium exceeded the ±25% requirement in the FSAP and SAP. Since the sample results for these elements exceeded the MS level by more than four times, this criterion does not apply.

The MS recovery for barium, sodium, silicon, strontium, and zirconium exceeded the ±25% requirement in the SAP and FSAP. These results have been flagged with an "N". The exact cause of these failures is unknown. Matrix interference is suspected for barium and zirconium since these commonly fail. However, since all duplicate results were higher than the sample results, analytical error cannot be ruled out. These results were discussed with the client and reported "as is" (see Attachment 7).

The RPD between the sample and the duplicate exceeded the ±30% requirement in the SAP for sodium, chromium, and strontium. These results have been flagged with an "M". The exact cause of these failures is unknown. Matrix interference is suspected; however, since all duplicate results were higher than the sample results, analytical error cannot be ruled out. These results were discussed with the client and reported "as is" (see Attachment 7).

The RPD between the sample and the duplicate exceeded the ±30% requirement in the SAP for silicon. The laboratory believes this was due to matrix interference. Reanalysis was not required since this is secondary element. It should be noted that silicon is not listed with other elements in SW-846 3050B, section 1.1, under "Scope and Application" for the method and does not perform consistently when using this digest. The silicon results have been flagged with an "M".

The method blank contained a low level of calcium and iron. Since the adjusted blank results were less than 20% of the lowest sample result, reanalysis was not required and no qualifier flag was applied.

3.2.8 Inductively Coupled Plasma/Mass Spectroscopy

The ICP/MS actinide and trace metal analyses were performed on the standard SW-846 3050 acid digestion of all grab samples and liner composite samples. The ICP/MS ^{126}Sn and ^{99}Tc analysis was performed on the sample digest without the addition of hydrochloric acid. Hydrochloric acid is not used for ^{99}Tc analysis because of the potential formation of a ZnCl ion pair with mass 99. ICP/MS trace metal analysis for antimony was perform on the SW-846 3050 digest with additional hydrochloric acid, which is required to keep antimony in the solution. In addition to these acid digests, ICP/MS ^{99}Tc analysis was performed on a vadose water digest of all solid samples.

Direct is the most accurate type of calibration; however, standard material is not commercially available for all of the isotopes of interest. Concentrations of those isotopes without available standards are estimated based on the instrument's mass-response curve, which is generated by using the intensity/concentration relationship for the available isotope standards. Results estimated in this manner are designated "semi-quantitative."

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 SAP lists the holding time for isotopic analytes as 6 months. All samples were analyzed within the holding time.

Because there is no available source for ^{126}Sn, ^{117}Sn is used to monitor the chemical recovery for this analysis. Though not specifically requested in the SAP, ^{117}Sn is reported for the laboratory control sample (LCS) and MS in order to demonstrate method accuracy and presence of possible matrix interference.

All sample results for ^{126}Sn were above the MDL and below the quantitation limit with one exception. Based on this, the laboratory suspects that a low level isobaric interference is present in these samples at mass 126. The laboratory believes the most likely suspect is ^{126}Te, but there are other possible candidates. One sample result was above the quantitation level for ^{126}Sn. Users of this data should be aware that all positive ^{126}Sn results in the report may be due to isobaric interference. The laboratory is currently evaluating how to quantify the possible isobaric interferences for ^{126}Sn.

Batch 24040: The MS for ^{117}Sn was recovered below the ±25% requirement at 53%. Similar results have been observed in other batches; this appears to be a matrix interference issue. This batch was not reanalyzed, but others have been with no improvement. Tin results should be considered biased low at these levels. All samples in the batch have been flagged with an "N". The laboratory is investigating changing the acid mixture used to perform low level ^{126}Sn analysis in hopes of improving spike recoveries. Tin-126 was detected in two of the three continuing calibration blanks at slightly above the MDL. Since all results were below the quantification level, reanalysis was not required. The affected results have been flagged with a "B".

3.2.8.2 Technetium-99 (Vadose Water Digest)

The required and target detection limits listed in the SAP for ^{99}Tc were met. The SAP lists a holding time of 6 months for isotopic analytes. All analyses met this holding time. There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.2.8.3 Actinides

The required and target detection limits were met for all isotopes and in all samples. The SAP lists the holding time for isotopic analytes as 6 months. All samples were analyzed within the holding time.

Batch 23367: The closing low level standard (LLS) for ^{235}U exceeded the ±30% limit at 169%. Since all ^{235}U results were at least 17 times the LLS level, the data usability was not affected. The preparation blank result for ^{236}U was slightly above the MDL. The samples had similar results that should be considered equivalent to the blank. The affected results have been flagged with a "B".

Batch 23808: One LLS for ^{232}Th exceeded the ±30% limit at 133%. Since all ^{232}Th results were at least 130 times the LLS level, the data quality was not affected. The preparation blank result for ^{230}Th was slightly above the MDL. The samples had similar results that should be considered equivalent to the blank. The affected results have been flagged with a "B".

3.2.8.4 Trace Metals

Antimony, arsenic, cadmium, lead, selenium, silver, and thallium were analyzed by ICP/MS to obtain the required detection limits in the SAP. Except for the required detection limit for selenium, all required detection limits were met or the sample results were above the quantitation limit and the sample detection limit criteria do not apply. All target detection limits were met. The required detection limit for selenium was approximately an order of magnitude below the detection limit obtained by ICP/MS. The laboratory does not anticipate reaching this detection

limit for future projects. The adjusted MDL for selenium was approximately 0.27 µg/g. SW-846 lists the holding time for metals as 6 months. All samples were analyzed within the holding time.

Batch 24457: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batch 22891: The LLS recoveries for antimony exceeded the ±30% limit at 177% and 166%. This would indicate a high bias for sample results near the LLS level. Since all sample results were below the RDL, the data usability was not affected.

Batch 24435: The closing LLS recovery for selenium exceeded the ±30% limit at 131%, which is believed to be due to carryover from the continuing calibration verification (CCV) standard, and impact on the data usability is minimal. The cadmium RPD exceeded the required ±30 in the FSAP and SAP at 31%. Since the sample result was below the quantitation limit, this criterion does not apply.

3.3 RADIOCHEMICAL ANALYSIS

The holding time listed in the SAP for radioactive isotopes is 6 months. The FSAP lists the holding time as "none." SW-846 does not address holding times for radiochemical analytes. All radiochemical analyses met the 6-month holding time listed in the SAP. Holding time tables for these analytes have not been included in Attachment 3. With the exception of the ^{14}C and ^{3}H analyses, tracers and spikes are added prior to the digestion.

3.3.1 Gamma Energy Analysis

GEA was performed directly on the grab samples and liner composite samples. The SAP requires the reporting of all isotopes with positive results above the MDA; therefore, isotopes additional to those required in the SAP were reported when detected. The GEA analysis met all of the required detection limits in the SAP. The laboratory was unable to meet any of the target detection limits.

3.3.2 Strontium-89/90

Strontium-89/90 analysis was performed on the grab samples and liner composite samples. All of the sample analyses met the required and target detection limits. The FSAP and SAP requested ^{90}Sr, not $^{89/90}Sr$, be reported. The 222-S Laboratory only performs the latter analysis. Since the half-life for ^{89}Sr is approximately 51 days and ^{89}Sr has not been produced at Hanford for years, $^{89/90}Sr$ is essentially ^{90}Sr. There were no notable issues with the batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.3.3 Tritium

The ^{3}H analysis by liquid scintillation counting (LSC) was performed on a water leach of all grab samples and liner composite samples. This method only measured the ^{3}H in the samples that could be dissolved in water. This analysis achieved the required and target detection limits in the

FSAP. There were no notable issues with the batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.3.4 Selenium-79

The ^{79}Se analysis by LSC was performed on the grab samples and liner composite samples. The analysis achieved the target detection limit in the FSAP. No required detection limit was listed. The analysis achieved the target detection limit. No standard is currently available for ^{79}Se, and a cold carrier is used to monitor recovery and is measured gravimetrically. The ^{14}C LSC curve is used to determine the ^{79}Se results since their energies are similar. Since both ^{63}Ni and ^{79}Se use a single digestion batch that is equally split prior to the separation step, the maximum tracer/carrier recovery is 50%.

Batch 24055: The preparation blank demonstrated a positive result below the quantitation limit, as did the four samples in the batch. All results had very large counting uncertainties and were below the target detection limit. Because of these factors, reanalysis was not required. The associated positive results have been flagged with a “B”.

3.3.5 Carbon-14

The ^{14}C analysis by LSC was performed on a water leach of the grab samples and liner composite samples. 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 batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.3.6 Nickel-63

The ^{63}Ni analysis by LSC was performed on the grab samples and liner composite samples. The analysis achieved the required and target detection limits in the FSAP. Since both ^{63}Ni and ^{79}Se use a single digestion batch that is equally split prior to the separation step, the maximum trace/carrier recovery is 50%. There were no notable issues with the batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.3.7 Iodine-129

Analysis for ^{129}I by low energy GEA was performed on an iodine-specific fusion digest of all grab samples and liner composite samples. The required and target detection limits in the SAP were met. There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

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

Analysis for ^{241}Am, $^{243/244}$Cm, and ^{242}Cm by alpha energy analysis (AEA) was performed on the grab samples and liner composite samples. For this analysis, there were no notable issues with any batches and all QC requirements in the FSAP, SAP, and QAPP were met. The required and

target detection limits in the SAP were met. The SAP and FSAP requested ^{243}Cm and ^{244}Cm be reported separately. Since it is not possible to resolve these individual isotopes when using AEA, these isotopes have been reported as $^{243/244}$Cm.

3.3.9 Plutonium-238 and Plutonium-239/240

Plutonium isotopic (^{238}Pu and $^{239/240}$Pu) analysis by AEA was performed on the grab samples and liner composite samples. For this analysis, there were no notable issues with any batches and all QC requirements in the FSAP, SAP, and 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 by GC/MS was performed on field samples by purge and trap. Field sampling methods, sample containers, and preservation methods followed SW-846 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. Nine field blanks and six trip blanks 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 met the required holding time. All primary organic constituents are reported. Secondary and unlisted constituents are only reported if the results were above the MDL and had a validation calibration.

The VOA met the target and required detection limits in the SAP. The SAP and FSAP requested m-xylene and p-xylene be reported separately. Since it is not possible to resolve these individual compounds when performing VOA by SW-846 8260C, these compounds have been reported as m+p xylene. The SAP and FSAP request that methanol be reported with this analysis; however, this compound is too polar to be purged and cannot be reported (see Attachment 7). Isobutanol, another poor purger, was reported as a semivolatile organic compound.

Four of the field blanks and four of the trip blanks contained chloroform above the quantification level. Since chloroform is a common chlorination byproduct, the laboratory believes a likely the source of chloroform may be the water used by sampling personnel to make the various blanks.

Four of the field blank and two of the trip blanks contained methylene chloride above or near the quantification level. None of the associated laboratory blanks contained methylene chloride.

The 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 21718, 21719, and 21897: The method blank results for toluene and styrene were above the MDL but below the quantitation limit. Some of the samples contained toluene and styrene at similar levels and have been flagged with at "B". Since all sample and blank results were below the quantitation limit, reanalysis was not required.

Batch 21786: The method blank result for toluene was above the MDL but below the quantitation limit. One of the samples contained toluene at a similar level and has been flagged with at "B". Since the sample and blank results were below the quantitation limit, reanalysis was not required. The percent difference for n-butanol in the CCV was +25%, which exceeds the ±20% difference requirement. This indicates a high bias; however, since all sample results were below the MDL, the data usability was not affected and reanalysis not required.

Batch 21922: The method blank result for toluene was above the MDL but below the quantitation limit. One of the samples contained toluene at a similar level and has been flagged with at "B". Since the sample and blank results were below the quantitation limit, reanalysis was not required. The internal standards for one sample, B26CW9 (S10V001852), were recovered low, ranging from -66% to -78%. This sample was analyzed two additional times using its own MS and MSD with similar results. The MS and MSD (not reported) for the sample exhibited normal internal standard recovery. In addition, the sample's surrogate recoveries, which are adjusted using the internal standards, hovered around 100%. This indicates that there may have been a spiking or sample introduction problem. Since the results for chloroform and methylene chloride were similar in the sample and MS and MSD, the results for these were reported from the original sample analysis.

Batch 21979: The method blank result for styrene was above the MDL but below the quantitation limit. The sample contained styrene at a similar level and has been flagged with a "B". Since the sample and blank results were below the quantitation limit, reanalysis was not required. Styrene is not a primary analyte.

Batch 24659: The method blank result for benzene was above the MDL but below the quantitation limit. The sample contained benzene at a similar level and has been flagged with a "B". Since the sample and blank results were below the quantitation limit, reanalysis was not required.

3.4.2 Semivolatile Organic Analysis

The semivolatile organic analysis (SVOA) by GC/MS was performed on methylene chloride extractions of all grab samples and liner composite samples. All holding times were met.

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

- The adjusted MDLs for cyclohexanone were above the 0.5-mg/kg target detection limit for most samples. This compound obtained detection limits between 0.5 mg/kg and 0.6 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 0.6 mg/kg for this compound.

LCS, MS, and MSD recoveries were compared against the laboratory's SPC limits, as required by SW-846. The use of SPC limits is permitted in the FSAP, SAP, and QAPP.

The SAP and FSAP requested 3-methylphenol and 4-methylpnenol be reported separately. Since it is not possible to resolve these individual compounds when performing SVOA by SW-846 8270C, these compounds have been reported as 3&4 methylphenol.

Batches 22043 and 22254: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batch 22217: The MS recovery for 2,4-dinitrotoluene exceeded the statistical control limit of 55% to 111% at 114%. Since all sample results were below the MDL for this compound, the data usability was not affected

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's NIST 02, *HP Mass Spectral Libraries*. The estimated concentration of compounds identified in 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 5. TICs that were found in the field samples and 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 Area C samples.

Table 2. Analytical Procedures

Analysis	Preparation Method	Analysis Procedure
Inorganic Analyses		
Cyanide	LA-695-103, Rev. J-0 (SW-846 9010C)	LA-695-103, Rev. 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 (solid)	LA-212-105, Rev. H-0 (SW-846 9045D)	LA-212-105, Rev. H-0 (SW-846 9045D)

Analysis	Preparation Method	Analysis Procedure
Mercury – Cold Vapor Atomic Absorption	LA-325-110, Rev. A-0 (SW-846 7471A)	LA-325-110, Rev. A-0 (SW-846 7471A)
Ammonia – IC	LA-544-112, Rev. E-0	LA-533-101, Rev. Q-0
Anions & Organic Acids – IC	LA-504-101, Rev. M-0	LA-533-115, Rev. J-0
Metals – ICP /AES	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-505-161, Rev. J-0-A (SW-846 6010C)
^{99}Tc, ^{126}Sn – ICP/MS	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-506-102, Rev. F-1
^{99}Tc – ICP/MS	08-ATL-078 Vadose Water Digest	LA-506-103, Rev. B-0
Metals – ICP/MS	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-506-102, Rev. F-1 LA-506-103, Rev. B-0 (SW-846 6020A)
Actinides – ICP/MS	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-506-102, Rev. F-1
Radiochemical Analyses		
GEA	Direct	LA-548-121, Rev. I-0
^{90}Sr – Separation/Beta counting (Solid)	LA-544-101, Rev. F-0	LA-220-101, Rev. I-0
^{3}H – LSC	LA-504-101, Rev. M-0	LA-218-111, Rev. H-0
^{14}C – LSC	LA-504-101, Rev. M-0	LA-348-104, Rev. I-0
^{79}Se – Separation/LSC	LA-544-101, Rev. F-0	LA-365-132, Rev. J-0
^{63}Ni – Separation/LSC	LA-544-101, Rev. F-0	LA-285-102, Rev. E-0
^{129}I – Separation/GEA	LA-378-105, Rev. D-0	LA-378-105, Rev. D-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. H-O (SW-846 8260B)
SVOC – GC/MS	LA-523-138, Rev. G-0 (SW-846 3540C)	LA-523-135, Rev. D-0 (SW-846 8270C)

5.0 REFERENCES

ATL-MP-1011, 2010, *ATL Quality Assurance Project Plan for 222-S Laboratory*, 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.

RPP-PLAN-40564, 2009, *Field Sampling and Analysis Plan for Sites P and L at Waste Management Area C,* Rev. 2, Washington River Protection Solutions, Inc., Richland, Washington.

RPP-PLAN-38777, 2009, *Sampling and Analysis Plan for Phase 2 Characterization of Vadose Zone Soil in Waste Management Area C*, Rev. 1, Washington River Protection Solutions, Inc., Richland, Washington.

FEAD CP-15383, 2007 *Common Requirements of the Format for Electronic Analytical Data,* Rev. 8, CH2M Hill, Plateau Remediation Company, Richland, Washington.

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V10-003-142	PAGE 1 OF 2
COLLECTOR Harris / Snook	COMPANY CONTACT TEMPLETON, AM	TELEPHONE NO. 373-5589	PROJECT COORDINATOR BERLIN, PC	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION 7680 003	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V10-003	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO. TFUS-09-003	FIELD LOGBOOK NO. TFUZ-10-000004	ACTUAL SAMPLE DEPTH 14'-16'	COA n/A	METHOD OF SHIPMENT Govt. Vehicle	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. n/A		BILL OF LADING/AIR BILL NO. n/A		

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)	PRESERVATION	Cool~4C
		HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	Gs jar/Liners
		NO. OF CONTAINER(S)	3 A,B,C RK
		VOLUME	160g
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B26C30	SOIL	8-29-10	0935	—

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
Dan Harris Dan Harris	8-29-10 1147	RA Steele RA Steele	8.29.10 1147	
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	

GRP# 20100584
SPDV001943 A
1944 B
1945 C

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

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V10-003-142	PAGE 2 OF 2
COLLECTOR Harris / Snook	**COMPANY CONTACT** TEMPLETON, AM	**TELEPHONE NO.** 373-5589	**PROJECT COORDINATOR** BERLIN, PC	**PRICE CODE** 8P **AIR QUALITY** ☐	**DATA TURNAROUND** **75 Days / 75 Days**
SAMPLING LOCATION 7680 003	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V10-003		
ICE CHEST NO. TFVS-09-003	**FIELD LOGBOOK NO.** TFVZ-10-000004	**ACTUAL SAMPLE DEPTH** 14'-16'	**COA** n/A	**METHOD OF SHIPMENT** Govt. Vehicle	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.** n/A		**BILL OF LADING/AIR BILL NO.** n/A		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the sampler will cap remaining liners for shipment to 222-S. Where capping is not possible, the sample shall be put into 500 mL or 250 mL glass bottles with Teflon-lined lids.
(1) Semi-VOA - 8270 Complete (TF); TPH-Gasoline Range - WTPH-G; TPH-Diesel Range - WTPH-D; PCBs - 8082; Pesticides - 8081 (TF); 1668 PCB CONGENER (TCL); ICP Metals - 6010 (SW-846) (TF); Mercury - 7471 - (CV) (TF); 300.7_AMMONIUM (TF); IC Anions - 9056; Sulfide - 9215; Total Cyanide - 9014 (TF); pH (Soil) - 9045; Americium-241 (TF); C-14; CURIUM; GAMMA ENERGY ANALYSIS (TF); H3 - TRITIUM; I129_SEP_GEA (TF); Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Nickel-63 (TF); RADISO_ICPMS (TF); Selenium-79 (TF); Strontium-90; Conductivity - 9050_WE; Percent Solids (TF); Percent Water (TF);

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V10-003-150	PAGE 1 OF 2
COLLECTOR Campbell / Hurris	**COMPANY CONTACT** TEMPLETON, AM	**TELEPHONE NO.** 373-5589	**PROJECT COORDINATOR** BERLIN, PC	**PRICE CODE** 8P	**DATA TURNAROUND**
SAMPLING LOCATION 7680 007	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V10-003	**AIR QUALITY** ☐	75 Days / 75 Days
ICE CHEST NO. TFV3-09-003	**FIELD LOGBOOK NO.** TFV2-10-000004	**ACTUAL SAMPLE DEPTH** 116'-118'	**COA** n/a	**METHOD OF SHIPMENT** Govt. Vehicle	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.** n/a		**BILL OF LADING/AIR BILL NO.** n/a		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C
HOLDING TIME	14/40 Days
TYPE OF CONTAINER	Gs jar/Liners
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B26C38	SOIL	9-1-10	1740	✓

20100584
S10V002502
2503
2504

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
Campbell C-pbell	9-1-10 2200	[illegible] Edwards	9/1/10 2200	
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	

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

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V10-003-150	PAGE 2 OF 2
COLLECTOR Campbell / Harris	**COMPANY CONTACT** TEMPLETON, AM	**TELEPHONE NO.** 373-5589	**PROJECT COORDINATOR** BERLIN, PC	**PRICE CODE** 8P **AIR QUALITY** ☐	**DATA TURNAROUND** **75 Days / 75 Days**
SAMPLING LOCATION 7680 007	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V10-003		
ICE CHEST NO. TFVS - 09 - 063	**FIELD LOGBOOK NO.** TFVZ-10-000004	**ACTUAL SAMPLE DEPTH** 116' - 118'	**COA** N/A	**METHOD OF SHIPMENT** Govt. Vehicle	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.** N/A		**BILL OF LADING/AIR BILL NO.** N/A		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the sampler will cap remaining liners for shipment to 222-S. Where capping is not possible, the sample shall be put into 500 mL or 250 mL glass bottles with Teflon-lined lids.
(1) Semi-VOA - 8270 Complete (TF); TPH-Gasoline Range - WTPH-G; TPH-Diesel Range - WTPH-D; PCBs - 8082; Pesticides - 8081 (TF); 1668 PCB CONGENER (TCL); ICP Metals - 6010 (SW-846) (TF); Mercury - 7471 - (CV) (TF); 300.7_AMMONIUM (TF); IC Anions - 9056; Sulfide - 9215; Total Cyanide - 9014 (TF); pH (Soil) - 9045; Americium-241 (TF); C-14; CURIUM; GAMMA ENERGY ANALYSIS (TF); H3 - TRITIUM; I129_SEP_GEA (TF); Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Nickel-63 (TF); RADISO_ICPMS (TF); Selenium-79 (TF); Strontium-90; Conductivity - 9050_WE; Percent Solids (TF); Percent Water (TF);

Appendix 5

Data Validation Supporting Documentation

VALIDATION LEVEL:	A	B	(C)	D	E
PROJECT: WMA C			DATA PACKAGE: VSR11-046		
VALIDATOR: Carl Schloesslin		LAB: 222-S Lab		DATE: 5-30-2011	
			SDG: 20100584		
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	Cyanide X	Sulfide X
SAMPLES/MATRIX Soil samples B26C30 and B26C38					

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:

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 Hits: Chloride 0.107 ug/g
Ammonium 5.72 ug/g

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

Spike samples analyzed? ..... (Yes) No N/A

Spike recoveries acceptable? ..... (Yes) No N/A

Spike 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:

For ammonium batch 21960, the parent sample was inadvertently spiked with MS spiking solution. Therefore, ammonium MS data is not available.

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:

For ammonium batch 21960, the parent sample was inadvertently spiked with MS spiking solution. Therefore, ammonium laboratory duplicate data is not available.

6. HOLDING TIMES (all levels)

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

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

Comments:

Samples B26C30 and B26C38 analyzed for pH 22 and 19 days, respectively, after sample collection (HT = ASAP).

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: None

Appendix 6

Additional Documentation Requested By Client

Holding Time Report: Cyanide

Sample Group	Sample	Matrix	Method	Prep Method	Sample Date	Received Date	Analysis Date	Missed Holding Time
20100584	S10V001869	SOLID	SW846-9014	SW846-9010C	08/26/10 09:00	08/26/10 10:20	09/08/10 14:03	N
20100584	S10V001886	SOLID	SW846-9014	SW846-9010C	08/26/10 09:15	08/26/10 10:20	09/08/10 14:03	N
20100584	S10V001906	SOLID	SW846-9014	SW846-9010C	08/27/10 13:15	08/27/10 14:00	09/02/10 15:03	N
20100584	S10V001926	SOLID	SW846-9014	SW846-9010C	08/29/10 08:30	08/29/10 11:47	09/02/10 15:03	N
20100584	S10V001946	SOLID	SW846-9014	SW846-9010C	08/29/10 09:35	08/29/10 11:47	09/02/10 15:03	N
20100584	S10V001966	SOLID	SW846-9014	SW846-9010C	08/29/10 10:50	08/29/10 11:47	09/02/10 15:03	N
20100584	S10V002050	SOLID	SW846-9014	SW846-9010C	08/31/10 09:35	08/31/10 10:45	09/02/10 15:03	N
20100584	S10V002072	SOLID	SW846-9014	SW846-9010C	09/01/10 10:15	09/01/10 11:10	09/02/10 15:03	N
20100584	S10V002505	SOLID	SW846-9014	SW846-9010C	09/01/10 17:40	09/01/10 22:00	09/08/10 14:03	N
20100584	S10V002800	SOLID	SW846-9014	SW846-9010C	09/01/10 21:00	09/01/10 22:00	09/08/10 14:03	N

Holding Time Report: Sulfide

Sample Group	Sample	Matrix	Method	Prep Method	Sample Date	Received Date	Analysis Date	Missed Holding Time
20100584	S10V001869	SOLID	SW-846 9215	SW-846 9030B	08/26/10 09:00	08/26/10 10:20	08/27/10 14:20	N
20100584	S10V001886	SOLID	SW-846 9215	SW-846 9030B	08/26/10 09:15	08/26/10 10:20	08/27/10 14:20	N
20100584	S10V001906	SOLID	SW-846 9215	SW-846 9030B	08/27/10 13:15	08/27/10 14:00	09/02/10 15:05	N
20100584	S10V001926	SOLID	SW-846 9215	SW-846 9030B	08/29/10 08:30	08/29/10 11:47	09/02/10 15:05	N
20100584	S10V001946	SOLID	SW-846 9215	SW-846 9030B	08/29/10 09:35	08/29/10 11:47	09/02/10 15:05	N
20100584	S10V001966	SOLID	SW-846 9215	SW-846 9030B	08/29/10 10:50	08/29/10 11:47	09/02/10 15:05	N
20100584	S10V002050	SOLID	SW-846 9215	SW-846 9030B	08/31/10 09:35	08/31/10 10:45	09/02/10 15:05	N
20100584	S10V002072	SOLID	SW-846 9215	SW-846 9030B	09/01/10 10:15	09/01/10 11:10	09/07/10 13:40	N
20100584	S10V002505	SOLID	SW-846 9215	SW-846 9030B	09/01/10 17:40	09/01/10 22:00	09/07/10 13:40	N
20100584	S10V002800	SOLID	SW-846 9215	SW-846 9030B	09/01/10 21:00	09/01/10 22:00	09/07/10 13:40	N

Holding Time Report: pH

Sample Group	Sample	Matrix	Method	Sample Date	Received Date	Analysis Date	Days Lasped
20100584	S10V001869	SOLID	SW-846 9045D	08/26/10 09:00	08/26/10 10:20	09/20/10 15:45	25.3
20100584	S10V001886	SOLID	SW-846 9045D	08/26/10 09:15	08/26/10 10:20	09/20/10 15:45	25.3
20100584	S10V001906	SOLID	SW-846 9045D	08/27/10 13:15	08/27/10 14:00	09/20/10 15:45	24.1
20100584	S10V001926	SOLID	SW-846 9045D	08/29/10 08:30	08/29/10 11:47	09/20/10 15:45	22.3
20100584	S10V001946	SOLID	SW-846 9045D	08/29/10 09:35	08/29/10 11:47	09/20/10 15:45	22.3
20100584	S10V001966	SOLID	SW-846 9045D	08/29/10 10:50	08/29/10 11:47	09/20/10 15:45	22.2
20100584	S10V002050	SOLID	SW-846 9045D	08/31/10 09:35	08/31/10 10:45	09/20/10 15:45	20.3
20100584	S10V002072	SOLID	SW-846 9045D	09/01/10 10:15	09/01/10 11:10	09/20/10 15:45	19.2
20100584	S10V002505	SOLID	SW-846 9045D	09/01/10 17:40	09/01/10 22:00	09/20/10 15:45	18.9
20100584	S10V002800	SOLID	SW-846 9045D	09/01/10 21:00	09/01/10 22:00	09/20/10 15:45	18.8

Holding Time Report: IC Ammonium

Sample Group	Sample	Matrix	Method	Prep Method	Sample Date	Received Date	Prep Date	Analysis Date	Missed Holding Time
20100584	S10V001878	SOLID	EPA-300.7	Distillation	08/26/10 09:00	08/26/10 10:20	08/27/10 13:45	08/27/10 18:38	N
20100584	S10V001895	SOLID	EPA-300.7	Distillation	08/26/10 09:15	08/26/10 10:20	08/27/10 13:45	08/27/10 18:21	N
20100584	S10V001915	SOLID	EPA-300.7	Distillation	08/27/10 13:15	08/27/10 14:00	09/02/10 18:00	09/03/10 00:52	N
20100584	S10V001935	SOLID	EPA-300.7	Distillation	08/29/10 08:30	08/29/10 11:47	09/02/10 18:00	09/03/10 02:00	N
20100584	S10V001955	SOLID	EPA-300.7	Distillation	08/29/10 09:35	08/29/10 11:47	09/02/10 18:00	09/03/10 02:17	N
20100584	S10V002039	SOLID	EPA-300.7	Distillation	08/29/10 10:50	08/29/10 11:47	09/02/10 18:00	09/03/10 02:34	N
20100584	S10V002061	SOLID	EPA-300.7	Distillation	08/31/10 09:35	08/31/10 10:45	09/02/10 18:00	09/03/10 02:51	N
20100584	S10V002368	SOLID	EPA-300.7	Distillation	09/01/10 10:15	09/01/10 11:10	09/02/10 18:00	09/03/10 03:43	N
20100584	S10V002514	SOLID	EPA-300.7	Distillation	09/01/10 17:40	09/01/10 22:00	09/02/10 18:00	09/03/10 04:00	N
20100584	S10V002809	SOLID	EPA-300.7	Distillation	09/01/10 21:00	09/01/10 22:00	09/02/10 18:00	09/03/10 04:17	N

Holding Time Report: IC Anions

Sample Group	Sample	Matrix	Method	Prep Method	Sample Date	Received Date	Prep Date	Analysis Date	Missed Holding Time
20100584	S10V001876	SOLID	SW-846 9056A	Water Digest	08/26/10 09:00	08/26/10 10:20	09/07/10 15:54	09/07/10 20:20	N
20100584	S10V001893	SOLID	SW-846 9056A	Water Digest	08/26/10 09:15	08/26/10 10:20	09/07/10 15:54	09/07/10 22:28	N
20100584	S10V001913	SOLID	SW-846 9056A	Water Digest	08/27/10 13:15	08/27/10 14:00	09/07/10 15:54	09/07/10 23:00	N
20100584	S10V001933	SOLID	SW-846 9056A	Water Digest	08/29/10 08:30	08/29/10 11:47	09/07/10 15:54	09/07/10 23:32	N
20100584	S10V001933	SOLID	SW-846 9056A	Water Digest	08/29/10 08:30	08/29/10 11:47	09/07/10 15:54	09/08/10 12:26	N
20100584	S10V001953	SOLID	SW-846 9056A	Water Digest	08/29/10 09:35	08/29/10 11:47	09/07/10 15:54	09/08/10 00:04	N
20100584	S10V001973	SOLID	SW-846 9056A	Water Digest	08/29/10 10:50	08/29/10 11:47	09/07/10 15:54	09/08/10 01:39	N
20100584	S10V002059	SOLID	SW-846 9056A	Water Digest	08/31/10 09:35	08/31/10 10:45	09/07/10 15:54	09/08/10 02:11	N
20100584	S10V002363	SOLID	SW-846 9056A	Water Digest	09/01/10 10:15	09/01/10 11:10	09/07/10 15:54	09/08/10 02:43	N
20100584	S10V002512	SOLID	SW-846 9056A	Water Digest	09/01/10 17:40	09/01/10 22:00	09/07/10 15:54	09/08/10 03:15	N
20100584	S10V002807	SOLID	SW-846 9056A	Water Digest	09/01/10 21:00	09/01/10 22:00	09/07/10 15:54	09/08/10 03:47	N

LABCORE Completed Batch Report for Batch# 00021915

Analyst: Mull, Bryanna

Book#:

Instrument: CARY 50-2

Method: CN - EDTA, LA-695-103 Rev/Mod J-0

Specification: C Farm WMC 2010-2

Prep Batch:

Batch Comment:

Cyanide analysis for C Farm WMC 2010-2 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	S1009020076		0 0			Cyanide	LIQUID	.2008	2.0010E-01			0.037	ug/mL	99.651	% Recovery	
Sample Sequence 2																	
2	LLS	S1009020071		0 0			Cyanide	LIQUID	.04028	4.0510E-02			0.037	ug/mL	100.57	% Recovery	
Sample Sequence 3																	
3	ICB	S1009020070		0 0			Cyanide	LIQUID		<3.7000E-02			0.037	ug/mL			
Sample Sequence 4																	
4	SAMPLE	S10V001906		0 0			Cyanide	SOLID	N/A	<2.6440E+00			2.644	ug/g			U
Sample Sequence 5																	
5	DUP	S1009020072	S10V001906	0 0			Cyanide	SOLID	<2.6440E+00	<2.6180E+00			2.618	ug/g			
Sample Sequence 6																	
6	SPK	S1009020073	S10V001906	0 0			Cyanide	SOLID	7.162833	6.7548E+00			2.64	ug/g	94.303	% Recovery	
Sample Sequence 7																	
7	SAMPLE	S10V001926		0 0			Cyanide	SOLID	N/A	<2.5970E+00			2.597	ug/g			U
Sample Sequence 8																	
8	SAMPLE	S10V001946		0 0			Cyanide	SOLID	N/A	<2.6400E+00			2.64	ug/g			U
Sample Sequence 9																	
9	SAMPLE	S10V001966		0 0			Cyanide	SOLID	N/A	<2.6200E+00			2.62	ug/g			U
Sample Sequence 10																	
10	SAMPLE	S10V002050		0 0			Cyanide	SOLID	N/A	<2.5960E+00			2.596	ug/g			U
Sample Sequence 11																	
11	SAMPLE	S10V002072		0 0			Cyanide	SOLID	N/A	<2.6210E+00			2.621	ug/g			U
Sample Sequence 12																	
12	CCV	S1009020074		0 0			Cyanide	LIQUID	.2008	1.8300E-01			0.037	ug/mL	91.135	% Recovery	
Sample Sequence 13																	
13	CCB	S1009020075		0 0			Cyanide	LIQUID		<3.7000E-02			0.037	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# 00021915

Final Page for Batch# 00021915

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# 00021915

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1009020076	ICV				
2	S1009020071	LLS				
3	S1009020070	ICB				
4	S10V001906	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
5	S1009020072	DUP	S10V001906			
6	S1009020073	SPK	S10V001906			
7	S10V001926	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
8	S10V001946	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
9	S10V001966	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
10	S10V002050	SAMPLE		20100584	B26C34	C Farm WMC 2010-2
11	S10V002072	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
12	S1009020074	CCV				
13	S1009020075	CCB				

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# 00022027

Analyst: Mull, Bryanna

Book#:

Instrument: CARY 50-2

Method: CN - EDTA, LA-695-103 Rev/Mod J-0

Specification: C Farm WMC 2010-2

Prep Batch:

Batch Comment:

Detection limit for the LLS was lowered to 0.034 ug/mL so the LLS recovery would calculate correctly.
Cyanide determination for C Farm WMC 2010-2 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	S1009080124		0 0			Cyanide	LIQUID	.2008	1.8013E-01			0.037	ug/mL	89.706	% Recovery	
Sample Sequence 2																	
2	LLS	S1009080119		0 0			Cyanide	LIQUID	.04016	3.4070E-02			0.034	ug/mL	84.836	% Recovery	
Sample Sequence 3																	
3	ICB	S1009080118		0 0			Cyanide	LIQUID		<3.7000E-02			0.037	ug/mL			
Sample Sequence 4																	
4	SAMPLE	S10V001869		0 0			Cyanide	SOLID	N/A	<2.6567E+00			2.6567	ug/g			U
Sample Sequence 5																	
5	DUP	S1009080120	S10V001869	0 0			Cyanide	SOLID	<2.6567E+00	<2.6434E+00			2.6434	ug/g			
Sample Sequence 6																	
6	SPK	S1009080121	S10V001869	0 0			Cyanide	SOLID	7.227805	6.8844E+00			2.6636	ug/g	95.249	% Recovery	
Sample Sequence 7																	
7	SAMPLE	S10V001886		0 0			Cyanide	SOLID	N/A	<2.6381E+00			2.6381	ug/g			U
Sample Sequence 8																	
8	SAMPLE	S10V002505		0 0			Cyanide	SOLID	N/A	<2.6636E+00			2.6636	ug/g			U
Sample Sequence 9																	
9	SAMPLE	S10V002800		0 0			Cyanide	SOLID	N/A	<2.6497E+00			2.6497	ug/g			U
Sample Sequence 10																	
10	CCV	S1009080122		0 0			Cyanide	LIQUID	.2008	1.8272E-01			0.037	ug/mL	90.996	% Recovery	
Sample Sequence 11																	
11	CCB	S1009080123		0 0			Cyanide	LIQUID		<3.7000E-02			0.037	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# 00022027

Final Page for Batch# 00022027

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# 00022027

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1009080124	ICV				
2	S1009080119	LLS				
3	S1009080118	ICB				
4	S10V001869	SAMPLE		20100584	B26JK8	C Farm WMC 2010-2
5	S1009080120	DUP	S10V001869			
6	S1009080121	SPK	S10V001869			
7	S10V001886	SAMPLE		20100584	B26JK9	C Farm WMC 2010-2
8	S10V002505	SAMPLE		20100584	B26C38	C Farm WMC 2010-2
9	S10V002800	SAMPLE		20100584	B26C40	C Farm WMC 2010-2
10	S1009080122	CCV				
11	S1009080123	CCB				

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# 00021892

Analyst: Thorndike, Kathy

Book#:

Instrument: ISE-Meter #1

Method: SULFIDE, LA-361-101 Rev/Mod D-0

Specification: C Farm WMC 2010-2

Prep Batch:

Batch Comment:

C FARM SULFIDE 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	ICV	S1009020001		0 0			Sulfide	LIQUID	4.9749	4.8600E+00			0.18	ug/mL	97.69	% Recovery	
Sample Sequence 2																	
2	ICB	S1009020002		0 0			Sulfide	LIQUID		<1.8000E-01			0.18	ug/mL			
Sample Sequence 3																	
3	LLS	S1009020003		0 0			Sulfide	LIQUID	.99498	9.8300E-01			0.18	ug/mL	98.796	% Recovery	
Sample Sequence 4																	
4	BLNK-PREP	S1009020004		0 0			Sulfide	LIQUID		<1.8000E-01			0.18	ug/mL			
Sample Sequence 5																	
5	LCS	S1009020005		0 0			Sulfide	LIQUID	2.4875	2.0600E+00			0.18	ug/mL	82.814	% Recovery	
Sample Sequence 6																	
6	SAMPLE	S10V001906		0 0			Sulfide	SOLID	N/A	1.4063E+01			7.0121	ug/g			J
Sample Sequence 7																	
7	DUP	S1009020006	S10V001906	0 0			Sulfide	SOLID	1.4063E+01	1.4734E+01			6.9794	ug/g	4.6629	% RPD	
Sample Sequence 8																	
8	SPK-PREDIG	S1009020007	S10V001906	0 0			Sulfide	SOLID	97.58729	9.9647E+01			7.0616	ug/g	87.7	% Recovery	
Sample Sequence 9																	
9	SAMPLE	S10V001926		0 0			Sulfide	SOLID	N/A	2.5245E+01			7.045	ug/g			J
Sample Sequence 10																	
10	SAMPLE	S10V001946		0 0			Sulfide	SOLID	N/A	1.2695E+01			7.0312	ug/g			J
Sample Sequence 11																	
11	SAMPLE	S10V001966		0 0			Sulfide	SOLID	N/A	1.1639E+01			7.0066	ug/g			J
Sample Sequence 12																	
12	SAMPLE	S10V002050		0 0			Sulfide	SOLID	N/A	<7.0175E+00			7.0175	ug/g			U
Sample Sequence 13																	
13	CCV	S1009020008		0 0			Sulfide	LIQUID	4.9749	4.9000E+00			0.18	ug/mL	98.494	% Recovery	
Sample Sequence 14																	
14	CCB	S1009020009		0 0			Sulfide	LIQUID		<1.8000E-01			0.18	ug/mL			

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# 00021892

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00021892

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# 00021892

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1009020001	ICV				
2	S1009020002	ICB				
3	S1009020003	LLS				
4	S1009020004	BLNK-PREP				
5	S1009020005	LCS				
6	S10V001906	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
7	S1009020006	DUP	S10V001906			
8	S1009020007	SPK-PREDIG	S10V001906			
9	S10V001926	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
10	S10V001946	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
11	S10V001966	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
12	S10V002050	SAMPLE		20100584	B26C34	C Farm WMC 2010-2
13	S1009020008	CCV				
14	S1009020009	CCB				

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# 00021964

Analyst: Mull, Bryanna

Book#:

Instrument: ISE-Meter #1

Method: SULFIDE, LA-361-101 Rev/Mod D-0

Specification: C Farm WMC 2010-2

Prep Batch:

Batch Comment:

Sulfide determination for C Farm WMC 2010-2 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	S1009070092		0 0			Sulfide	LIQUID	4.6045	4.6000E+00			0.18	ug/mL	99.902	% Recovery	
Sample Sequence 2																	
2	ICB	S1009070093		0 0			Sulfide	LIQUID		<1.8000E-01			0.18	ug/mL			
Sample Sequence 3																	
3	LLS	S1009070094		0 0			Sulfide	LIQUID	.9209	9.6100E-01			0.18	ug/mL	104.35	% Recovery	
Sample Sequence 4																	
4	BLNK-PREP	S1009070095		0 0			Sulfide	LIQUID		<1.8000E-01			0.18	ug/mL			
Sample Sequence 5																	
5	LCS	S1009070096		0 0			Sulfide	LIQUID	2.30225	2.1300E+00			0.18	ug/mL	92.518	% Recovery	
Sample Sequence 6																	
6	SAMPLE	S10V002072		0 0			Sulfide	SOLID	N/A	<7.0950E+00			7.095	ug/g			U
Sample Sequence 7																	
7	DUP	S1009070097	S10V002072	0 0			Sulfide	SOLID	<7.0950E+00	<7.0588E+00			7.0588	ug/g			
Sample Sequence 8																	
8	SPK-PREDIG	S1009070098	S10V002072	0 0			Sulfide	SOLID	89.93164	8.9844E+01			7.0312	ug/g	99.902	% Recovery	
Sample Sequence 9																	
9	SAMPLE	S10V002505		0 0			Sulfide	SOLID	N/A	8.7545E+00			7.1628	ug/g			J
Sample Sequence 10																	
10	SAMPLE	S10V002800		0 0			Sulfide	SOLID	N/A	8.8735E+00			6.9444	ug/g			J
Sample Sequence 11																	
11	CCV	S1009070099		0 0			Sulfide	LIQUID	4.6045	4.2200E+00			0.18	ug/mL	91.649	% Recovery	
Sample Sequence 12																	
12	CCB	S1009070100		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# 00021964

Final Page for Batch# 00021964

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# 00021964

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1009070092	ICV				
2	S1009070093	ICB				
3	S1009070094	LLS				
4	S1009070095	BLNK-PREP				
5	S1009070096	LCS				
6	S10V002072	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
7	S1009070097	DUP	S10V002072			
8	S1009070098	SPK-PREDIG	S10V002072			
9	S10V002505	SAMPLE		20100584	B26C38	C Farm WMC 2010-2
10	S10V002800	SAMPLE		20100584	B26C40	C Farm WMC 2010-2
11	S1009070099	CCV				
12	S1009070100	CCB				

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# 00022336

Analyst: Dinh, Liem

Book#:

Instrument: PH02

Method: PH SOLID, LA-212-105 Rev/Mod H-0

Specification: C Farm WMC 2010-2

Prep Batch:

Batch Comment:

pH for C-Farm WMC 2010-2 Solids. LND

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	S1009200103		0 0			pH	LIQUID	8	8			0.01	pH			
Sample Sequence 2																	
2	SAMPLE	S10V001869		0 0			pH	SOLID	N/A	8.68			0.01	pH			
Sample Sequence 3																	
3	SAMPLE	S10V001886		0 0			pH	SOLID	N/A	8.91			0.01	pH			
Sample Sequence 4																	
4	DUP	S1009200105	S10V001886	0 0			pH	SOLID	8.91	8.86			0.01	pH	0.56275	% RPD	
Sample Sequence 5																	
5	SAMPLE	S10V001906		0 0			pH	SOLID	N/A	8.62			0.01	pH			
Sample Sequence 6																	
6	SAMPLE	S10V001926		0 0			pH	SOLID	N/A	9.76			0.01	pH			
Sample Sequence 7																	
7	SAMPLE	S10V001946		0 0			pH	SOLID	N/A	9.71			0.01	pH			
Sample Sequence 8																	
8	SAMPLE	S10V001966		0 0			pH	SOLID	N/A	9.51			0.01	pH			
Sample Sequence 9																	
9	SAMPLE	S10V002050		0 0			pH	SOLID	N/A	9.01			0.01	pH			
Sample Sequence 10																	
10	SAMPLE	S10V002072		0 0			pH	SOLID	N/A	9.13			0.01	pH			
Sample Sequence 11																	
11	SAMPLE	S10V002505		0 0			pH	SOLID	N/A	9.29			0.01	pH			
Sample Sequence 12																	
12	CCVPH	S1009200106		0 0			pH	LIQUID	8	8.03			0.01	pH			
Sample Sequence 13																	
13	SAMPLE	S10V002800		0 0			pH	SOLID	N/A	9.38			0.01	pH			
Sample Sequence 14																	
14	SAMPLE	S10V002280		0 0			pH	SOLID	N/A	9.37			0.01	pH			
Sample Sequence 15																	
15	SAMPLE	S10V002391		0 0			pH	SOLID	N/A	9.26			0.01	pH			
Sample Sequence 16																	
16	SAMPLE	S10V002486		0 0			pH	SOLID	N/A	9.07			0.01	pH			
Sample Sequence 17																	
17	CCVPH	S1009200107		0 0			pH	LIQUID	8	8.03			0.01	pH			

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# 00022336

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00022336

Reviewer Signature **Date**

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

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LABCORE Completed Batch Report for Batch# 00022336

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1009200103	ICVPH				
2	S10V001869	SAMPLE		20100584	B26JK8	C Farm WMC 2010-2
3	S10V001886	SAMPLE		20100584	B26JK9	C Farm WMC 2010-2
4	S1009200105	DUP	S10V001886			
5	S10V001906	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
6	S10V001926	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
7	S10V001946	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
8	S10V001966	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
9	S10V002050	SAMPLE		20100584	B26C34	C Farm WMC 2010-2
10	S10V002072	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
11	S10V002505	SAMPLE		20100584	B26C38	C Farm WMC 2010-2
12	S1009200106	CCVPH				
13	S10V002800	SAMPLE		20100584	B26C40	C Farm WMC 2010-2
14	S10V002280	SAMPLE		20100660	B26JL0	C Farm WMC 2010-2
15	S10V002391	SAMPLE		20100660	B26C51	C Farm WMC 2010-2
16	S10V002486	SAMPLE		20100660	B26C61	C Farm WMC 2010-2
17	S1009200107	CCVPH				

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# 00021990

Analyst: LaPlant, Kelsey **Book#:** 29N29D

Instrument: IC-6 (SMALL ORG ACIDS)

Method: IC - ANIONS/SMALL ORG. ACIDS, LA-533-115 Rev/Mod J-0

Specification: C Farm WMC 2010-2

Prep Batch: 00021980

Batch Comment:

C Farm WMC 2010-2 Anions/Sm. Org. Acids Instrument Run Batch. KJL.

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	S1009080010		0 0			Fluoride	LIQUID	.47619	4.6945E-01			1.61E-03	ug/mL	98.585	% Recovery	
1	CCV	S1009080010		0 0			Glycolate	LIQUID	2.9603145	2.8788E+00			9.37E-03	ug/mL	97.247	% Recovery	
1	CCV	S1009080010		0 0			Acetate	LIQUID	3.5952345	3.4078E+00			6.04E-03	ug/mL	94.788	% Recovery	
1	CCV	S1009080010		0 0			Formate	LIQUID	3.4841235	3.4260E+00			4.67E-03	ug/mL	98.333	% Recovery	
1	CCV	S1009080010		0 0			Chloride	LIQUID	.67380885	6.4829E-01			9.98E-03	ug/mL	96.213	% Recovery	
1	CCV	S1009080010		0 0			Nitrite	LIQUID	4.222218	4.1784E+00			0.0192	ug/mL	98.963	% Recovery	
1	CCV	S1009080010		0 0			Sulfate	LIQUID	5.190471	5.1286E+00			0.0187	ug/mL	98.807	% Recovery	
1	CCV	S1009080010		0 0			Oxalate	LIQUID	4.12698	4.0712E+00			0.0231	ug/mL	98.65	% Recovery	
1	CCV	S1009080010		0 0			Bromide	LIQUID	4.8333285	4.5794E+00			0.058	ug/mL	94.746	% Recovery	
1	CCV	S1009080010		0 0			Nitrate	LIQUID	4.396821	4.1901E+00			0.0208	ug/mL	95.299	% Recovery	
1	CCV	S1009080010		0 0			Phosphate	LIQUID	4.380948	4.2504E+00			0.0167	ug/mL	97.02	% Recovery	
Sample Sequence 2																	
2	CCB	S1009080011		0 0			Fluoride	LIQUID		<1.6100E-03			1.61E-03	ug/mL			
2	CCB	S1009080011		0 0			Glycolate	LIQUID		<9.3700E-03			9.37E-03	ug/mL			
2	CCB	S1009080011		0 0			Acetate	LIQUID		<6.0400E-03			6.04E-03	ug/mL			
2	CCB	S1009080011		0 0			Formate	LIQUID		<4.6700E-03			4.67E-03	ug/mL			
2	CCB	S1009080011		0 0			Chloride	LIQUID		<9.9800E-03			9.98E-03	ug/mL			
2	CCB	S1009080011		0 0			Nitrite	LIQUID		<1.9200E-02			0.0192	ug/mL			
2	CCB	S1009080011		0 0			Sulfate	LIQUID		<1.8700E-02			0.0187	ug/mL			
2	CCB	S1009080011		0 0			Oxalate	LIQUID		<2.3100E-02			0.0231	ug/mL			
2	CCB	S1009080011		0 0			Bromide	LIQUID		<5.8000E-02			0.058	ug/mL			
2	CCB	S1009080011		0 0			Nitrate	LIQUID		<2.0800E-02			0.0208	ug/mL			
2	CCB	S1009080011		0 0			Phosphate	LIQUID		<1.6700E-02			0.0167	ug/mL			
Sample Sequence 3																	
3	LLS	S1009080012		0 0			Fluoride	LIQUID	.02985	2.3930E-02			1.61E-03	ug/mL	80.168	% Recovery	
3	LLS	S1009080012		0 0			Glycolate	LIQUID	.1855675	1.4100E-01			9.37E-03	ug/mL	75.983	% Recovery	
3	LLS	S1009080012		0 0			Acetate	LIQUID	.2253675	1.7838E-01			6.04E-03	ug/mL	79.151	% Recovery	
3	LLS	S1009080012		0 0			Formate	LIQUID	.2184025	1.8446E-01			4.67E-03	ug/mL	84.459	% Recovery	
3	LLS	S1009080012		0 0			Chloride	LIQUID	.04223775	3.7340E-02			9.98E-03	ug/mL	88.404	% Recovery	
3	LLS	S1009080012		0 0			Nitrite	LIQUID	.26467	2.2981E-01			0.0192	ug/mL	86.829	% Recovery	
3	LLS	S1009080012		0 0			Sulfate	LIQUID	.325365	2.9484E-01			0.0187	ug/mL	90.618	% Recovery	
3	LLS	S1009080012		0 0			Oxalate	LIQUID	.2587	2.3111E-01			0.0231	ug/mL	89.335	% Recovery	

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LABCORE Completed Batch Report for Batch# 00021990

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
3	LLS	S1009080012		0 0			Bromide	LIQUID	.3029775	2.4619E-01			0.058	ug/mL	81.257	% Recovery	
3	LLS	S1009080012		0 0			Nitrate	LIQUID	.275615	2.2948E-01			0.0208	ug/mL	83.261	% Recovery	
3	LLS	S1009080012		0 0			Phosphate	LIQUID	.27462	2.3928E-01			0.0167	ug/mL	87.131	% Recovery	
Sample Sequence 4																	
4	BLNK-PREP	S1009070164		0 0	W		Fluoride	LIQUID		<1.6100E-03			1.61E-03	ug/mL			
4	BLNK-PREP	S1009070164		0 0	W		Glycolate	LIQUID		<9.3700E-03			9.37E-03	ug/mL			
4	BLNK-PREP	S1009070164		0 0	W		Acetate	LIQUID		<6.0400E-03			6.04E-03	ug/mL			
4	BLNK-PREP	S1009070164		0 0	W		Formate	LIQUID		<4.6700E-03			4.67E-03	ug/mL			
4	BLNK-PREP	S1009070164		0 0	W		Chloride	LIQUID		1.0680E-02			9.98E-03	ug/mL			
4	BLNK-PREP	S1009070164		0 0	W		Nitrite	LIQUID		<1.9200E-02			0.0192	ug/mL			
4	BLNK-PREP	S1009070164		0 0	W		Sulfate	LIQUID		<1.8700E-02			0.0187	ug/mL			
4	BLNK-PREP	S1009070164		0 0	W		Oxalate	LIQUID		<2.3100E-02			0.0231	ug/mL			
4	BLNK-PREP	S1009070164		0 0	W		Bromide	LIQUID		<5.8000E-02			0.058	ug/mL			
4	BLNK-PREP	S1009070164		0 0	W		Nitrate	LIQUID		<2.0800E-02			0.0208	ug/mL			
4	BLNK-PREP	S1009070164		0 0	W		Phosphate	LIQUID		<1.6700E-02			0.0167	ug/mL			
Sample Sequence 5																	
5	STD-PREP	S1009080016		0 0			Fluoride	LIQUID	.6	6.0641E-01			1.61E-03	ug/mL	101.07	% Recovery	
5	STD-PREP	S1009080016		0 0			Glycolate	LIQUID	3.73	3.7167E+00			9.37E-03	ug/mL	99.643	% Recovery	
5	STD-PREP	S1009080016		0 0			Acetate	LIQUID	4.53	4.4045E+00			6.04E-03	ug/mL	97.229	% Recovery	
5	STD-PREP	S1009080016		0 0			Formate	LIQUID	4.39	4.4386E+00			4.67E-03	ug/mL	101.11	% Recovery	
5	STD-PREP	S1009080016		0 0			Chloride	LIQUID	.849	8.4377E-01			9.98E-03	ug/mL	99.384	% Recovery	
5	STD-PREP	S1009080016		0 0			Nitrite	LIQUID	5.32	5.3408E+00			0.0192	ug/mL	100.39	% Recovery	
5	STD-PREP	S1009080016		0 0			Sulfate	LIQUID	6.54	6.6074E+00			0.0187	ug/mL	101.03	% Recovery	
5	STD-PREP	S1009080016		0 0			Oxalate	LIQUID	5.2	5.2698E+00			0.0231	ug/mL	101.34	% Recovery	
5	STD-PREP	S1009080016		0 0			Bromide	LIQUID	6.09	5.9909E+00			0.058	ug/mL	98.372	% Recovery	
5	STD-PREP	S1009080016		0 0			Nitrate	LIQUID	5.54	5.4975E+00			0.0208	ug/mL	99.232	% Recovery	
5	STD-PREP	S1009080016		0 0			Phosphate	LIQUID	5.52	5.4675E+00			0.0167	ug/mL	99.049	% Recovery	
Sample Sequence 6																	
6	SAMPLE	S10V001876		0 0	W		Fluoride	SOLID	N/A	8.4619E-01			0.015801	ug/g			
6	SAMPLE	S10V001876		0 0	W		Glycolate	SOLID	N/A	<9.1960E-02			0.09196	ug/g			U
6	SAMPLE	S10V001876		0 0	W		Acetate	SOLID	N/A	<5.9278E-02			0.059278	ug/g			U
6	SAMPLE	S10V001876		0 0	W		Formate	SOLID	N/A	1.2631E-01			0.045833	ug/g			J
6	SAMPLE	S10V001876		0 0	W		Chloride	SOLID	N/A	4.4962E+00			0.097947	ug/g			
6	SAMPLE	S10V001876		0 0	W		Nitrite	SOLID	N/A	2.3221E-01			0.18843	ug/g			J
6	SAMPLE	S10V001876		0 0	W		Sulfate	SOLID	N/A	2.5859E+00			0.18353	ug/g			J
6	SAMPLE	S10V001876		0 0	W		Oxalate	SOLID	N/A	<2.2671E-01			0.22671	ug/g			U
6	SAMPLE	S10V001876		0 0	W		Bromide	SOLID	N/A	<5.6923E-01			0.56923	ug/g			U
6	SAMPLE	S10V001876		0 0	W		Nitrate	SOLID	N/A	1.0841E+01			0.20414	ug/g			
6	SAMPLE	S10V001876		0 0	W		Phosphate	SOLID	N/A	8.7514E-01			0.1639	ug/g			J
Sample Sequence 7																	
7	DUP	S1009070165	S10V001876	0 0	W		Fluoride	SOLID	8.4619E-01	1.1308E+00			0.015973	ug/g	28.792	% RPD	
7	DUP	S1009070165	S10V001876	0 0	W		Glycolate	SOLID	<9.1960E-02	<9.2958E-02			0.092958	ug/g			
7	DUP	S1009070165	S10V001876	0 0	W		Acetate	SOLID	<5.9278E-02	<5.9922E-02			0.059922	ug/g			

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00021990

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
7	DUP	S1009070165	S10V001876	0 0	W		Formate	SOLID	1.2631E-01	1.9455E-01			0.04633	ug/g	42.536	% RPD	
7	DUP	S1009070165	S10V001876	0 0	W		Chloride	SOLID	4.4962E+00	4.5754E+00			0.09901	ug/g	1.7461	% RPD	
7	DUP	S1009070165	S10V001876	0 0	W		Nitrite	SOLID	2.3221E-01	8.9545E-01			0.19048	ug/g	117.63	% RPD	
7	DUP	S1009070165	S10V001876	0 0	W		Sulfate	SOLID	2.5859E+00	2.8939E+00			0.18552	ug/g	11.241	% RPD	
7	DUP	S1009070165	S10V001876	0 0	W		Oxalate	SOLID	<2.2671E-01	<2.2917E-01			0.22917	ug/g			
7	DUP	S1009070165	S10V001876	0 0	W		Bromide	SOLID	<5.6923E-01	<5.7541E-01			0.57541	ug/g			
7	DUP	S1009070165	S10V001876	0 0	W		Nitrate	SOLID	1.0841E+01	1.1292E+01			0.20635	ug/g	4.0754	% RPD	
7	DUP	S1009070165	S10V001876	0 0	W		Phosphate	SOLID	8.7514E-01	1.1352E+00			0.16568	ug/g	25.872	% RPD	
Sample Sequence 8																	
8	SPK-PREDIG	S1009080017	S10V001876	0 0			Fluoride	SOLID	6.1194	6.9548E+00			1.61E-03	ug/g	100.3	% Recovery	
8	SPK-PREDIG	S1009080017	S10V001876	0 0			Glycolate	SOLID	38.04227	3.5735E+01			9.37E-03	ug/g	93.935	% Recovery	
8	SPK-PREDIG	S1009080017	S10V001876	0 0			Acetate	SOLID	46.20147	4.4583E+01			6.04E-03	ug/g	96.497	% Recovery	
8	SPK-PREDIG	S1009080017	S10V001876	0 0			Formate	SOLID	44.77361	4.2869E+01			4.67E-03	ug/g	95.464	% Recovery	
8	SPK-PREDIG	S1009080017	S10V001876	0 0			Chloride	SOLID	8.658951	1.2479E+01			9.98E-03	ug/g	92.191	% Recovery	
8	SPK-PREDIG	S1009080017	S10V001876	0 0			Nitrite	SOLID	54.25868	5.1354E+01			0.0192	ug/g	94.219	% Recovery	
8	SPK-PREDIG	S1009080017	S10V001876	0 0			Sulfate	SOLID	66.70146	6.6152E+01			0.0187	ug/g	95.299	% Recovery	
8	SPK-PREDIG	S1009080017	S10V001876	0 0			Oxalate	SOLID	53.0348	5.0351E+01			0.0231	ug/g	94.94	% Recovery	
8	SPK-PREDIG	S1009080017	S10V001876	0 0			Bromide	SOLID	62.11191	5.7428E+01			0.058	ug/g	92.459	% Recovery	
8	SPK-PREDIG	S1009080017	S10V001876	0 0			Nitrate	SOLID	56.50246	6.3391E+01			0.0208	ug/g	93.005	% Recovery	
8	SPK-PREDIG	S1009080017	S10V001876	0 0			Phosphate	SOLID	56.29848	5.0526E+01			0.0167	ug/g	88.192	% Recovery	
Sample Sequence 9																	
9	SPK-IC	S1009080013	S10V001876	0 0			Fluoride	SOLID	59.40594	6.9874E-01			1.61E-03	ug/g	103.6	% Recovery	
9	SPK-IC	S1009080013	S10V001876	0 0			Glycolate	SOLID	369.306927	3.7130E+00			9.37E-03	ug/g	100.54	% Recovery	
9	SPK-IC	S1009080013	S10V001876	0 0			Acetate	SOLID	448.514847	4.3885E+00			6.04E-03	ug/g	97.845	% Recovery	
9	SPK-IC	S1009080013	S10V001876	0 0			Formate	SOLID	434.653461	4.4252E+00			4.67E-03	ug/g	101.51	% Recovery	
9	SPK-IC	S1009080013	S10V001876	0 0			Chloride	SOLID	84.0594051	1.3032E+00			9.98E-03	ug/g	100.53	% Recovery	
9	SPK-IC	S1009080013	S10V001876	0 0			Nitrite	SOLID	526.732668	5.2543E+00			0.0192	ug/g	99.303	% Recovery	
9	SPK-IC	S1009080013	S10V001876	0 0			Sulfate	SOLID	647.524746	6.8561E+00			0.0187	ug/g	101.81	% Recovery	
9	SPK-IC	S1009080013	S10V001876	0 0			Oxalate	SOLID	514.85148	5.2517E+00			0.0231	ug/g	102	% Recovery	
9	SPK-IC	S1009080013	S10V001876	0 0			Bromide	SOLID	602.970291	5.9914E+00			0.058	ug/g	99.364	% Recovery	
9	SPK-IC	S1009080013	S10V001876	0 0			Nitrate	SOLID	548.514846	6.6359E+00			0.0208	ug/g	100.84	% Recovery	
9	SPK-IC	S1009080013	S10V001876	0 0			Phosphate	SOLID	546.534648	5.5572E+00			0.0167	ug/g	100.05	% Recovery	
Sample Sequence 10																	
10	SAMPLE	S10V001893		0 0	W		Fluoride	SOLID	N/A	7.6250E-01			0.015958	ug/g			
10	SAMPLE	S10V001893		0 0	W		Glycolate	SOLID	N/A	<9.2872E-02			0.092872	ug/g			U
10	SAMPLE	S10V001893		0 0	W		Acetate	SOLID	N/A	<5.9866E-02			0.059866	ug/g			U
10	SAMPLE	S10V001893		0 0	W		Formate	SOLID	N/A	1.6969E-01			0.046287	ug/g			J
10	SAMPLE	S10V001893		0 0	W		Chloride	SOLID	N/A	5.5689E+00			0.098918	ug/g			
10	SAMPLE	S10V001893		0 0	W		Nitrite	SOLID	N/A	2.0418E-01			0.1903	ug/g			J
10	SAMPLE	S10V001893		0 0	W		Sulfate	SOLID	N/A	2.6616E+00			0.18535	ug/g			J
10	SAMPLE	S10V001893		0 0	W		Oxalate	SOLID	N/A	<2.2896E-01			0.22896	ug/g			U
10	SAMPLE	S10V001893		0 0	W		Bromide	SOLID	N/A	<5.7487E-01			0.57487	ug/g			U
10	SAMPLE	S10V001893		0 0	W		Nitrate	SOLID	N/A	1.1542E+01			0.20616	ug/g			

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LABCORE Completed Batch Report for Batch# 00021990

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
10	SAMPLE	S10V001893		0 0	W		Phosphate	SOLID	N/A	1.1119E+00			0.16552	ug/g			J
Sample Sequence 11																	
11	SAMPLE	S10V001913		0 0	W		Fluoride	SOLID	N/A	1.0703E+00			0.016099	ug/g			
11	SAMPLE	S10V001913		0 0	W		Glycolate	SOLID	N/A	<9.3696E-02			0.093696	ug/g			U
11	SAMPLE	S10V001913		0 0	W		Acetate	SOLID	N/A	<6.0398E-02			0.060398	ug/g			U
11	SAMPLE	S10V001913		0 0	W		Formate	SOLID	N/A	2.9979E-01			0.046698	ug/g			J
11	SAMPLE	S10V001913		0 0	W		Chloride	SOLID	N/A	7.0557E-01			0.099796	ug/g			
11	SAMPLE	S10V001913		0 0	W		Nitrite	SOLID	N/A	7.3637E-01			0.19199	ug/g			J
11	SAMPLE	S10V001913		0 0	W		Sulfate	SOLID	N/A	6.3656E+00			0.18699	ug/g			
11	SAMPLE	S10V001913		0 0	W		Oxalate	SOLID	N/A	3.0349E-01			0.23099	ug/g			J
11	SAMPLE	S10V001913		0 0	W		Bromide	SOLID	N/A	<5.7998E-01			0.57998	ug/g			U
11	SAMPLE	S10V001913		0 0	W		Nitrate	SOLID	N/A	1.1200E+01			0.20799	ug/g			
11	SAMPLE	S10V001913		0 0	W		Phosphate	SOLID	N/A	2.7777E+00			0.16699	ug/g			
Sample Sequence 12																	
12	SAMPLE	S10V001953		0 0	W		Fluoride	SOLID	N/A	1.5044E+00			0.016098	ug/g			
12	SAMPLE	S10V001953		0 0	W		Glycolate	SOLID	N/A	<9.3689E-02			0.093689	ug/g			U
12	SAMPLE	S10V001953		0 0	W		Acetate	SOLID	N/A	5.2044E-01			0.060393	ug/g			J
12	SAMPLE	S10V001953		0 0	W		Formate	SOLID	N/A	7.3081E-01			0.046694	ug/g			J
12	SAMPLE	S10V001953		0 0	W		Chloride	SOLID	N/A	2.0937E+00			0.099788	ug/g			
12	SAMPLE	S10V001953		0 0	W		Nitrite	SOLID	N/A	1.1241E+00			0.19198	ug/g			J
12	SAMPLE	S10V001953		0 0	W		Sulfate	SOLID	N/A	4.3879E+01			0.18698	ug/g			
12	SAMPLE	S10V001953		0 0	W		Oxalate	SOLID	N/A	<2.3097E-01			0.23097	ug/g			U
12	SAMPLE	S10V001953		0 0	W		Bromide	SOLID	N/A	<5.7993E-01			0.57993	ug/g			U
12	SAMPLE	S10V001953		0 0	W		Nitrate	SOLID	N/A	7.7443E+00			0.20798	ug/g			
12	SAMPLE	S10V001953		0 0	W		Phosphate	SOLID	N/A	1.1811E+00			0.16698	ug/g			J
Sample Sequence 13																	
13	CCV	S1009080014		0 0			Fluoride	LIQUID	.47619	4.7431E-01			1.61E-03	ug/mL	99.605	% Recovery	
13	CCV	S1009080014		0 0			Glycolate	LIQUID	2.9603145	2.9126E+00			9.37E-03	ug/mL	98.388	% Recovery	
13	CCV	S1009080014		0 0			Acetate	LIQUID	3.5952345	3.4524E+00			6.04E-03	ug/mL	96.027	% Recovery	
13	CCV	S1009080014		0 0			Formate	LIQUID	3.4841235	3.4831E+00			4.67E-03	ug/mL	99.97	% Recovery	
13	CCV	S1009080014		0 0			Chloride	LIQUID	.67380885	6.5418E-01			9.98E-03	ug/mL	97.087	% Recovery	
13	CCV	S1009080014		0 0			Nitrite	LIQUID	4.222218	4.1424E+00			0.0192	ug/mL	98.109	% Recovery	
13	CCV	S1009080014		0 0			Sulfate	LIQUID	5.190471	5.1490E+00			0.0187	ug/mL	99.201	% Recovery	
13	CCV	S1009080014		0 0			Oxalate	LIQUID	4.12698	4.1230E+00			0.0231	ug/mL	99.904	% Recovery	
13	CCV	S1009080014		0 0			Bromide	LIQUID	4.8333285	4.6499E+00			0.058	ug/mL	96.205	% Recovery	
13	CCV	S1009080014		0 0			Nitrate	LIQUID	4.396821	4.2569E+00			0.0208	ug/mL	96.818	% Recovery	
13	CCV	S1009080014		0 0			Phosphate	LIQUID	4.380948	4.2424E+00			0.0167	ug/mL	96.837	% Recovery	
Sample Sequence 14																	
14	CCB	S1009080015		0 0			Fluoride	LIQUID		<1.6100E-03			1.61E-03	ug/mL			
14	CCB	S1009080015		0 0			Glycolate	LIQUID		<9.3700E-03			9.37E-03	ug/mL			
14	CCB	S1009080015		0 0			Acetate	LIQUID		<6.0400E-03			6.04E-03	ug/mL			
14	CCB	S1009080015		0 0			Formate	LIQUID		<4.6700E-03			4.67E-03	ug/mL			
14	CCB	S1009080015		0 0			Chloride	LIQUID		<9.9800E-03			9.98E-03	ug/mL			

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LABCORE Completed Batch Report for Batch# 00021990

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
14	CCB	S1009080015		0 0			Nitrite	LIQUID		<1.9200E-02			0.0192	ug/mL			
14	CCB	S1009080015		0 0			Sulfate	LIQUID		<1.8700E-02			0.0187	ug/mL			
14	CCB	S1009080015		0 0			Oxalate	LIQUID		<2.3100E-02			0.0231	ug/mL			
14	CCB	S1009080015		0 0			Bromide	LIQUID		<5.8000E-02			0.058	ug/mL			
14	CCB	S1009080015		0 0			Nitrate	LIQUID		<2.0800E-02			0.0208	ug/mL			
14	CCB	S1009080015		0 0			Phosphate	LIQUID		<1.6700E-02			0.0167	ug/mL			
Sample Sequence 15																	
15	SAMPLE	S10V001973		0 0	W		Fluoride	SOLID	N/A	1.8572E+00			0.0161	ug/g			
15	SAMPLE	S10V001973		0 0	W		Glycolate	SOLID	N/A	<9.3698E-02			0.093698	ug/g			U
15	SAMPLE	S10V001973		0 0	W		Acetate	SOLID	N/A	4.5559E-01			0.060399	ug/g			J
15	SAMPLE	S10V001973		0 0	W		Formate	SOLID	N/A	1.6635E+00			0.046699	ug/g			J
15	SAMPLE	S10V001973		0 0	W		Chloride	SOLID	N/A	1.7077E+00			0.099798	ug/g			
15	SAMPLE	S10V001973		0 0	W		Nitrite	SOLID	N/A	6.8419E-01			0.192	ug/g			J
15	SAMPLE	S10V001973		0 0	W		Sulfate	SOLID	N/A	4.0526E+01			0.187	ug/g			
15	SAMPLE	S10V001973		0 0	W		Oxalate	SOLID	N/A	6.1789E-01			0.231	ug/g			J
15	SAMPLE	S10V001973		0 0	W		Bromide	SOLID	N/A	<5.7999E-01			0.57999	ug/g			U
15	SAMPLE	S10V001973		0 0	W		Nitrate	SOLID	N/A	7.0564E+00			0.208	ug/g			
15	SAMPLE	S10V001973		0 0	W		Phosphate	SOLID	N/A	1.3724E+00			0.167	ug/g			J
Sample Sequence 16																	
16	SAMPLE	S10V002059		0 0	W		Fluoride	SOLID	N/A	9.0762E-01			0.016058	ug/g			
16	SAMPLE	S10V002059		0 0	W		Glycolate	SOLID	N/A	<9.3455E-02			0.093455	ug/g			U
16	SAMPLE	S10V002059		0 0	W		Acetate	SOLID	N/A	1.8132E-01			0.060242	ug/g			J
16	SAMPLE	S10V002059		0 0	W		Formate	SOLID	N/A	3.2325E-01			0.046578	ug/g			J
16	SAMPLE	S10V002059		0 0	W		Chloride	SOLID	N/A	2.2678E+00			0.099539	ug/g			
16	SAMPLE	S10V002059		0 0	W		Nitrite	SOLID	N/A	7.1513E-01			0.1915	ug/g			J
16	SAMPLE	S10V002059		0 0	W		Sulfate	SOLID	N/A	7.0683E+01			0.18651	ug/g			
16	SAMPLE	S10V002059		0 0	W		Oxalate	SOLID	N/A	<2.3040E-01			0.2304	ug/g			U
16	SAMPLE	S10V002059		0 0	W		Bromide	SOLID	N/A	<5.7848E-01			0.57848	ug/g			U
16	SAMPLE	S10V002059		0 0	W		Nitrate	SOLID	N/A	9.5508E+00			0.20746	ug/g			
16	SAMPLE	S10V002059		0 0	W		Phosphate	SOLID	N/A	5.3250E-01			0.16656	ug/g			J
Sample Sequence 17																	
17	SAMPLE	S10V002363		0 0	W		Fluoride	SOLID	N/A	7.3336E-01			0.016099	ug/g			
17	SAMPLE	S10V002363		0 0	W		Glycolate	SOLID	N/A	<9.3694E-02			0.093694	ug/g			U
17	SAMPLE	S10V002363		0 0	W		Acetate	SOLID	N/A	2.5158E-01			0.060396	ug/g			J
17	SAMPLE	S10V002363		0 0	W		Formate	SOLID	N/A	3.1898E-01			0.046697	ug/g			J
17	SAMPLE	S10V002363		0 0	W		Chloride	SOLID	N/A	2.0768E+00			0.099794	ug/g			
17	SAMPLE	S10V002363		0 0	W		Nitrite	SOLID	N/A	7.1236E-01			0.19199	ug/g			J
17	SAMPLE	S10V002363		0 0	W		Sulfate	SOLID	N/A	6.4923E+01			0.18699	ug/g			
17	SAMPLE	S10V002363		0 0	W		Oxalate	SOLID	N/A	<2.3099E-01			0.23099	ug/g			U
17	SAMPLE	S10V002363		0 0	W		Bromide	SOLID	N/A	<5.7997E-01			0.57997	ug/g			U
17	SAMPLE	S10V002363		0 0	W		Nitrate	SOLID	N/A	6.0221E+00			0.20799	ug/g			
17	SAMPLE	S10V002363		0 0	W		Phosphate	SOLID	N/A	<1.6699E-01			0.16699	ug/g			U
Sample Sequence 18																	

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LABCORE Completed Batch Report for Batch# 00021990

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
18	SAMPLE	S10V002512		0 0	W		Fluoride	SOLID	N/A	6.4819E-01			0.0161	ug/g			
18	SAMPLE	S10V002512		0 0	W		Glycolate	SOLID	N/A	<9.3698E-02			0.093698	ug/g			U
18	SAMPLE	S10V002512		0 0	W		Acetate	SOLID	N/A	1.9600E-01			0.060399	ug/g			J
18	SAMPLE	S10V002512		0 0	W		Formate	SOLID	N/A	1.4400E-01			0.046699	ug/g			J
18	SAMPLE	S10V002512		0 0	W		Chloride	SOLID	N/A	2.0862E+00			0.099798	ug/g			
18	SAMPLE	S10V002512		0 0	W		Nitrite	SOLID	N/A	4.3729E-01			0.192	ug/g			J
18	SAMPLE	S10V002512		0 0	W		Sulfate	SOLID	N/A	4.2337E+01			0.187	ug/g			
18	SAMPLE	S10V002512		0 0	W		Oxalate	SOLID	N/A	<2.3100E-01			0.231	ug/g			U
18	SAMPLE	S10V002512		0 0	W		Bromide	SOLID	N/A	<5.7999E-01			0.57999	ug/g			U
18	SAMPLE	S10V002512		0 0	W		Nitrate	SOLID	N/A	5.9004E+00			0.208	ug/g			
18	SAMPLE	S10V002512		0 0	W		Phosphate	SOLID	N/A	3.4429E-01			0.167	ug/g			J
Sample Sequence 19																	
19	SAMPLE	S10V002807		0 0	W		Fluoride	SOLID	N/A	5.6629E-01			0.015973	ug/g			
19	SAMPLE	S10V002807		0 0	W		Glycolate	SOLID	N/A	<9.2960E-02			0.09296	ug/g			U
19	SAMPLE	S10V002807		0 0	W		Acetate	SOLID	N/A	1.3363E+01			0.059923	ug/g			
19	SAMPLE	S10V002807		0 0	W		Formate	SOLID	N/A	7.4983E-01			0.046331	ug/g			J
19	SAMPLE	S10V002807		0 0	W		Chloride	SOLID	N/A	5.7279E+00			0.099012	ug/g			
19	SAMPLE	S10V002807		0 0	W		Nitrite	SOLID	N/A	8.0787E-01			0.19048	ug/g			J
19	SAMPLE	S10V002807		0 0	W		Sulfate	SOLID	N/A	1.5947E+02			0.18552	ug/g			
19	SAMPLE	S10V002807		0 0	W		Oxalate	SOLID	N/A	<2.2918E-01			0.22918	ug/g			U
19	SAMPLE	S10V002807		0 0	W		Bromide	SOLID	N/A	<5.7542E-01			0.57542	ug/g			U
19	SAMPLE	S10V002807		0 0	W		Nitrate	SOLID	N/A	1.5214E+01			0.20636	ug/g			
19	SAMPLE	S10V002807		0 0	W		Phosphate	SOLID	N/A	2.7690E-01			0.16568	ug/g			J
Sample Sequence 20																	
20	CCV	S1009080019		0 0			Fluoride	LIQUID	.47619	4.7659E-01			1.61E-03	ug/mL	100.08	% Recovery	
20	CCV	S1009080019		0 0			Glycolate	LIQUID	2.9603145	2.8971E+00			9.37E-03	ug/mL	97.863	% Recovery	
20	CCV	S1009080019		0 0			Acetate	LIQUID	3.5952345	3.4408E+00			6.04E-03	ug/mL	95.705	% Recovery	
20	CCV	S1009080019		0 0			Formate	LIQUID	3.4841235	3.4637E+00			4.67E-03	ug/mL	99.413	% Recovery	
20	CCV	S1009080019		0 0			Chloride	LIQUID	.67380885	6.5736E-01			9.98E-03	ug/mL	97.559	% Recovery	
20	CCV	S1009080019		0 0			Nitrite	LIQUID	4.222218	4.1792E+00			0.0192	ug/mL	98.982	% Recovery	
20	CCV	S1009080019		0 0			Sulfate	LIQUID	5.190471	5.1702E+00			0.0187	ug/mL	99.61	% Recovery	
20	CCV	S1009080019		0 0			Oxalate	LIQUID	4.12698	4.1347E+00			0.0231	ug/mL	100.19	% Recovery	
20	CCV	S1009080019		0 0			Bromide	LIQUID	4.8333285	4.6684E+00			0.058	ug/mL	96.587	% Recovery	
20	CCV	S1009080019		0 0			Nitrate	LIQUID	4.396821	4.3043E+00			0.0208	ug/mL	97.896	% Recovery	
20	CCV	S1009080019		0 0			Phosphate	LIQUID	4.380948	4.2716E+00			0.0167	ug/mL	97.503	% Recovery	
Sample Sequence 21																	
21	CCB	S1009080018		0 0			Fluoride	LIQUID		<1.6100E-03			1.61E-03	ug/mL			
21	CCB	S1009080018		0 0			Glycolate	LIQUID		<9.3700E-03			9.37E-03	ug/mL			
21	CCB	S1009080018		0 0			Acetate	LIQUID		<6.0400E-03			6.04E-03	ug/mL			
21	CCB	S1009080018		0 0			Formate	LIQUID		<4.6700E-03			4.67E-03	ug/mL			
21	CCB	S1009080018		0 0			Chloride	LIQUID		<9.9800E-03			9.98E-03	ug/mL			
21	CCB	S1009080018		0 0			Nitrite	LIQUID		<1.9200E-02			0.0192	ug/mL			
21	CCB	S1009080018		0 0			Sulfate	LIQUID		<1.8700E-02			0.0187	ug/mL			

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LABCORE Completed Batch Report for Batch# 00021990

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
21	CCB	S1009080018		0 0			Oxalate	LIQUID		<2.3100E-02			0.0231	ug/mL			
21	CCB	S1009080018		0 0			Bromide	LIQUID		<5.8000E-02			0.058	ug/mL			
21	CCB	S1009080018		0 0			Nitrate	LIQUID		<2.0800E-02			0.0208	ug/mL			
21	CCB	S1009080018		0 0			Phosphate	LIQUID		<1.6700E-02			0.0167	ug/mL			
Sample Sequence 22																	
22	CCV	S1009080021		0 0			Fluoride	LIQUID	.47619	4.6978E-01			1.61E-03	ug/mL	98.654	% Recovery	
22	CCV	S1009080021		0 0			Glycolate	LIQUID	2.9603145	2.8951E+00			9.37E-03	ug/mL	97.797	% Recovery	
22	CCV	S1009080021		0 0			Acetate	LIQUID	3.5952345	3.4238E+00			6.04E-03	ug/mL	95.233	% Recovery	
22	CCV	S1009080021		0 0			Formate	LIQUID	3.4841235	3.4587E+00			4.67E-03	ug/mL	99.27	% Recovery	
22	CCV	S1009080021		0 0			Chloride	LIQUID	.67380885	6.9735E-01			9.98E-03	ug/mL	103.49	% Recovery	
22	CCV	S1009080021		0 0			Nitrite	LIQUID	4.222218	4.1760E+00			0.0192	ug/mL	98.905	% Recovery	
22	CCV	S1009080021		0 0			Sulfate	LIQUID	5.190471	5.1569E+00			0.0187	ug/mL	99.353	% Recovery	
22	CCV	S1009080021		0 0			Oxalate	LIQUID	4.12698	4.1018E+00			0.0231	ug/mL	99.39	% Recovery	
22	CCV	S1009080021		0 0			Bromide	LIQUID	4.8333285	4.6660E+00			0.058	ug/mL	96.537	% Recovery	
22	CCV	S1009080021		0 0			Nitrate	LIQUID	4.396821	4.2655E+00			0.0208	ug/mL	97.014	% Recovery	
22	CCV	S1009080021		0 0			Phosphate	LIQUID	4.380948	4.2490E+00			0.0167	ug/mL	96.987	% Recovery	
Sample Sequence 23																	
23	CCB	S1009080020		0 0			Fluoride	LIQUID		<1.6100E-03			1.61E-03	ug/mL			
23	CCB	S1009080020		0 0			Glycolate	LIQUID		<9.3700E-03			9.37E-03	ug/mL			
23	CCB	S1009080020		0 0			Acetate	LIQUID		<6.0400E-03			6.04E-03	ug/mL			
23	CCB	S1009080020		0 0			Formate	LIQUID		<4.6700E-03			4.67E-03	ug/mL			
23	CCB	S1009080020		0 0			Chloride	LIQUID		<9.9800E-03			9.98E-03	ug/mL			
23	CCB	S1009080020		0 0			Nitrite	LIQUID		<1.9200E-02			0.0192	ug/mL			
23	CCB	S1009080020		0 0			Sulfate	LIQUID		<1.8700E-02			0.0187	ug/mL			
23	CCB	S1009080020		0 0			Oxalate	LIQUID		<2.3100E-02			0.0231	ug/mL			
23	CCB	S1009080020		0 0			Bromide	LIQUID		<5.8000E-02			0.058	ug/mL			
23	CCB	S1009080020		0 0			Nitrate	LIQUID		<2.0800E-02			0.0208	ug/mL			
23	CCB	S1009080020		0 0			Phosphate	LIQUID		<1.6700E-02			0.0167	ug/mL			
Sample Sequence 24																	
24	LLS	S1009080022		0 0			Fluoride	LIQUID	.02985	2.1980E-02			1.61E-03	ug/mL	73.635	% Recovery	
24	LLS	S1009080022		0 0			Glycolate	LIQUID	.1855675	1.3761E-01			9.37E-03	ug/mL	74.156	% Recovery	
24	LLS	S1009080022		0 0			Acetate	LIQUID	.2253675	1.6538E-01			6.04E-03	ug/mL	73.382	% Recovery	
24	LLS	S1009080022		0 0			Formate	LIQUID	.2184025	1.7988E-01			4.67E-03	ug/mL	82.362	% Recovery	
24	LLS	S1009080022		0 0			Chloride	LIQUID	.04223775	3.9620E-02			9.98E-03	ug/mL	93.802	% Recovery	
24	LLS	S1009080022		0 0			Nitrite	LIQUID	.26467	2.2308E-01			0.0192	ug/mL	84.286	% Recovery	
24	LLS	S1009080022		0 0			Sulfate	LIQUID	.325365	2.9447E-01			0.0187	ug/mL	90.505	% Recovery	
24	LLS	S1009080022		0 0			Oxalate	LIQUID	.2587	2.2765E-01			0.0231	ug/mL	87.998	% Recovery	
24	LLS	S1009080022		0 0			Bromide	LIQUID	.3029775	2.3723E-01			0.058	ug/mL	78.3	% Recovery	
24	LLS	S1009080022		0 0			Nitrate	LIQUID	.275615	2.3509E-01			0.0208	ug/mL	85.297	% Recovery	
24	LLS	S1009080022		0 0			Phosphate	LIQUID	.27462	2.3042E-01			0.0167	ug/mL	83.905	% Recovery	
Sample Sequence 25																	
25	SAMPLE	S10V001933		0 0	W		Fluoride	SOLID	N/A	3.7164E-01			0.015742	ug/g			
25	SAMPLE	S10V001933		0 0	W		Glycolate	SOLID	N/A	<9.1615E-02			0.091615	ug/g			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# 00021990

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
25	SAMPLE	S10V001933		0 0	W		Acetate	SOLID	N/A	1.8215E-01			0.059056	ug/g			J
25	SAMPLE	S10V001933		0 0	W		Formate	SOLID	N/A	5.7188E-01			0.045661	ug/g			J
25	SAMPLE	S10V001933		0 0	W		Chloride	SOLID	N/A	6.3192E-01			0.097579	ug/g			
25	SAMPLE	S10V001933		0 0	W		Nitrite	SOLID	N/A	6.1285E-01			0.18773	ug/g			J
26	SAMPLE	S10V001933		0 1	W		Sulfate	SOLID	N/A	4.5826E+02			2.0112	ug/g			
25	SAMPLE	S10V001933		0 0	W		Oxalate	SOLID	N/A	<2.2586E-01			0.22586	ug/g			U
25	SAMPLE	S10V001933		0 0	W		Bromide	SOLID	N/A	<5.6709E-01			0.56709	ug/g			U
25	SAMPLE	S10V001933		0 0	W		Nitrate	SOLID	N/A	2.7532E+00			0.20337	ug/g			
25	SAMPLE	S10V001933		0 0	W		Phosphate	SOLID	N/A	2.7954E-01			0.16328	ug/g			J
Sample Sequence 27																	
27	CCV	S1009080024		0 0			Fluoride	LIQUID	.47619	4.7085E-01			1.61E-03	ug/mL	98.879	% Recovery	
27	CCV	S1009080024		0 0			Glycolate	LIQUID	2.9603145	2.8787E+00			9.37E-03	ug/mL	97.244	% Recovery	
27	CCV	S1009080024		0 0			Acetate	LIQUID	3.5952345	3.4442E+00			6.04E-03	ug/mL	95.8	% Recovery	
27	CCV	S1009080024		0 0			Formate	LIQUID	3.4841235	3.4484E+00			4.67E-03	ug/mL	98.975	% Recovery	
27	CCV	S1009080024		0 0			Chloride	LIQUID	.67380885	6.9649E-01			9.98E-03	ug/mL	103.37	% Recovery	
27	CCV	S1009080024		0 0			Nitrite	LIQUID	4.222218	4.1429E+00			0.0192	ug/mL	98.122	% Recovery	
27	CCV	S1009080024		0 0			Sulfate	LIQUID	5.190471	5.1520E+00			0.0187	ug/mL	99.258	% Recovery	
27	CCV	S1009080024		0 0			Oxalate	LIQUID	4.12698	4.0970E+00			0.0231	ug/mL	99.273	% Recovery	
27	CCV	S1009080024		0 0			Bromide	LIQUID	4.8333285	4.6667E+00			0.058	ug/mL	96.552	% Recovery	
27	CCV	S1009080024		0 0			Nitrate	LIQUID	4.396821	4.2869E+00			0.0208	ug/mL	97.499	% Recovery	
27	CCV	S1009080024		0 0			Phosphate	LIQUID	4.380948	4.2298E+00			0.0167	ug/mL	96.549	% Recovery	
Sample Sequence 28																	
28	CCB	S1009080023		0 0			Fluoride	LIQUID		<1.6100E-03			1.61E-03	ug/mL			
28	CCB	S1009080023		0 0			Glycolate	LIQUID		<9.3700E-03			9.37E-03	ug/mL			
28	CCB	S1009080023		0 0			Acetate	LIQUID		<6.0400E-03			6.04E-03	ug/mL			
28	CCB	S1009080023		0 0			Formate	LIQUID		<4.6700E-03			4.67E-03	ug/mL			
28	CCB	S1009080023		0 0			Chloride	LIQUID		<9.9800E-03			9.98E-03	ug/mL			
28	CCB	S1009080023		0 0			Nitrite	LIQUID		<1.9200E-02			0.0192	ug/mL			
28	CCB	S1009080023		0 0			Sulfate	LIQUID		<1.8700E-02			0.0187	ug/mL			
28	CCB	S1009080023		0 0			Oxalate	LIQUID		<2.3100E-02			0.0231	ug/mL			
28	CCB	S1009080023		0 0			Bromide	LIQUID		<5.8000E-02			0.058	ug/mL			
28	CCB	S1009080023		0 0			Nitrate	LIQUID		<2.0800E-02			0.0208	ug/mL			
28	CCB	S1009080023		0 0			Phosphate	LIQUID		<1.6700E-02			0.0167	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

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# 00021990

Final Page for Batch# 00021990

Reviewer Signature **Date**

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

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LABCORE Completed Batch Report for Batch# 00021990

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1009080010	CCV				
2	S1009080011	CCB				
3	S1009080012	LLS				
4	S1009070164	BLNK-PREP				
5	S1009080016	STD-PREP				
6	S10V001876	SAMPLE		20100584	B26JK8	C Farm WMC 2010-2
7	S1009070165	DUP	S10V001876			
8	S1009080017	SPK-PREDIG	S10V001876			
9	S1009080013	SPK-IC	S10V001876			
10	S10V001893	SAMPLE		20100584	B26JK9	C Farm WMC 2010-2
11	S10V001913	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
12	S10V001953	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
13	S1009080014	CCV				
14	S1009080015	CCB				
15	S10V001973	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
16	S10V002059	SAMPLE		20100584	B26C34	C Farm WMC 2010-2
17	S10V002363	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
18	S10V002512	SAMPLE		20100584	B26C38	C Farm WMC 2010-2
19	S10V002807	SAMPLE		20100584	B26C40	C Farm WMC 2010-2
20	S1009080019	CCV				
21	S1009080018	CCB				
22	S1009080021	CCV				
23	S1009080020	CCB				
24	S1009080022	LLS				
25	S10V001933	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
26	S10V001933	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
27	S1009080024	CCV				
28	S1009080023	CCB				

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# 00021960

Analyst: LaPlant, Kelsey **Book#:** 27N29E

Instrument: IC-5 (IC-NH4)

Method: IC - NH4, LA-533-101 Rev/Mod Q-0

Specification: C Farm WMC 2010-2

Prep Batch: 00021874, 00021924

Batch Comment:

BY Barrier/C Farm WMC 2010-2 Instrument Run Batch. KJL.

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	S1009070073		0 0			Ammonium	LIQUID	3.02970294	2.8863E+00			0.012	ug/mL	95.265	% Recovery	
Sample Sequence 2																	
2	CCB	S1009070074		0 0			Ammonium	LIQUID		<1.2000E-02			0.012	ug/mL			
Sample Sequence 3																	
3	LLS	S1009070075		0 0			Ammonium	LIQUID	.12000096	1.0298E-01			0.012	ug/mL	85.816	% Recovery	
Sample Sequence 4																	
4	BLNK-PREP	S1009020101		0 0	S		Ammonium	LIQUID		1.4295E+00			0.12	ug/mL			
Sample Sequence 5																	
5	LCS	S1009020100		0 0	S		Ammonium	LIQUID	306	2.8247E+02			0.6	ug/mL	92.311	% Recovery	
Sample Sequence 7																	
7	DUP	S1009020102	S10V001915	0 0	S		Ammonium	SOLID		6.0959E+01			0.4717	ug/g			
Sample Sequence 8																	
8	SPK-PREDIG	S1009020103	S10V001915	0 0	S		Ammonium	SOLID	119.48382	1.4861E+02			0.46857	ug/g	-182.97	% Recovery	
Sample Sequence 9																	
9	SPK-IC	S1101270061	S10V001915	0 0			Ammonium	SOLID	306	1.1179E+01			0.012	ug/g	62.551	% Recovery	
Sample Sequence 10																	
10	SAMPLE	S10V001935		0 0	S		Ammonium	SOLID	N/A	1.3542E+00			0.46548	ug/g			BJ
Sample Sequence 11																	
11	SAMPLE	S10V001955		0 0	S		Ammonium	SOLID	N/A	1.9874E+01			0.46711	ug/g			B
Sample Sequence 12																	
12	SAMPLE	S10V002039		0 0	S		Ammonium	SOLID	N/A	9.4499E+00			0.47866	ug/g			B
Sample Sequence 13																	
13	SAMPLE	S10V002061		0 0	S		Ammonium	SOLID	N/A	7.6997E+00			0.47544	ug/g			B
Sample Sequence 14																	
14	CCV	S1009070079		0 0			Ammonium	LIQUID	3.02970294	2.9592E+00			0.012	ug/mL	97.674	% Recovery	
Sample Sequence 15																	
15	CCB	S1009070080		0 0			Ammonium	LIQUID		<1.2000E-02			0.012	ug/mL			
Sample Sequence 16																	
16	SAMPLE	S10V002368		0 0	S		Ammonium	SOLID	N/A	2.6703E+00			0.47904	ug/g			BJ
Sample Sequence 17																	
17	SAMPLE	S10V002514		0 0	S		Ammonium	SOLID	N/A	2.1008E+00			0.47828	ug/g			BJ
Sample Sequence 18																	
18	SAMPLE	S10V002809		0 0	S		Ammonium	SOLID	N/A	1.1795E+00			0.47657	ug/g			BJ
Sample Sequence 21																	

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00021960

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
21	CCV	S1009070083		0 0			Ammonium	LIQUID	3.02970294	2.9189E+00			0.012	ug/mL	96.342	% Recovery	
Sample Sequence 22																	
22	CCB	S1009070082		0 0			Ammonium	LIQUID		<1.2000E-02			0.012	ug/mL			
Sample Sequence 23																	
23	BLNK-PREP	S1009010204		0 0	S		Ammonium	LIQUID		2.4450E-01			0.12	ug/mL			
Sample Sequence 24																	
24	LCS	S1009010203		0 0	S		Ammonium	LIQUID	306	2.7833E+02			0.6	ug/mL	90.959	% Recovery	
Sample Sequence 26																	
26	DUP	S1009020105	S10V002590	0 0	S		Ammonium	SOLID					0.47393	ug/g	77.713	% RPD	
Sample Sequence 27																	
27	SPK-PREDIG	S1009020106	S10V002590	0 0	S		Ammonium	SOLID					0.47281	ug/g	94.7	% Recovery	
Sample Sequence 28																	
28	SPK-IC	S1009070086	S10V002590	0 0			Ammonium	SOLID					0.012	ug/g	94.749	% Recovery	
Sample Sequence 33																	
33	CCV	S1009070085		0 0			Ammonium	LIQUID	3.02970294	2.9255E+00			0.012	ug/mL	96.559	% Recovery	
Sample Sequence 34																	
34	CCB	S1009070084		0 0			Ammonium	LIQUID		<1.2000E-02			0.012	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00021960

Reviewer Signature **Date**

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LABCORE Completed Batch Report for Batch# 00021960

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1009070073	CCV				
2	S1009070074	CCB				
3	S1009070075	LLS				
4	S1009020101	BLNK-PREP				
5	S1009020100	LCS				
6	S10V001915	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
7	S1009020102	DUP	S10V001915			
8	S1009020103	SPK-PREDIG	S10V001915			
9	S1101270061	SPK-IC	S10V001915			
10	S10V001935	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
11	S10V001955	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
12	S10V002039	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
13	S10V002061	SAMPLE		20100584	B26C34	C Farm WMC 2010-2
14	S1009070079	CCV				
15	S1009070080	CCB				
16	S10V002368	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
17	S10V002514	SAMPLE		20100584	B26C38	C Farm WMC 2010-2
18	S10V002809	SAMPLE		20100584	B26C40	C Farm WMC 2010-2
21	S1009070083	CCV				
22	S1009070082	CCB				
23	S1009010204	BLNK-PREP				
24	S1009010203	LCS				
26	S1009020105	DUP	S10V002590			
27	S1009020106	SPK-PREDIG	S10V002590			
28	S1009070086	SPK-IC	S10V002590			
33	S1009070085	CCV				
34	S1009070084	CCB				

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

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

Date: 30 May 2011
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: WMA C
Subject: Radiochemical - Sample Data Group (SDG) 20100584

INTRODUCTION

This memorandum presents the results of data validation for SDG 20100584 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
B26C30	8/29/2010	Soil	C	See note 1
B26C38	9/01/2010	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 Waste Management Area C, RPP-PLAN-40564, Rev. 2 (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. There are no specific holding time and preservation requirements for radiochemical soil analysis.

- **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 exception. The Se-79

laboratory blank result was > the minimum detectable concentration. The Se-79 result for sample B26C30 was a non-detect and should not be qualified for the blank infraction. The Se-79 result for sample B26C38 was a detect <5X the blank result and should be qualified as an estimate and flagged "J."

Trip Blanks

No trip blanks were submitted for validation.

Field Blanks

No field blanks were submitted for validation.

Equipment Blanks

No equipment blanks were submitted for validation.

- **Accuracy**

Accuracy is evaluated by reviewing matrix spike sample results, laboratory control sample results, and chemical recovery factors. Chemical recovery factors are determined through use of a carrier or tracer and provide assessment of the chemical separation process that is affected by the laboratory procedure, sample matrix, and/or interference. Chemical recovery factors are used to correct sample concentration, uncertainty, and MDC results. According to the SAP, the matrix spike sample accuracy limits are 75% to 125% and the laboratory control sample accuracy limits are 80% to 120%.

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 B26C30 was a non-detect and should be qualified as an estimate and flagged "UJ." The Se-79 result for sample B26C38 was a detect and should be qualified as an estimate and flagged "J."

Carrier/Tracer Recovery Factors

All carrier/tracer recovery factors were acceptable.

- **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 MDCs the precision limits are ones specified by the DV procedure.

Laboratory Duplicate Samples

All laboratory duplicate results were acceptable.

Field Duplicate Samples

No field duplicates were submitted for validation.

Field Split Samples

No field splits were submitted for validation.

- **Detection Limits**

Reported MDCs are compared against the required detection limits (RDLs) to ensure that laboratory detection limits meet the required criteria.

All reported sample MDCs were below the RDLs.

- **Completeness**

SDG 20100584 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 lack of LCS analysis for Se-79 and Se-79 laboratory blank contamination. See the table in Appendix 2 for a listing of all affected sample results.

REFERENCES

GRP-GD-002, Rev. 0, Change 0, *Data Validation for Radiochemical Analyses*, August 2010.

RPP-PLAN-40564, Rev. 2, *Field Sampling and Analysis Plan for Waste Management Area C*, December 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.

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

- **J-** — Indicates the constituent was analyzed for and detected. The associated value is estimated with a suspected negative bias 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: 20100584	Reviewer: AQA	Project: WMA C	Page 1 of 1
Analyte(s)	**DV Flag**	**Samples Affected**	**Reason**
Se-79	UJ	B26C30	Lack of LCS data
Se-79	J	B26C38	Lack of LCS data and lab blank contamination

Comments: None

Appendix 3

Annotated Laboratory Reports

Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C30
Sample Depth: 14-16

LS
5-30-2011

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V001946			%WATERA	%WATER-APD	%	n/a	n/a	4.910	n/a	n/a	n/a	n/a	0.01000	n/a	
S10V001946			57-12-5	Cyanide	ug/g	99.7	<0.0370	<2.64	n/a	n/a	n/a	n/a	2.64	n/a	U
S10V001946			7439-97-6	Mercury	ug/g	96.3	<1.00E-04	<9.14E-03	n/a	n/a	n/a	n/a	9.14E-03	n/a	U
S10V001946			PH	pH	unitless	n/a	n/a	9.71	n/a	n/a	n/a	n/a	0.0100	n/a	
S10V001946			12597-04-5	Sulfide	ug/g	82.8	<0.180	12.7	n/a	n/a	n/a	n/a	7.03	n/a	B
S10V001948			13966-00-2	Potassium-40	uCi/g	n/a	n/a	9.70E-06	1.11E-05	n/a	n/a	n/a	7.18E-06	47.56	
S10V001948			10198-40-0	Cobalt-60	uCi/g	99.1	<2.73E-07	<3.54E-07	<3.54E-07	n/a	n/a	n/a	3.54E-07	n/a	U
S10V001948			14234-35-6	Antimony-125	uCi/g	n/a	<7.34E-07	<9.18E-07	<8.55E-07	n/a	n/a	n/a	9.18E-07	n/a	U
S10V001948			10045-97-3	Cesium-137	uCi/g	101	<3.64E-07	<4.56E-07	<4.19E-07	n/a	n/a	n/a	4.56E-07	n/a	U
S10V001948			14683-23-9	Europium-152	uCi/g	n/a	<1.35E-06	<1.82E-06	<1.56E-06	n/a	n/a	n/a	1.82E-06	n/a	U
S10V001948			15585-10-1	Europium-154	uCi/g	n/a	<8.57E-07	<1.22E-06	<1.09E-06	n/a	n/a	n/a	1.22E-06	n/a	U
S10V001948			14391-16-3	Europium-155	uCi/g	n/a	<4.62E-07	<5.93E-07	<5.36E-07	n/a	n/a	n/a	5.93E-07	n/a	U
S10V001948			14274-82-9	Thorium-228	uCi/g	n/a	<8.13E-06	<1.08E-05	<9.98E-06	n/a	n/a	n/a	1.08E-05	n/a	U
S10V001948			15065-10-8	Thorium-234	uCi/g	n/a	<2.85E-06	<3.55E-06	<3.42E-06	n/a	n/a	n/a	3.55E-06	n/a	U
S10V001948			15046-84-1	Iodine-129	uCi/g	111	<1.83E-07	<2.23E-07	n/a	n/a	n/a	n/a	2.23E-07	n/a	U
S10V001949		WV	14133-76-7	Technetium-99	ug/g	110	<4.00E-06	<4.01E-06	n/a	n/a	n/a	n/a	4.01E-06	n/a	U
S10V001950		W	14762-75-5	Carbon-14	uCi/g	91.6	<1.40E-06	<1.29E-06	n/a	n/a	n/a	n/a	1.29E-06	n/a	U
S10V001950		W	10028-17-8	Tritium	uCi/g	92.9	<3.75E-07	<5.10E-05	n/a	n/a	n/a	n/a	5.10E-05	n/a	U
S10V001951		A	7440-36-0	Antimony	ug/g	102	<2.00E-04	0.111	n/a	n/a	n/a	n/a	9.70E-03	n/a	J
S10V001952		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	60.1	<77.4	<77.3	n/a	n/a	n/a	n/a	77.3	n/a	U
S10V001952		O	95-50-1	1,2-Dichlorobenzene	ug/kg	n/a	<101	<101	n/a	n/a	n/a	n/a	101	n/a	U
S10V001952		O	121-14-2	2,4-Dinitrotoluene	ug/kg	77.8	<38.1	<38.1	n/a	n/a	n/a	n/a	38.1	n/a	U
S10V001952		O	95-95-4	2,4,5-Trichlorophenol	ug/kg	n/a	<44.0	<44.0	n/a	n/a	n/a	n/a	44.0	n/a	U
S10V001952		O	88-06-2	2,4,6-Trichlorophenol	ug/kg	n/a	<49.5	<49.5	n/a	n/a	n/a	n/a	49.5	n/a	U
S10V001952		O	95-48-7	2-Methylphenol	ug/kg	n/a	<57.5	<57.5	n/a	n/a	n/a	n/a	57.5	n/a	U
S10V001952		O	88-75-5	2-Nitrophenol	ug/kg	n/a	<53.7	<53.7	n/a	n/a	n/a	n/a	53.7	n/a	U
S10V001952		O	65794-96-9	3 &4 Methylphenol	ug/kg	n/a	<51.4	<51.4	n/a	n/a	n/a	n/a	51.4	n/a	U
S10V001952		O	83-32-9	Acenaphthene	ug/kg	68.0	<17.6	<17.6	n/a	n/a	n/a	n/a	17.6	n/a	U
S10V001952		O	56-55-3	Benzo(a)anthracene	ug/kg	n/a	<37.8	<37.8	n/a	n/a	n/a	n/a	37.8	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
M - RPD Outside Range
N - MS/MSD Outside Range
C - Blank Contamination
B - Blank Contamination
B - Estimated
J - Estimated
T - MS/MSD Outside Range

Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C30
Sample Depth: 14-16

LS
5-30-2011

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V001954		A	7440-24-6	Strontium	ug/g	88.7	<3.00E-03	35.1	n/a	n/a	n/a	n/a	0.295	n/a	NM
S10V001954		A	7440-32-6	Titanium	ug/g	82.5	<5.00E-03	1.98E+03	n/a	n/a	n/a	n/a	0.492	n/a	
S10V001954		A	7440-62-2	Vanadium	ug/g	84.5	<5.00E-03	75.1	n/a	n/a	n/a	n/a	0.492	n/a	
S10V001954		A	7440-65-5	Yttrium	ug/g	82.8	<2.00E-03	9.43	n/a	n/a	n/a	n/a	0.197	n/a	
S10V001954		A	7440-66-6	Zinc	ug/g	81.5	<5.00E-03	42.8	n/a	n/a	n/a	n/a	0.492	n/a	
S10V001954		A	7440-67-7	Zirconium	ug/g	99.0	<5.00E-03	18.7	n/a	n/a	n/a	n/a	0.492	n/a	N
S10V001954		A	14269-63-7	Thorium-230	ug/g	n/a	4.16E-06	<2.80E-05	n/a	n/a	n/a	n/a	2.80E-05	n/a	U
S10V001954		A	TH-232	Thorium-232	ug/g	107	<2.00E-04	3.22	n/a	n/a	n/a	n/a	2.00E-03	n/a	
S10V001954		A	13968-55-3	Uranium-233	ug/g	n/a	<4.00E-06	1.41E-04	n/a	n/a	n/a	n/a	3.94E-05	n/a	
S10V001954		A	13966-29-5	Uranium-234	ug/g	n/a	<2.00E-06	<1.97E-05	n/a	n/a	n/a	n/a	1.97E-05	n/a	U
S10V001954		A	15117-96-1	Uranium-235	ug/g	97.2	<4.00E-06	3.29E-03	n/a	n/a	n/a	n/a	3.94E-05	n/a	
S10V001954		A	13982-70-2	Uranium-236	ug/g	n/a	1.62E-06	<1.57E-05	n/a	n/a	n/a	n/a	1.57E-05	n/a	U
S10V001954		A	13994-20-2	Neptunium-237	ug/g	100	<4.00E-05	<3.94E-04	n/a	n/a	n/a	n/a	3.94E-04	n/a	U
S10V001954		A	U-238	Uranium-238	ug/g	106	<2.00E-04	0.504	n/a	n/a	n/a	n/a	1.97E-03	n/a	
S10V001954		A	7440-22-4	Silver	ug/g	119	<4.00E-04	0.0618	n/a	n/a	n/a	n/a	3.94E-03	n/a	
S10V001954		A	7440-38-2	Arsenic	ug/g	106	<8.40E-03	2.95	n/a	n/a	n/a	n/a	0.0827	n/a	
S10V001954		A	7440-43-9	Cadmium	ug/g	107	<1.80E-03	0.0661	n/a	n/a	n/a	n/a	0.0118	n/a	B
S10V001954		A	7439-92-1	Lead	ug/g	99.4	<3.00E-03	3.37	n/a	n/a	n/a	n/a	0.0295	n/a	
S10V001954		A	7782-49-2	Selenium	ug/g	104	<0.0270	0.602	n/a	n/a	n/a	n/a	0.266	n/a	B
S10V001954		A	7440-28-0	Thallium	ug/g	98.8	<4.00E-04	0.0774	n/a	n/a	n/a	n/a	7.87E-03	n/a	B
S10V001955		S	14798-03-9	Ammonium	ug/g	92.3	1.43	19.9	n/a	n/a	n/a	n/a	0.467	n/a	C
S10V001956		A	14133-76-7	Technetium-99	ug/g	109	<3.00E-05	<2.95E-04	n/a	n/a	n/a	n/a	2.95E-04	n/a	U
S10V001956		A	SN-117	Tin-117	ug/g	108	<1.00E-03	<9.85E-03	n/a	n/a	n/a	n/a	9.85E-03	n/a	UN
S10V001956		A	15832-50-5	Tin-126	ug/g	n/a	<2.00E-05	3.15E-04	n/a	n/a	n/a	n/a	1.97E-04	n/a	BN
S10V001957		E	CM-243/244	Curium-243/244	uCi/g	n/a	<2.10E-07	<2.22E-07	<2.05E-07	n/a	n/a	n/a	2.22E-07	n/a	U
S10V001957		E	14596-10-2	Americium-241	uCi/g	93.7	<5.25E-07	<5.55E-07	<5.12E-07	n/a	n/a	n/a	5.55E-07	n/a	U
S10V001957		E	15510-73-3	Curium-242	uCi/g	n/a	<2.10E-07	<2.22E-07	<2.05E-07	n/a	n/a	n/a	2.22E-07	n/a	U
S10V001957		E	PU-239/240	Plutonium-239/240	uCi/g	97.1	<6.08E-07	<3.40E-07	<3.45E-07	n/a	n/a	n/a	3.40E-07	n/a	U
S10V001957		E	13981-16-3	Plutonium-238	uCi/g	n/a	<6.08E-07	<3.40E-07	<3.45E-07	n/a	n/a	n/a	3.40E-07	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
M - RPD Outside Range
N - MS/MSD Outside Range
C - Blank Contamination
B - Blank Contamination
B - Estimated
J - Estimated
T - MS/MSD Outside Range

Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C30
Sample Depth: 14-16

LS
5-30-2011

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V001958		E	SR-89/90	Strontium-89/90	uCi/g	98.8	<1.88E-07	<1.88E-07	<6.48E-07	n/a	n/a	n/a	1.88E-07	n/a	U
S10V001959		E	13981-37-8	Nickel-63	uCi/g	105	<5.73E-06	<5.42E-06	<5.33E-06	n/a	n/a	n/a	5.42E-06	n/a	U
S10V001959		E	15758-45-9	Selenium-79 UJ	uCi/g	n/a	2.39E-06	<1.99E-06	2.32E-06	2.16E-06	15.3	n/a	1.99E-06	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
M - RPD Outside Range
N - MS/MSD Outside Range
C - Blank Contamination
B - Blank Contamination
B - Estimated
J - Estimated
T - MS/MSD Outside Range

Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C38
Sample Depth: 116-118

LS
5-30-2011

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002505			%WATERA	%WATER-APD	%	n/a	n/a	3.190	n/a	n/a	n/a	n/a	0.01000	n/a	
S10V002505			57-12-5	Cyanide	ug/g	89.7	<0.0370	<2.66	n/a	n/a	n/a	n/a	2.66	n/a	U
S10V002505			7439-97-6	Mercury	ug/g	87.7	<1.00E-04	<9.26E-03	n/a	n/a	n/a	n/a	9.26E-03	n/a	U
S10V002505			PH	pH	unitless	n/a	n/a	9.29	n/a	n/a	n/a	n/a	0.0100	n/a	
S10V002505			12597-04-5	Sulfide	ug/g	92.5	<0.180	8.75	n/a	n/a	n/a	n/a	7.16	n/a	B
S10V002507			13966-00-2	Potassium-40	uCi/g	n/a	n/a	1.40E-05	n/a	n/a	n/a	n/a	5.83E-06	28.54	
S10V002507			10198-40-0	Cobalt-60	uCi/g	99.1	<2.73E-07	<3.13E-07	n/a	n/a	n/a	n/a	3.13E-07	n/a	U
S10V002507			14234-35-6	Antimony-125	uCi/g	n/a	<7.34E-07	<7.89E-07	n/a	n/a	n/a	n/a	7.89E-07	n/a	U
S10V002507			10045-97-3	Cesium-137	uCi/g	101	<3.64E-07	<3.67E-07	n/a	n/a	n/a	n/a	3.67E-07	n/a	U
S10V002507			14683-23-9	Europium-152	uCi/g	n/a	<1.35E-06	<1.51E-06	n/a	n/a	n/a	n/a	1.51E-06	n/a	U
S10V002507			15585-10-1	Europium-154	uCi/g	n/a	<8.57E-07	<9.72E-07	n/a	n/a	n/a	n/a	9.72E-07	n/a	U
S10V002507			14391-16-3	Europium-155	uCi/g	n/a	<4.62E-07	<4.80E-07	n/a	n/a	n/a	n/a	4.80E-07	n/a	U
S10V002507			15092-94-1	Lead-212	uCi/g	n/a	n/a	6.69E-07	n/a	n/a	n/a	n/a	4.52E-07	31.92	
S10V002507			15067-28-4	Lead-214	uCi/g	n/a	n/a	6.44E-07	n/a	n/a	n/a	n/a	7.48E-07	45.90	U
S10V002507			14274-82-9	Thorium-228	uCi/g	n/a	<8.13E-06	<9.24E-06	n/a	n/a	n/a	n/a	9.24E-06	n/a	U
S10V002507			15065-10-8	Thorium-234	uCi/g	n/a	<2.85E-06	<3.16E-06	n/a	n/a	n/a	n/a	3.16E-06	n/a	U
S10V002507			15046-84-1	Iodine-129	uCi/g	113	<1.93E-07	<1.53E-07	n/a	n/a	n/a	n/a	1.53E-07	n/a	U
S10V002508		WV	14133-76-7	Technetium-99	ug/g	110	<4.00E-06	<3.86E-06	n/a	n/a	n/a	n/a	3.86E-06	n/a	U
S10V002509		W	14762-75-5	Carbon-14	uCi/g	91.6	<1.40E-06	<1.33E-06	n/a	n/a	n/a	n/a	1.33E-06	n/a	U
S10V002509		W	10028-17-8	Tritium	uCi/g	92.9	<3.75E-07	8.92E-05	n/a	n/a	n/a	n/a	5.18E-05	88.485	
S10V002510		A	7440-36-0	Antimony	ug/g	102	<2.00E-04	0.157	n/a	n/a	n/a	n/a	9.72E-03	n/a	J
S10V002511		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	77.1	<77.4	<76.4	n/a	n/a	n/a	n/a	76.4	n/a	U
S10V002511		O	95-50-1	1,2-Dichlorobenzene	ug/kg	n/a	<101	<99.4	n/a	n/a	n/a	n/a	99.4	n/a	U
S10V002511		O	121-14-2	2,4-Dinitrotoluene	ug/kg	108	<38.1	<37.6	n/a	n/a	n/a	n/a	37.6	n/a	UT
S10V002511		O	95-95-4	2,4,5-Trichlorophenol	ug/kg	n/a	<44.0	<43.4	n/a	n/a	n/a	n/a	43.4	n/a	U
S10V002511		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
S10V002511		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
S10V002511		O	88-75-5	2-Nitrophenol	ug/kg	n/a	<53.7	<53.0	n/a	n/a	n/a	n/a	53.0	n/a	U
S10V002511		O	65794-96-9	3 &4 Methylphenol	ug/kg	n/a	<51.4	<50.7	n/a	n/a	n/a	n/a	50.7	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
M - RPD Outside Range
N - MS/MSD Outside Range
C - Blank Contamination
B - Blank Contamination
B - Estimated
J - Estimated
T - MS/MSD Outside Range

Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C38
Sample Depth: 116-118

LS
5-30-2011

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002513		A	7704-34-9	Sulfur	ug/g	81.2	<0.100	62.8	n/a	n/a	n/a	n/a	9.86	n/a	B
S10V002513		A	7440-21-3	Silicon	ug/g	94.7	<0.0300	72.8	n/a	n/a	n/a	n/a	2.96	n/a	NM
S10V002513		A	7440-24-6	Strontium	ug/g	88.7	<3.00E-03	29.4	n/a	n/a	n/a	n/a	0.296	n/a	NM
S10V002513		A	7440-32-6	Titanium	ug/g	82.5	<5.00E-03	795	n/a	n/a	n/a	n/a	0.493	n/a	
S10V002513		A	7440-62-2	Vanadium	ug/g	84.5	<5.00E-03	31.0	n/a	n/a	n/a	n/a	0.493	n/a	
S10V002513		A	7440-65-5	Yttrium	ug/g	82.8	<2.00E-03	5.53	n/a	n/a	n/a	n/a	0.197	n/a	
S10V002513		A	7440-66-6	Zinc	ug/g	81.5	<5.00E-03	32.0	n/a	n/a	n/a	n/a	0.493	n/a	
S10V002513		A	7440-67-7	Zirconium	ug/g	99.0	<5.00E-03	6.47	n/a	n/a	n/a	n/a	0.493	n/a	N
S10V002513		A	14269-63-7	Thorium-230	ug/g	n/a	4.16E-06	<2.78E-05	n/a	n/a	n/a	n/a	2.78E-05	n/a	U
S10V002513		A	TH-232	Thorium-232	ug/g	107	<2.00E-04	4.18	n/a	n/a	n/a	n/a	1.99E-03	n/a	
S10V002513		A	13968-55-3	Uranium-233	ug/g	n/a	<4.00E-06	1.74E-04	n/a	n/a	n/a	n/a	3.94E-05	n/a	
S10V002513		A	13966-29-5	Uranium-234	ug/g	n/a	<2.00E-06	4.23E-05	n/a	n/a	n/a	n/a	1.97E-05	n/a	
S10V002513		A	15117-96-1	Uranium-235	ug/g	97.2	<4.00E-06	3.12E-03	n/a	n/a	n/a	n/a	3.94E-05	n/a	
S10V002513		A	13982-70-2	Uranium-236	ug/g	n/a	1.62E-06	<1.58E-05	n/a	n/a	n/a	n/a	1.58E-05	n/a	U
S10V002513		A	13994-20-2	Neptunium-237	ug/g	100	<4.00E-05	<3.94E-04	n/a	n/a	n/a	n/a	3.94E-04	n/a	U
S10V002513		A	U-238	Uranium-238	ug/g	106	<2.00E-04	0.414	n/a	n/a	n/a	n/a	1.97E-03	n/a	
S10V002513		A	7440-22-4	Silver	ug/g	119	<4.00E-04	0.0443	n/a	n/a	n/a	n/a	3.94E-03	n/a	
S10V002513		A	7440-38-2	Arsenic	ug/g	106	<8.40E-03	3.47	n/a	n/a	n/a	n/a	0.0828	n/a	
S10V002513		A	7440-43-9	Cadmium	ug/g	107	<1.80E-03	0.0631	n/a	n/a	n/a	n/a	0.0118	n/a	B
S10V002513		A	7439-92-1	Lead	ug/g	99.4	<3.00E-03	3.79	n/a	n/a	n/a	n/a	0.0296	n/a	
S10V002513		A	7782-49-2	Selenium	ug/g	104	<0.0270	0.469	n/a	n/a	n/a	n/a	0.266	n/a	B
S10V002513		A	7440-28-0	Thallium	ug/g	98.8	<4.00E-04	0.0541	n/a	n/a	n/a	n/a	7.89E-03	n/a	B
S10V002514		S	14798-03-9	Ammonium	ug/g	92.3	1.43	2.10	n/a	n/a	n/a	n/a	0.478	n/a	CB
S10V002515		A	14133-76-7	Technetium-99	ug/g	109	<3.00E-05	<2.99E-04	n/a	n/a	n/a	n/a	2.99E-04	n/a	U
S10V002515		A	SN-117	Tin-117	ug/g	108	<1.00E-03	<9.95E-03	n/a	n/a	n/a	n/a	9.95E-03	n/a	UN
S10V002515		A	15832-50-5	Tin-126	ug/g	n/a	<2.00E-05	3.38E-04	n/a	n/a	n/a	n/a	1.99E-04	n/a	BN
S10V002516		E	CM-243/244	Curium-243/244	uCi/g	n/a	<2.10E-07	<1.66E-07	n/a	n/a	n/a	n/a	1.66E-07	n/a	U
S10V002516		E	14596-10-2	Americium-241	uCi/g	93.7	<5.25E-07	<4.16E-07	n/a	n/a	n/a	n/a	4.16E-07	n/a	U
S10V002516		E	15510-73-3	Curium-242	uCi/g	n/a	<2.10E-07	<1.66E-07	n/a	n/a	n/a	n/a	1.66E-07	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
M - RPD Outside Range
N - MS/MSD Outside Range
C - Blank Contamination
B - Blank Contamination
B - Estimated
J - Estimated
T - MS/MSD Outside Range

Data Summary Report

Sample Group: 20100584
Core Number: C7680
Customer Sample ID: B26C38
Sample Depth: 116-118

LS
5-30-2011

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002516		E	PU-239/240	Plutonium-239/240	uCi/g	97.1	<6.08E-07	<2.92E-07	n/a	n/a	n/a	n/a	2.92E-07	n/a	U
S10V002516		E	13981-16-3	Plutonium-238	uCi/g	n/a	<6.08E-07	<2.92E-07	n/a	n/a	n/a	n/a	2.92E-07	n/a	U
S10V002517		E	SR-89/90	Strontium-89/90	uCi/g	98.8	<1.88E-07	<2.73E-07	n/a	n/a	n/a	n/a	2.73E-07	n/a	U
S10V002518		E	13981-37-8	Nickel-63	uCi/g	105	<5.73E-06	<5.76E-06	n/a	n/a	n/a	n/a	5.76E-06	n/a	U
S10V002518		E	15758-45-9	Selenium-79 J	uCi/g	n/a	2.39E-06	2.22E-06	n/a	n/a	n/a	n/a	1.79E-06	1166.649	B

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
M - RPD Outside Range
N - MS/MSD Outside Range
C - Blank Contamination
B - Blank Contamination
B - Estimated
J - Estimated
T - MS/MSD 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 HOLE C7680 IN SUPPORT OF RCRA SOIL CHARACTERIZATION

1.0 INTRODUCTION

This final report presents the results for the samples taken from Waste Management Area C between August 26, 2010 and September 1, 2010. 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-38777, *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); SW-846, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*; 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 other 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	Additional Organic Analyses QC Results
Attachment 5	Tentatively Identified Compounds (TIC) for Organic Analyses
Attachment 6	Geological Report
Attachment 7	Characterization Change Notices (CCN) and Correspondence
Attachment 8	Receipt Paperwork

2.0 SAMPLE RECEIPT AND BREAKDOWN

2.1 SAMPLE RECEIPT

A total of eight core intervals and two surface grab samples from core hole C7680 along with nine field blanks and six trip blanks were received by the 222-S Laboratory between August 26, 2010 and September 1, 2010. The samples were delivered in a cooler with ice or, in the case of the volatile organic soil samples, in a freezer. The temperatures of the temperature blanks were measured and recorded on the sample receipt check list and/or the chain of custody form.

The chain of custody requested that conductivity be analyzed on the soil samples. Since this analysis was not listed in the SAP or FSAP, it was not performed. The client has indicated that

this analysis may be performed later after a CCN is issued to cover the change to the FSAP (see Attachment 7).

2.2 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. The VOA samples were made from the shoe section of each core interval following SW-846 5035. 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 Attachment 6. Provided sufficient samples existed, the composite for each core interval was analyzed as described in the SAP and FSAP. One core interval, I002, had less than full recovery (see Attachment 2 and Attachment 8).

WRPS shipped subsamples of the composites to Test America Laboratories, Inc. (TAL) in St. Louis, Missouri and Knoxville, Tennessee to be analyzed for dibutyl and monobutyl phosphate, total petroleum hydrocarbons (diesel and gasoline range), ethylene glycol, chlorinated pesticides, and polychlorinated biphenyls (Aroclors and congeners). TAL subsequently subcontracted the monobutyl and dibutyl phosphate analyses to Southwest Research Institute. The results of these analyses will be released in the final WRPS report.

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 5. 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 (MDA) 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 SW-846 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 standard water digest.

"WV" indicates samples that were prepared by a Vadose 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 from FEAD CP-15383, *Common Requirements of the Format for Electronic Analytical Data,* that are defined as follows:

> "B" for organic or radiochemistry results is used to indicate that the analyte was detected in the method or preparation blank and in the sample.
>
> "B" for inorganic results is used to indicate that the reported result should be considered an estimate because it is below the quantitation limit. The "B" flag is applied to sample concentrations that are greater than the MDL but less than the quantitation limit.
>
> "C" for inorganic results 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 or equal to 20% of the reported sample result.
>
> "J" for organic results is used to indicate 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.
>
> "T" for GC/MS results is used to indicate the matrix spike (MS) recovery or matrix spike duplicate (MSD) recovery is outside control limits.
>
> "U" for all results is used to indicate that the reported result is less than the calculated detection limit.
>
> "N" for all but GC/MS is used to indicate that the MS recovery or MSD recovery was outside of the specified range in the QAPP or SAP.
>
> "N" for GC/MS is used to indicate a TIC which has been named.
>
> "M" for inorganic results is used to indicate that the relative percent difference (RPD) between the sample and the duplicate is greater than 30%.

Manual calculations using rounded results from the Data Summary Report (Attachment 1) 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 1 to 10 g of sample was digested depending on the analysis being performed. The digestate was then filtered and diluted to a final volume. This digestion was used for all radiochemical analyses except ^{3}H, ^{14}C, and ^{129}I. This digestion is a leach of the acid soluble species only.

3.1.2 SW-846 3050B - Acid Digestion-Heating Block

This acid digestion follows SW-846 3050B using a heating block and nitric and hydrochloric acids. An aliquot of approximately 5 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) analyses. 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. A separate digestion for antimony was prepared using additional hydrochloric acid, as recommended in SW-846.

3.1.3 Water Digestion

A water digestion or leach was prepared for the anions by ion chromatography, ^{14}C, and ^{3}H 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.

3.1.4 Vadose Water Digestion

A 70-g sample of soil was leached using a ratio of one part water to one part soil. To maintain a one-to-one ratio, the amount of water added to the sample was adjusted based on the percent moisture of the soil. The slurries were placed on a shaker table for about 1 hour. They were then transferred to a centrifuge tube and centrifuged at 4,000 rpm for 30 minutes. The leachates were filtered using a disposable vacuum filtration system. The filtrates were transferred to a clean bottle and then analyzed for ^{99}Tc by ICP/MS analysis.

3.2 INORGANIC ANALYSES

3.2.1 Cyanide

The cyanide analysis by distillation and spectrophotometry was performed on the grab samples and liner composite samples. All analyses met the SW-846 holding time of 14 days. There was no required reporting limit in the SAP for cyanide. The target detection limit was 0.5 µg/g, which is lower than what the current laboratory procedure (lachet micro-distillation) is reporting as reached. There were no notable quality control (QC) issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.2.2 Sulfide

Sulfide analysis by distillation and ion selective electrode was performed on the grab samples and liner composite samples. All analyses met the SW-846 holding time of 7 days. There was no required reporting limit in the SAP for sulfide. The target detection limit was 5 µg/g. All sample results had adjusted MDLs of approximately 7 µg/g. There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.2.3 pH Analysis

The pH analysis was performed on the grab samples and 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 after the water leach was performed. The sampling to analysis time varied from 19 to 25 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 variation in time has no apparent effect on the results.

3.2.4 Mercury

Analysis for mercury by cold-vapor/atomic absorption was performed on the grab samples and liner composite samples. All results met the QC requirements in the FSAP, SAP, and QAPP. All analyses met the holding time of 28 days. This analysis met the required and target detection limits.

3.2.5 Ion Chromatography – Ammonium

Analysis for ammonium was performed using a distillation preparation of the grab samples and the liner composite samples. There is no regulatory holding time limit promulgated for ammonium in soil. The SAP lists an administrative holding time of 7 days. The laboratory believes that after distillation and preservation, the holding time is 28 days, based on U.S. Environmental Protection Agency drinking water and waste water holding times for preserved samples. All samples met these holding times. However, sample B26C26 did not produce usable results and is discussed below in batch 21960. These analyses met the target detection limit listed in the SAP. There was no required reporting limit in the SAP or FSAP for ammonium.

Batch 21732: Ammonium was detected in the preparation blanks at a level below the quantitation limit and above the MDL. Ammonium was also detected in the samples above the quantitation limit but at more than 5 times the level of the blank; therefore, these results have not been flagged with a “C”.

Batch 21960: This batch experienced a major analytical error that was not discovered for several months. During the final review of this batch, which occurred several months after the analysis, it was discovered that for sample B26C26, it appeared that the spike standard was added to both the sample and MS. All the samples for core hole C7680 were reanalyzed months past the holding, and it was obvious from the results that most of the original ammonium had dissipated and results were unusable. These issues were discussed with the client and it was agreed that no result should be reported for sample B26C26 (see Attachment 7). The seven remaining sample results in the original batch were reported. Ammonium was detected in the preparation blanks at a level above the quantitation limit. Ammonium was also detected in three of the samples above the quantitation limit but at more than 5 times the level of the blank. All results have not been flagged with a “C”.

3.2.6 Ion Chromatography – Anions and Small Organic Acids

Ion chromatography analysis was performed on all grab samples and liner composite samples. The laboratory met all of the required and target detection limits. All analyses were within the applicable SW-846 holding times. The sample spikes used for the standard water digestions are predigestion spikes.

Batch 21990: The result for chloride in the preparation blank was slightly above the MDL and below the quantitation limit. All sample results were above the quantitation limit and were greater than 5 times the blank; therefore, no "C" flags were applied.

3.2.7 Inductively Coupled Plasma/Atomic Emission Spectroscopy

The ICP/AES analysis was performed on an acid-digest (SW-846 3050B) of all grab samples and liner composite samples. The ICP/AES analysis was unable to obtain the required detection limit for antimony, arsenic, cadmium, lead, selenium, silver, and thallium for the soil sample. These elements have been reported from separate ICP/MS analyses. Total uranium has not been reported by the ICP/AES analysis since it cannot meet the required detection limits in the SAP. The isotopic uranium analysis by ICP/MS met the required detection limit for ^{238}U, which is essentially total uranium. The overall data usability was not affected. For all other metals reported by ICP/AES, all target and required detection limits were met. SW-846 lists the holding times for ICP/AES metals as 6 months. All analyses met the holding times. All primary metal constituents are reported. Secondary constituents are only reported if the results were above the MDL and had a valid calibration.

Batch 23817: The interference check standard-A produced positive results for phosphorous, neodymium, and manganese, which are not contained in this standard. This could indicate a positive interference. However, since in the interference check standard-AB (ICSAB) phosphorous and manganese were recovered at 100% and 99%, there appears to be no positive interference. The ICSAB also produced a result above the quantitation limit for neodymium. This indicates that spectral interference was occurring. Neodymium results in the sample were not reported due to the high probability that they were the result of this interference. A low level of iron was detected in the preparation blank, but reanalysis was not required since these levels were less than 20% of the lowest sample result.

The MS recoveries for aluminum, calcium, iron, magnesium, potassium, manganese, phosphorous, and titanium exceeded the ±25% requirement in the FSAP and SAP. Since the sample results for these elements exceeded the MS level by more than four times, this criterion does not apply.

The MS recovery for barium, sodium, silicon, strontium, and zirconium exceeded the ±25% requirement in the SAP and FSAP. These results have been flagged with an "N". The exact cause of these failures is unknown. Matrix interference is suspected for barium and zirconium since these commonly fail. However, since all duplicate results were higher than the sample results, analytical error cannot be ruled out. These results were discussed with the client and reported "as is" (see Attachment 7).

The RPD between the sample and the duplicate exceeded the ±30% requirement in the SAP for sodium, chromium, and strontium. These results have been flagged with an "M". The exact cause of these failures is unknown. Matrix interference is suspected; however, since all duplicate results were higher than the sample results, analytical error cannot be ruled out. These results were discussed with the client and reported "as is" (see Attachment 7).

The RPD between the sample and the duplicate exceeded the ±30% requirement in the SAP for silicon. The laboratory believes this was due to matrix interference. Reanalysis was not required since this is secondary element. It should be noted that silicon is not listed with other elements in SW-846 3050B, section 1.1, under "Scope and Application" for the method and does not perform consistently when using this digest. The silicon results have been flagged with an "M".

The method blank contained a low level of calcium and iron. Since the adjusted blank results were less than 20% of the lowest sample result, reanalysis was not required and no qualifier flag was applied.

3.2.8 Inductively Coupled Plasma/Mass Spectroscopy

The ICP/MS actinide and trace metal analyses were performed on the standard SW-846 3050 acid digestion of all grab samples and liner composite samples. The ICP/MS ^{126}Sn and ^{99}Tc analysis was performed on the sample digest without the addition of hydrochloric acid. Hydrochloric acid is not used for ^{99}Tc analysis because of the potential formation of a ZnCl ion pair with mass 99. ICP/MS trace metal analysis for antimony was perform on the SW-846 3050 digest with additional hydrochloric acid, which is required to keep antimony in the solution. In addition to these acid digests, ICP/MS ^{99}Tc analysis was performed on a vadose water digest of all solid samples.

Direct is the most accurate type of calibration; however, standard material is not commercially available for all of the isotopes of interest. Concentrations of those isotopes without available standards are estimated based on the instrument's mass-response curve, which is generated by using the intensity/concentration relationship for the available isotope standards. Results estimated in this manner are designated "semi-quantitative."

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 SAP lists the holding time for isotopic analytes as 6 months. All samples were analyzed within the holding time.

Because there is no available source for ^{126}Sn, ^{117}Sn is used to monitor the chemical recovery for this analysis. Though not specifically requested in the SAP, ^{117}Sn is reported for the laboratory control sample (LCS) and MS in order to demonstrate method accuracy and presence of possible matrix interference.

All sample results for ^{126}Sn were above the MDL and below the quantitation limit with one exception. Based on this, the laboratory suspects that a low level isobaric interference is present in these samples at mass 126. The laboratory believes the most likely suspect is ^{126}Te, but there are other possible candidates. One sample result was above the quantitation level for ^{126}Sn. Users of this data should be aware that all positive ^{126}Sn results in the report may be due to isobaric interference. The laboratory is currently evaluating how to quantify the possible isobaric interferences for ^{126}Sn.

Batch 24040: The MS for ^{117}Sn was recovered below the ±25% requirement at 53%. Similar results have been observed in other batches; this appears to be a matrix interference issue. This batch was not reanalyzed, but others have been with no improvement. Tin results should be considered biased low at these levels. All samples in the batch have been flagged with an "N". The laboratory is investigating changing the acid mixture used to perform low level ^{126}Sn analysis in hopes of improving spike recoveries. Tin-126 was detected in two of the three continuing calibration blanks at slightly above the MDL. Since all results were below the quantification level, reanalysis was not required. The affected results have been flagged with a "B".

3.2.8.2 Technetium-99 (Vadose Water Digest)

The required and target detection limits listed in the SAP for ^{99}Tc were met. The SAP lists a holding time of 6 months for isotopic analytes. All analyses met this holding time. There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.2.8.3 Actinides

The required and target detection limits were met for all isotopes and in all samples. The SAP lists the holding time for isotopic analytes as 6 months. All samples were analyzed within the holding time.

Batch 23367: The closing low level standard (LLS) for ^{235}U exceeded the ±30% limit at 169%. Since all ^{235}U results were at least 17 times the LLS level, the data usability was not affected. The preparation blank result for ^{236}U was slightly above the MDL. The samples had similar results that should be considered equivalent to the blank. The affected results have been flagged with a "B".

Batch 23808: One LLS for ^{232}Th exceeded the ±30% limit at 133%. Since all ^{232}Th results were at least 130 times the LLS level, the data quality was not affected. The preparation blank result for ^{230}Th was slightly above the MDL. The samples had similar results that should be considered equivalent to the blank. The affected results have been flagged with a "B".

3.2.8.4 Trace Metals

Antimony, arsenic, cadmium, lead, selenium, silver, and thallium were analyzed by ICP/MS to obtain the required detection limits in the SAP. Except for the required detection limit for selenium, all required detection limits were met or the sample results were above the quantitation limit and the sample detection limit criteria do not apply. All target detection limits were met. The required detection limit for selenium was approximately an order of magnitude below the detection limit obtained by ICP/MS. The laboratory does not anticipate reaching this detection

limit for future projects. The adjusted MDL for selenium was approximately 0.27 µg/g. SW-846 lists the holding time for metals as 6 months. All samples were analyzed within the holding time.

Batch 24457: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batch 22891: The LLS recoveries for antimony exceeded the ±30% limit at 177% and 166%. This would indicate a high bias for sample results near the LLS level. Since all sample results were below the RDL, the data usability was not affected.

Batch 24435: The closing LLS recovery for selenium exceeded the ±30% limit at 131%, which is believed to be due to carryover from the continuing calibration verification (CCV) standard, and impact on the data usability is minimal. The cadmium RPD exceeded the required ±30 in the FSAP and SAP at 31%. Since the sample result was below the quantitation limit, this criterion does not apply.

3.3 RADIOCHEMICAL ANALYSIS

The holding time listed in the SAP for radioactive isotopes is 6 months. The FSAP lists the holding time as "none." SW-846 does not address holding times for radiochemical analytes. All radiochemical analyses met the 6-month holding time listed in the SAP. Holding time tables for these analytes have not been included in Attachment 3. With the exception of the ^{14}C and ^{3}H analyses, tracers and spikes are added prior to the digestion.

3.3.1 Gamma Energy Analysis

GEA was performed directly on the grab samples and liner composite samples. The SAP requires the reporting of all isotopes with positive results above the MDA; therefore, isotopes additional to those required in the SAP were reported when detected. The GEA analysis met all of the required detection limits in the SAP. The laboratory was unable to meet any of the target detection limits.

3.3.2 Strontium-89/90

Strontium-89/90 analysis was performed on the grab samples and liner composite samples. All of the sample analyses met the required and target detection limits. The FSAP and SAP requested ^{90}Sr, not $^{89/90}Sr$, be reported. The 222-S Laboratory only performs the latter analysis. Since the half-life for ^{89}Sr is approximately 51 days and ^{89}Sr has not been produced at Hanford for years, $^{89/90}Sr$ is essentially ^{90}Sr. There were no notable issues with the batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.3.3 Tritium

The ^{3}H analysis by liquid scintillation counting (LSC) was performed on a water leach of all grab samples and liner composite samples. This method only measured the ^{3}H in the samples that could be dissolved in water. This analysis achieved the required and target detection limits in the

FSAP. There were no notable issues with the batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.3.4 Selenium-79

The ^{79}Se analysis by LSC was performed on the grab samples and liner composite samples. The analysis achieved the target detection limit in the FSAP. No required detection limit was listed. The analysis achieved the target detection limit. No standard is currently available for ^{79}Se, and a cold carrier is used to monitor recovery and is measured gravimetrically. The ^{14}C LSC curve is used to determine the ^{79}Se results since their energies are similar. Since both ^{63}Ni and ^{79}Se use a single digestion batch that is equally split prior to the separation step, the maximum tracer/carrier recovery is 50%.

Batch 24055: The preparation blank demonstrated a positive result below the quantitation limit, as did the four samples in the batch. All results had very large counting uncertainties and were below the target detection limit. Because of these factors, reanalysis was not required. The associated positive results have been flagged with a “B”.

3.3.5 Carbon-14

The ^{14}C analysis by LSC was performed on a water leach of the grab samples and liner composite samples. 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 batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.3.6 Nickel-63

The ^{63}Ni analysis by LSC was performed on the grab samples and liner composite samples. The analysis achieved the required and target detection limits in the FSAP. Since both ^{63}Ni and ^{79}Se use a single digestion batch that is equally split prior to the separation step, the maximum trace/carrier recovery is 50%. There were no notable issues with the batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

3.3.7 Iodine-129

Analysis for ^{129}I by low energy GEA was performed on an iodine-specific fusion digest of all grab samples and liner composite samples. The required and target detection limits in the SAP were met. There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

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

Analysis for ^{241}Am, $^{243/244}$Cm, and ^{242}Cm by alpha energy analysis (AEA) was performed on the grab samples and liner composite samples. For this analysis, there were no notable issues with any batches and all QC requirements in the FSAP, SAP, and QAPP were met. The required and

target detection limits in the SAP were met. The SAP and FSAP requested ^{243}Cm and ^{244}Cm be reported separately. Since it is not possible to resolve these individual isotopes when using AEA, these isotopes have been reported as $^{243/244}$Cm.

3.3.9 Plutonium-238 and Plutonium-239/240

Plutonium isotopic (^{238}Pu and $^{239/240}$Pu) analysis by AEA was performed on the grab samples and liner composite samples. For this analysis, there were no notable issues with any batches and all QC requirements in the FSAP, SAP, and 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 by GC/MS was performed on field samples by purge and trap. Field sampling methods, sample containers, and preservation methods followed SW-846 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. Nine field blanks and six trip blanks 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 met the required holding time. All primary organic constituents are reported. Secondary and unlisted constituents are only reported if the results were above the MDL and had a validation calibration.

The VOA met the target and required detection limits in the SAP. The SAP and FSAP requested m-xylene and p-xylene be reported separately. Since it is not possible to resolve these individual compounds when performing VOA by SW-846 8260C, these compounds have been reported as m+p xylene. The SAP and FSAP request that methanol be reported with this analysis; however, this compound is too polar to be purged and cannot be reported (see Attachment 7). Isobutanol, another poor purger, was reported as a semivolatile organic compound.

Four of the field blanks and four of the trip blanks contained chloroform above the quantification level. Since chloroform is a common chlorination byproduct, the laboratory believes a likely the source of chloroform may be the water used by sampling personnel to make the various blanks.

Four of the field blank and two of the trip blanks contained methylene chloride above or near the quantification level. None of the associated laboratory blanks contained methylene chloride.

The 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 21718, 21719, and 21897: The method blank results for toluene and styrene were above the MDL but below the quantitation limit. Some of the samples contained toluene and styrene at similar levels and have been flagged with at "B". Since all sample and blank results were below the quantitation limit, reanalysis was not required.

Batch 21786: The method blank result for toluene was above the MDL but below the quantitation limit. One of the samples contained toluene at a similar level and has been flagged with at "B". Since the sample and blank results were below the quantitation limit, reanalysis was not required. The percent difference for n-butanol in the CCV was +25%, which exceeds the ±20% difference requirement. This indicates a high bias; however, since all sample results were below the MDL, the data usability was not affected and reanalysis not required.

Batch 21922: The method blank result for toluene was above the MDL but below the quantitation limit. One of the samples contained toluene at a similar level and has been flagged with at "B". Since the sample and blank results were below the quantitation limit, reanalysis was not required. The internal standards for one sample, B26CW9 (S10V001852), were recovered low, ranging from -66% to -78%. This sample was analyzed two additional times using its own MS and MSD with similar results. The MS and MSD (not reported) for the sample exhibited normal internal standard recovery. In addition, the sample's surrogate recoveries, which are adjusted using the internal standards, hovered around 100%. This indicates that there may have been a spiking or sample introduction problem. Since the results for chloroform and methylene chloride were similar in the sample and MS and MSD, the results for these were reported from the original sample analysis.

Batch 21979: The method blank result for styrene was above the MDL but below the quantitation limit. The sample contained styrene at a similar level and has been flagged with a "B". Since the sample and blank results were below the quantitation limit, reanalysis was not required. Styrene is not a primary analyte.

Batch 24659: The method blank result for benzene was above the MDL but below the quantitation limit. The sample contained benzene at a similar level and has been flagged with a "B". Since the sample and blank results were below the quantitation limit, reanalysis was not required.

3.4.2 Semivolatile Organic Analysis

The semivolatile organic analysis (SVOA) by GC/MS was performed on methylene chloride extractions of all grab samples and liner composite samples. All holding times were met.

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

- The adjusted MDLs for cyclohexanone were above the 0.5-mg/kg target detection limit for most samples. This compound obtained detection limits between 0.5 mg/kg and 0.6 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 0.6 mg/kg for this compound.

LCS, MS, and MSD recoveries were compared against the laboratory's SPC limits, as required by SW-846. The use of SPC limits is permitted in the FSAP, SAP, and QAPP.

The SAP and FSAP requested 3-methylphenol and 4-methylpnenol be reported separately. Since it is not possible to resolve these individual compounds when performing SVOA by SW-846 8270C, these compounds have been reported as 3&4 methylphenol.

Batches 22043 and 22254: There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batch 22217: The MS recovery for 2,4-dinitrotoluene exceeded the statistical control limit of 55% to 111% at 114%. Since all sample results were below the MDL for this compound, the data usability was not affected

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's NIST 02, *HP Mass Spectral Libraries*. The estimated concentration of compounds identified in 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 5. TICs that were found in the field samples and 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 Area C samples.

Table 2. Analytical Procedures

Analysis	Preparation Method	Analysis Procedure
Inorganic Analyses		
Cyanide	LA-695-103, Rev. J-0 (SW-846 9010C)	LA-695-103, Rev. 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 (solid)	LA-212-105, Rev. H-0 (SW-846 9045D)	LA-212-105, Rev. H-0 (SW-846 9045D)

Analysis	Preparation Method	Analysis Procedure
Mercury – Cold Vapor Atomic Absorption	LA-325-110, Rev. A-0 (SW-846 7471A)	LA-325-110, Rev. A-0 (SW-846 7471A)
Ammonia – IC	LA-544-112, Rev. E-0	LA-533-101, Rev. Q-0
Anions & Organic Acids – IC	LA-504-101, Rev. M-0	LA-533-115, Rev. J-0
Metals – ICP /AES	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-505-161, Rev. J-0-A (SW-846 6010C)
^{99}Tc, ^{126}Sn – ICP/MS	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-506-102, Rev. F-1
^{99}Tc – ICP/MS	08-ATL-078 Vadose Water Digest	LA-506-103, Rev. B-0
Metals – ICP/MS	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-506-102, Rev. F-1 LA-506-103, Rev. B-0 (SW-846 6020A)
Actinides – ICP/MS	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-506-102, Rev. F-1
Radiochemical Analyses		
GEA	Direct	LA-548-121, Rev. I-0
^{90}Sr – Separation/Beta counting (Solid)	LA-544-101, Rev. F-0	LA-220-101, Rev. I-0
^{3}H – LSC	LA-504-101, Rev. M-0	LA-218-111, Rev. H-0
^{14}C – LSC	LA-504-101, Rev. M-0	LA-348-104, Rev. I-0
^{79}Se – Separation/LSC	LA-544-101, Rev. F-0	LA-365-132, Rev. J-0
^{63}Ni – Separation/LSC	LA-544-101, Rev. F-0	LA-285-102, Rev. E-0
^{129}I – Separation/GEA	LA-378-105, Rev. D-0	LA-378-105, Rev. D-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. H-O (SW-846 8260B)
SVOC – GC/MS	LA-523-138, Rev. G-0 (SW-846 3540C)	LA-523-135, Rev. D-0 (SW-846 8270C)

5.0 REFERENCES

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

RPP-PLAN-40564, 2009, *Field Sampling and Analysis Plan for Sites P and L at Waste Management Area C,* Rev. 2, Washington River Protection Solutions, Inc., Richland, Washington.

RPP-PLAN-38777, 2009, *Sampling and Analysis Plan for Phase 2 Characterization of Vadose Zone Soil in Waste Management Area C*, Rev. 1, Washington River Protection Solutions, Inc., Richland, Washington.

FEAD CP-15383, 2007 *Common Requirements of the Format for Electronic Analytical Data,* Rev. 8, CH2M Hill, Plateau Remediation Company, Richland, Washington.

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V10-003-142	PAGE 1 OF 2
COLLECTOR Harris / Snook	COMPANY CONTACT TEMPLETON, AM	TELEPHONE NO. 373-5589	PROJECT COORDINATOR BERLIN, PC	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION 7680 003	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V10-003	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO. TFUS-09-003	FIELD LOGBOOK NO. TFUZ-10-000004	ACTUAL SAMPLE DEPTH 14'-16'	COA n/A	METHOD OF SHIPMENT Govt. Vehicle	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. n/A		BILL OF LADING/AIR BILL NO. n/A		

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS		
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)	PRESERVATION	Cool~4C
		HOLDING TIME	14/40 Days
		TYPE OF CONTAINER	Gs jar/Liners
		NO. OF CONTAINER(S)	3 A,B,C RK
		VOLUME	160g
	SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B26C30	SOIL	8-29-10	0935	—

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
Dan Harris Dan Harris	8-29-10 1147	RA Steele RA Steele	8.29.10 1147	
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	

GRP# 20100584
SPDV001943 A
1944 B
1945 C

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

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V10-003-142	PAGE 2 OF 2
COLLECTOR Harris / Snook	**COMPANY CONTACT** TEMPLETON, AM	**TELEPHONE NO.** 373-5589	**PROJECT COORDINATOR** BERLIN, PC	**PRICE CODE** 8P **AIR QUALITY** ☐	**DATA TURNAROUND** **75 Days / 75 Days**
SAMPLING LOCATION 7680 003	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V10-003		
ICE CHEST NO. TFVS-09-003	**FIELD LOGBOOK NO.** TFVZ-10-000004	**ACTUAL SAMPLE DEPTH** 14'-16'	**COA** N/A	**METHOD OF SHIPMENT** Govt. Vehicle	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.** N/A		**BILL OF LADING/AIR BILL NO.** N/A		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the sampler will cap remaining liners for shipment to 222-S. Where capping is not possible, the sample shall be put into 500 mL or 250 mL glass bottles with Teflon-lined lids.
(1) Semi-VOA - 8270 Complete (TF); TPH-Gasoline Range - WTPH-G; TPH-Diesel Range - WTPH-D; PCBs - 8082; Pesticides - 8081 (TF); 1668 PCB CONGENER (TCL); ICP Metals - 6010 (SW-846) (TF); Mercury - 7471 - (CV) (TF); 300.7_AMMONIUM (TF); IC Anions - 9056; Sulfide - 9215; Total Cyanide - 9014 (TF); pH (Soil) - 9045; Americium-241 (TF); C-14; CURIUM; GAMMA ENERGY ANALYSIS (TF); H3 - TRITIUM; I129_SEP_GEA (TF); Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Nickel-63 (TF); RADISO_ICPMS (TF); Selenium-79 (TF); Strontium-90; Conductivity - 9050_WE; Percent Solids (TF); Percent Water (TF);

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V10-003-150	PAGE 1 OF 2
COLLECTOR Campbell / Hurris	**COMPANY CONTACT** TEMPLETON, AM	**TELEPHONE NO.** 373-5589	**PROJECT COORDINATOR** BERLIN, PC	**PRICE CODE** 8P	**DATA TURNAROUND**
SAMPLING LOCATION 7680 007	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V10-003	**AIR QUALITY** ☐	75 Days / 75 Days
ICE CHEST NO. TFV3-09-003	**FIELD LOGBOOK NO.** TFV2-10-000004	**ACTUAL SAMPLE DEPTH** 116'-118'	**COA** n/a	**METHOD OF SHIPMENT** Govt. Vehicle	
SHIPPED TO 222-S Lab Operations	**OFFSITE PROPERTY NO.** n/a		**BILL OF LADING/AIR BILL NO.** n/a		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegetation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C
HOLDING TIME	14/40 Days
TYPE OF CONTAINER	Gs jar/Liners
NO. OF CONTAINER(S)	3
VOLUME	160g
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B26C38	SOIL	9-1-10	1740	✓

20100584
S10V002502
2503
2504

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
Campbell C-pbell	9-1-10 2200	[illegible] Edwards	9/1/10 2300	
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	

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

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V10-003-150	PAGE 2 OF 2
COLLECTOR Campbell / Harris	COMPANY CONTACT TEMPLETON, AM	TELEPHONE NO. 373-5589	PROJECT COORDINATOR BERLIN, PC	PRICE CODE 8P AIR QUALITY ☐	DATA TURNAROUND 75 Days / 75 Days
SAMPLING LOCATION 7680 007	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V10-003		
ICE CHEST NO. TFVS - 09 - 063	FIELD LOGBOOK NO. TFVZ-10-000004	ACTUAL SAMPLE DEPTH 116' - 118'	COA N/A	METHOD OF SHIPMENT Govt. Vehicle	
SHIPPED TO 222-S Lab Operations	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS

** After VOA bottles for the direct pushes are filled, the sampler will cap remaining liners for shipment to 222-S. Where capping is not possible, the sample shall be put into 500 mL or 250 mL glass bottles with Teflon-lined lids.
(1) Semi-VOA - 8270 Complete (TF); TPH-Gasoline Range - WTPH-G; TPH-Diesel Range - WTPH-D; PCBs - 8082; Pesticides - 8081 (TF); 1668 PCB CONGENER (TCL); ICP Metals - 6010 (SW-846) (TF); Mercury - 7471 - (CV) (TF); 300.7_AMMONIUM (TF); IC Anions - 9056; Sulfide - 9215; Total Cyanide - 9014 (TF); pH (Soil) - 9045; Americium-241 (TF); C-14; CURIUM; GAMMA ENERGY ANALYSIS (TF); H3 - TRITIUM; I129_SEP_GEA (TF); Isotopic Plutonium {Plutonium-238, Plutonium-239/240}; Nickel-63 (TF); RADISO_ICPMS (TF); Selenium-79 (TF); Strontium-90; Conductivity - 9050_WE; Percent Solids (TF); Percent Water (TF);

Appendix 5

Data Validation Supporting Documentation

Appendix B - Radiochemical Data Validation Checklist

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	(C)	D	E
PROJECT: WMA C			DATA PACKAGE: VSR11-046		
VALIDATOR: Carl Schloesslin		LAB: 222-S Lab		DATE: 5-30-2011	
			SDG: 20100584		
ANALYSES PERFORMED					
Gross Alpha/Beta	Strontium-90 X	Technetium-99	Alpha Spectroscopy X	Gamma Spectroscopy X	Se-79 X
Total Uranium	Radium-22	Tritium X	C-14 X	I-129 X	Ni-63 X
SAMPLES/MATRIX Soil samples B26C30 and B26C38					

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:

MB Hit: Se-79 2.39E-06 uCi/g

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.

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:

None

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# 00022051

Analyst: Lai, Sue **Book#:** 120B64

Instrument: GEA03 B-1A

Method: GEA, LA-548-121 Rev/Mod I-0

Specification: C Farm WMC 2010-2

Prep Batch:

Batch Comment:

C-Farm WMC 2010-2 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	S1009090053		0 0			Cobalt-60	LIQUID	.00539	5.3440E-03		2.77	4.41E-05	uCi/mL	99.147	% Recovery	
1	STD	S1009090053		0 0			Cesium-137	LIQUID	.00547	5.5240E-03		4.59	6.96E-05	uCi/mL	100.99	% Recovery	
Sample Sequence 2																	
2	BLNK	S1009090054		0 0			Cobalt-60	SOLID		<2.7300E-07			2.73E-07	uCi/g			
2	BLNK	S1009090054		0 0			Antimony-125	SOLID		<7.3400E-07			7.34E-07	uCi/g			
2	BLNK	S1009090054		0 0			Cesium-137	SOLID		<3.6400E-07			3.64E-07	uCi/g			
2	BLNK	S1009090054		0 0			Europium-152	SOLID		<1.3500E-06			1.35E-06	uCi/g			
2	BLNK	S1009090054		0 0			Europium-154	SOLID		<8.5700E-07			8.57E-07	uCi/g			
2	BLNK	S1009090054		0 0			Europium-155	SOLID		<4.6200E-07			4.62E-07	uCi/g			
2	BLNK	S1009090054		0 0			Thorium-228	SOLID		<8.1300E-06			8.13E-06	uCi/g			
2	BLNK	S1009090054		0 0			Thorium-234	SOLID		<2.8500E-06			2.85E-06	uCi/g			
Sample Sequence 3																	
3	SAMPLE	S10V001871		0 0			Cobalt-60	SOLID	N/A	<3.1800E-07			3.18E-07	uCi/g			U
3	SAMPLE	S10V001871		0 0			Antimony-125	SOLID	N/A	<7.8800E-07			7.88E-07	uCi/g			U
3	SAMPLE	S10V001871		0 0			Cesium-137	SOLID	N/A	<4.0000E-07			4.00E-07	uCi/g			U
3	SAMPLE	S10V001871		0 0			Europium-152	SOLID	N/A	<1.4800E-06			1.48E-06	uCi/g			U
3	SAMPLE	S10V001871		0 0			Europium-154	SOLID	N/A	<1.0200E-06			1.02E-06	uCi/g			U
3	SAMPLE	S10V001871		0 0			Europium-155	SOLID	N/A	<4.9600E-07			4.96E-07	uCi/g			U
3	SAMPLE	S10V001871		0 0			Thorium-228	SOLID	N/A	<9.5000E-06			9.50E-06	uCi/g			U
3	SAMPLE	S10V001871		0 0			Thorium-234	SOLID	N/A	<3.2400E-06			3.24E-06	uCi/g			U
3	SAMPLE	S10V001871		0 0			Bismuth-214	SOLID	N/A	8.8090E-07		43.51	6.28E-07	uCi/g			J
3	SAMPLE	S10V001871		0 0			Lead-212	SOLID	N/A	6.0200E-07		30.19	3.63E-07	uCi/g			J
3	SAMPLE	S10V001871		0 0			Potassium-40	SOLID	N/A	1.3010E-05		30.69	5.90E-06	uCi/g			J
Sample Sequence 4																	
4	SAMPLE	S10V001888		0 0			Cobalt-60	SOLID	N/A	<2.7700E-07			2.77E-07	uCi/g			U
4	SAMPLE	S10V001888		0 0			Antimony-125	SOLID	N/A	<7.0500E-07			7.05E-07	uCi/g			U
4	SAMPLE	S10V001888		0 0			Cesium-137	SOLID	N/A	<3.3700E-07			3.37E-07	uCi/g			U
4	SAMPLE	S10V001888		0 0			Europium-152	SOLID	N/A	<1.4000E-06			1.40E-06	uCi/g			U
4	SAMPLE	S10V001888		0 0			Europium-154	SOLID	N/A	<8.9400E-07			8.94E-07	uCi/g			U
4	SAMPLE	S10V001888		0 0			Europium-155	SOLID	N/A	<4.6300E-07			4.63E-07	uCi/g			U
4	SAMPLE	S10V001888		0 0			Thorium-228	SOLID	N/A	<9.1600E-06			9.16E-06	uCi/g			U
4	SAMPLE	S10V001888		0 0			Thorium-234	SOLID	N/A	<3.0200E-06			3.02E-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# 00022051

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
4	SAMPLE	S10V001888		0 0			Lead-212	SOLID	N/A	4.4590E-07		39.28	3.66E-07	uCi/g			J
4	SAMPLE	S10V001888		0 0			Lead-214	SOLID	N/A	6.5140E-07		38.23	5.83E-07	uCi/g			J
4	SAMPLE	S10V001888		0 0			Potassium-40	SOLID	N/A	1.2540E-05		30.96	5.78E-06	uCi/g			J
Sample Sequence 5																	
5	SAMPLE	S10V001908		0 0			Cobalt-60	SOLID	N/A	<4.3900E-07			4.39E-07	uCi/g			U
5	SAMPLE	S10V001908		0 0			Antimony-125	SOLID	N/A	<1.1700E-06			1.17E-06	uCi/g			U
5	SAMPLE	S10V001908		0 0			Cesium-137	SOLID	N/A	<5.8000E-07			5.80E-07	uCi/g			U
5	SAMPLE	S10V001908		0 0			Europium-152	SOLID	N/A	<1.9600E-06			1.96E-06	uCi/g			U
5	SAMPLE	S10V001908		0 0			Europium-154	SOLID	N/A	<1.4600E-06			1.46E-06	uCi/g			U
5	SAMPLE	S10V001908		0 0			Europium-155	SOLID	N/A	<7.2400E-07			7.24E-07	uCi/g			U
5	SAMPLE	S10V001908		0 0			Thorium-228	SOLID	N/A	<1.4100E-05			1.41E-05	uCi/g			U
5	SAMPLE	S10V001908		0 0			Thorium-234	SOLID	N/A	<4.6800E-06			4.68E-06	uCi/g			U
Sample Sequence 6																	
6	SAMPLE	S10V001928		0 0			Cobalt-60	SOLID	N/A	<2.9900E-07			2.99E-07	uCi/g			U
6	SAMPLE	S10V001928		0 0			Antimony-125	SOLID	N/A	<7.9500E-07			7.95E-07	uCi/g			U
6	SAMPLE	S10V001928		0 0			Cesium-137	SOLID	N/A	<3.7700E-07			3.77E-07	uCi/g			U
6	SAMPLE	S10V001928		0 0			Europium-152	SOLID	N/A	<1.4600E-06			1.46E-06	uCi/g			U
6	SAMPLE	S10V001928		0 0			Europium-154	SOLID	N/A	<1.0400E-06			1.04E-06	uCi/g			U
6	SAMPLE	S10V001928		0 0			Europium-155	SOLID	N/A	<4.9900E-07			4.99E-07	uCi/g			U
6	SAMPLE	S10V001928		0 0			Thorium-228	SOLID	N/A	<9.3400E-06			9.34E-06	uCi/g			U
6	SAMPLE	S10V001928		0 0			Thorium-234	SOLID	N/A	<3.1200E-06			3.12E-06	uCi/g			U
6	SAMPLE	S10V001928		0 0			Bismuth-214	SOLID	N/A	7.1280E-07		47.83	5.94E-07	uCi/g			J
6	SAMPLE	S10V001928		0 0			Lead-214	SOLID	N/A	8.2640E-07		29.54	7.00E-07	uCi/g			
6	SAMPLE	S10V001928		0 0			Potassium-40	SOLID	N/A	8.0910E-06		48.12	6.08E-06	uCi/g			J
Sample Sequence 7																	
7	SAMPLE	S10V001948		0 0			Cobalt-60	SOLID	N/A	<3.5400E-07			3.54E-07	uCi/g			U
7	SAMPLE	S10V001948		0 0			Antimony-125	SOLID	N/A	<9.1800E-07			9.18E-07	uCi/g			U
7	SAMPLE	S10V001948		0 0			Cesium-137	SOLID	N/A	<4.5600E-07			4.56E-07	uCi/g			U
7	SAMPLE	S10V001948		0 0			Europium-152	SOLID	N/A	<1.8200E-06			1.82E-06	uCi/g			U
7	SAMPLE	S10V001948		0 0			Europium-154	SOLID	N/A	<1.2200E-06			1.22E-06	uCi/g			U
7	SAMPLE	S10V001948		0 0			Europium-155	SOLID	N/A	<5.9300E-07			5.93E-07	uCi/g			U
7	SAMPLE	S10V001948		0 0			Thorium-228	SOLID	N/A	<1.0800E-05			1.08E-05	uCi/g			U
7	SAMPLE	S10V001948		0 0			Thorium-234	SOLID	N/A	<3.5500E-06			3.55E-06	uCi/g			U
7	SAMPLE	S10V001948		0 0			Potassium-40	SOLID	N/A	9.6970E-06		47.56	7.18E-06	uCi/g			J
Sample Sequence 8																	
8	DUP	S1009090055	S10V001948	0 0			Cobalt-60	SOLID	<3.5400E-07	<3.5400E-07			3.54E-07	uCi/g			
8	DUP	S1009090055	S10V001948	0 0			Antimony-125	SOLID	<9.1800E-07	<8.5500E-07			8.55E-07	uCi/g			
8	DUP	S1009090055	S10V001948	0 0			Cesium-137	SOLID	<4.5600E-07	<4.1900E-07			4.19E-07	uCi/g			
8	DUP	S1009090055	S10V001948	0 0			Europium-152	SOLID	<1.8200E-06	<1.5600E-06			1.56E-06	uCi/g			
8	DUP	S1009090055	S10V001948	0 0			Europium-154	SOLID	<1.2200E-06	<1.0900E-06			1.09E-06	uCi/g			
8	DUP	S1009090055	S10V001948	0 0			Europium-155	SOLID	<5.9300E-07	<5.3600E-07			5.36E-07	uCi/g			
8	DUP	S1009090055	S10V001948	0 0			Thorium-228	SOLID	<1.0800E-05	<9.9800E-06			9.98E-06	uCi/g			
8	DUP	S1009090055	S10V001948	0 0			Thorium-234	SOLID	<3.5500E-06	<3.4200E-06			3.42E-06	uCi/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# 00022051

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
8	DUP	S1009090055	S10V001948	0 0			Potassium-40	SOLID	9.6970E-06	1.1070E-05		38.24	6.44E-06	uCi/g			
Sample Sequence 9																	
9	SAMPLE	S10V001968		0 0			Cobalt-60	SOLID	N/A	<4.1300E-07			4.13E-07	uCi/g			U
9	SAMPLE	S10V001968		0 0			Antimony-125	SOLID	N/A	<1.0300E-06			1.03E-06	uCi/g			U
9	SAMPLE	S10V001968		0 0			Cesium-137	SOLID	N/A	<4.7800E-07			4.78E-07	uCi/g			U
9	SAMPLE	S10V001968		0 0			Europium-152	SOLID	N/A	<1.8200E-06			1.82E-06	uCi/g			U
9	SAMPLE	S10V001968		0 0			Europium-154	SOLID	N/A	<1.2800E-06			1.28E-06	uCi/g			U
9	SAMPLE	S10V001968		0 0			Europium-155	SOLID	N/A	<6.6500E-07			6.65E-07	uCi/g			U
9	SAMPLE	S10V001968		0 0			Thorium-228	SOLID	N/A	<1.1900E-05			1.19E-05	uCi/g			U
9	SAMPLE	S10V001968		0 0			Thorium-234	SOLID	N/A	<4.1000E-06			4.10E-06	uCi/g			U
9	SAMPLE	S10V001968		0 0			Lead-214	SOLID	N/A	1.6880E-06		22.23	9.64E-07	uCi/g			
9	SAMPLE	S10V001968		0 0			Potassium-40	SOLID	N/A	1.0300E-05		48.64	7.82E-06	uCi/g			J
Sample Sequence 10																	
10	SAMPLE	S10V002054		0 0			Cobalt-60	SOLID	N/A	<2.9800E-07			2.98E-07	uCi/g			U
10	SAMPLE	S10V002054		0 0			Antimony-125	SOLID	N/A	<8.7600E-07			8.76E-07	uCi/g			U
10	SAMPLE	S10V002054		0 0			Cesium-137	SOLID	N/A	<4.0800E-07			4.08E-07	uCi/g			U
10	SAMPLE	S10V002054		0 0			Europium-152	SOLID	N/A	<1.6400E-06			1.64E-06	uCi/g			U
10	SAMPLE	S10V002054		0 0			Europium-154	SOLID	N/A	<9.7400E-07			9.74E-07	uCi/g			U
10	SAMPLE	S10V002054		0 0			Europium-155	SOLID	N/A	<5.5200E-07			5.52E-07	uCi/g			U
10	SAMPLE	S10V002054		0 0			Thorium-228	SOLID	N/A	<1.0200E-05			1.02E-05	uCi/g			U
10	SAMPLE	S10V002054		0 0			Thorium-234	SOLID	N/A	<3.5600E-06			3.56E-06	uCi/g			U
10	SAMPLE	S10V002054		0 0			Bismuth-214	SOLID	N/A	8.9880E-07		43.89	6.35E-07	uCi/g			J
10	SAMPLE	S10V002054		0 0			Lead-212	SOLID	N/A	7.7300E-07		24.38	4.67E-07	uCi/g			
Sample Sequence 11																	
11	SAMPLE	S10V002074		0 0			Cobalt-60	SOLID	N/A	<3.3600E-07			3.36E-07	uCi/g			U
11	SAMPLE	S10V002074		0 0			Antimony-125	SOLID	N/A	<7.8300E-07			7.83E-07	uCi/g			U
11	SAMPLE	S10V002074		0 0			Cesium-137	SOLID	N/A	<4.0900E-07			4.09E-07	uCi/g			U
11	SAMPLE	S10V002074		0 0			Europium-152	SOLID	N/A	<1.5300E-06			1.53E-06	uCi/g			U
11	SAMPLE	S10V002074		0 0			Europium-154	SOLID	N/A	<1.0700E-06			1.07E-06	uCi/g			U
11	SAMPLE	S10V002074		0 0			Europium-155	SOLID	N/A	<5.5200E-07			5.52E-07	uCi/g			U
11	SAMPLE	S10V002074		0 0			Thorium-228	SOLID	N/A	<1.0300E-05			1.03E-05	uCi/g			U
11	SAMPLE	S10V002074		0 0			Thorium-234	SOLID	N/A	<3.4300E-06			3.43E-06	uCi/g			U
11	SAMPLE	S10V002074		0 0			Lead-212	SOLID	N/A	4.3900E-07		47.43	4.40E-07	uCi/g			U
11	SAMPLE	S10V002074		0 0			Lead-214	SOLID	N/A	6.7790E-07		45.10	8.00E-07	uCi/g			U
11	SAMPLE	S10V002074		0 0			Potassium-40	SOLID	N/A	1.7010E-05		26.11	6.40E-06	uCi/g			
Sample Sequence 12																	
12	SAMPLE	S10V002507		0 0			Cobalt-60	SOLID	N/A	<3.1300E-07			3.13E-07	uCi/g			U
12	SAMPLE	S10V002507		0 0			Antimony-125	SOLID	N/A	<7.8900E-07			7.89E-07	uCi/g			U
12	SAMPLE	S10V002507		0 0			Cesium-137	SOLID	N/A	<3.6700E-07			3.67E-07	uCi/g			U
12	SAMPLE	S10V002507		0 0			Europium-152	SOLID	N/A	<1.5100E-06			1.51E-06	uCi/g			U
12	SAMPLE	S10V002507		0 0			Europium-154	SOLID	N/A	<9.7200E-07			9.72E-07	uCi/g			U
12	SAMPLE	S10V002507		0 0			Europium-155	SOLID	N/A	<4.8000E-07			4.80E-07	uCi/g			U
12	SAMPLE	S10V002507		0 0			Thorium-228	SOLID	N/A	<9.2400E-06			9.24E-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# 00022051

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
12	SAMPLE	S10V002507		0 0			Thorium-234	SOLID	N/A	<3.1600E-06			3.16E-06	uCi/g			U
12	SAMPLE	S10V002507		0 0			Lead-212	SOLID	N/A	6.6940E-07		31.92	4.52E-07	uCi/g			J
12	SAMPLE	S10V002507		0 0			Lead-214	SOLID	N/A	6.4440E-07		45.90	7.48E-07	uCi/g			U
12	SAMPLE	S10V002507		0 0			Potassium-40	SOLID	N/A	1.3960E-05		28.54	5.83E-06	uCi/g			
Sample Sequence 13																	
13	SAMPLE	S10V002801		0 0			Cobalt-60	SOLID	N/A	<3.0400E-07			3.04E-07	uCi/g			U
13	SAMPLE	S10V002801		0 0			Antimony-125	SOLID	N/A	<7.1200E-07			7.12E-07	uCi/g			U
13	SAMPLE	S10V002801		0 0			Cesium-137	SOLID	N/A	<3.5200E-07			3.52E-07	uCi/g			U
13	SAMPLE	S10V002801		0 0			Europium-152	SOLID	N/A	<1.3200E-06			1.32E-06	uCi/g			U
13	SAMPLE	S10V002801		0 0			Europium-154	SOLID	N/A	<8.8400E-07			8.84E-07	uCi/g			U
13	SAMPLE	S10V002801		0 0			Europium-155	SOLID	N/A	<4.7700E-07			4.77E-07	uCi/g			U
13	SAMPLE	S10V002801		0 0			Thorium-228	SOLID	N/A	<8.9300E-06			8.93E-06	uCi/g			U
13	SAMPLE	S10V002801		0 0			Thorium-234	SOLID	N/A	<3.0500E-06			3.05E-06	uCi/g			U
13	SAMPLE	S10V002801		0 0			Lead-212	SOLID	N/A	6.4860E-07		31.93	4.72E-07	uCi/g			J
13	SAMPLE	S10V002801		0 0			Potassium-40	SOLID	N/A	1.2470E-05		30.18	5.55E-06	uCi/g			J

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00022051

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# 00022051

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1009090053	STD				
2	S1009090054	BLNK				
3	S10V001871	SAMPLE		20100584	B26JK8	C Farm WMC 2010-2
4	S10V001888	SAMPLE		20100584	B26JK9	C Farm WMC 2010-2
5	S10V001908	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
6	S10V001928	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
7	S10V001948	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
8	S1009090055	DUP	S10V001948			
9	S10V001968	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
10	S10V002054	SAMPLE		20100584	B26C34	C Farm WMC 2010-2
11	S10V002074	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
12	S10V002507	SAMPLE		20100584	B26C38	C Farm WMC 2010-2
13	S10V002801	SAMPLE		20100584	B26C40	C Farm WMC 2010-2

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# 00024017

Analyst: Fabre, Martha **Book#:** 120B64

Instrument: A/B Detector 18 B-1A

Method: STRONTIUM-90, LA-220-101 Rev/Mod I-0

Specification: C Farm WMC 2010-2

Prep Batch: 00023974

Batch Comment:

C Farm WMC 2010-2 Grp 584 for Sr-90. ACC

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	S1011120001		0 0			Strontium-89/90	LIQUID	.00069139	6.8300E-04		2.526	1.77E-06	uCi/mL	98.786	% Recovery	
1	STD	S1011120001		0 0			Strontium-C	LIQUID		78.322				% Recovery	N/A		
Sample Sequence 2																	
2	BLNK-PREP	S1011100022		0 0	E		Strontium-89/90	SOLID		<1.8781E-07			1.88E-07	uCi/g			
2	BLNK-PREP	S1011100022		0 0	E		Strontium-C	SOLID		73.227				% Recovery			
Sample Sequence 3																	
3	SAMPLE	S10V001881		0 0	E		Strontium-89/90	SOLID	N/A	<1.8705E-07			1.87E-07	uCi/g			U
3	SAMPLE	S10V001881		0 0	E		Strontium-C	SOLID		73.427				% Recovery			
Sample Sequence 4																	
4	SAMPLE	S10V001898		0 0	E		Strontium-89/90	SOLID	N/A	<2.1223E-07			2.12E-07	uCi/g			U
4	SAMPLE	S10V001898		0 0	E		Strontium-C	SOLID		64.635				% Recovery			
Sample Sequence 5																	
5	SAMPLE	S10V001918		0 0	E		Strontium-89/90	SOLID	N/A	<5.6681E-07			5.67E-07	uCi/g			U
5	SAMPLE	S10V001918		0 0	E		Strontium-C	SOLID		70.23				% Recovery			
Sample Sequence 6																	
6	SAMPLE	S10V001938		0 0	E		Strontium-89/90	SOLID	N/A	<2.4125E-07			2.41E-07	uCi/g			U
6	SAMPLE	S10V001938		0 0	E		Strontium-C	SOLID		56.943				% Recovery			
Sample Sequence 7																	
7	SAMPLE	S10V001958		0 0	E		Strontium-89/90	SOLID	N/A	<1.8763E-07			1.88E-07	uCi/g			U
7	SAMPLE	S10V001958		0 0	E		Strontium-C	SOLID		73.127				% Recovery			
Sample Sequence 8																	
8	DUP	S1011100023	S10V001958	0 0	E		Strontium-89/90	SOLID	<1.8763E-07	<6.4794E-07			6.48E-07	uCi/g			
8	DUP	S1011100023	S10V001958	0 0	E		Strontium-C	SOLID	73.127	70.33				% Recovery			
Sample Sequence 9																	
9	SAMPLE	S10V002042		0 0	E		Strontium-89/90	SOLID	N/A	<5.6890E-07			5.69E-07	uCi/g			U
9	SAMPLE	S10V002042		0 0	E		Strontium-C	SOLID		73.327				% Recovery			
Sample Sequence 10																	
10	SAMPLE	S10V002064		0 0	E		Strontium-89/90	SOLID	N/A	<5.5830E-07			5.58E-07	uCi/g			U
10	SAMPLE	S10V002064		0 0	E		Strontium-C	SOLID		69.331				% Recovery			
Sample Sequence 11																	
11	SAMPLE	S10V002376		0 0	E		Strontium-89/90	SOLID	N/A	<1.9857E-07			1.99E-07	uCi/g			U
11	SAMPLE	S10V002376		0 0	E		Strontium-C	SOLID		68.931				% 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# 00024017

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
12	SAMPLE	S10V002517		0 0	E		Strontium-89/90	SOLID	N/A	<2.7289E-07			2.73E-07	uCi/g			U
12	SAMPLE	S10V002517		0 0	E		Strontium-C	SOLID		49.95				% Recovery			
Sample Sequence 13																	
13	SAMPLE	S10V002812		0 0	E		Strontium-89/90	SOLID	N/A	<2.0781E-07			2.08E-07	uCi/g			U
13	SAMPLE	S10V002812		0 0	E		Strontium-C	SOLID		65.834				% Recovery			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00024017

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# 00024017

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1011120001	STD				
2	S1011100022	BLNK-PREP				
3	S10V001881	SAMPLE		20100584	B26JK8	C Farm WMC 2010-2
4	S10V001898	SAMPLE		20100584	B26JK9	C Farm WMC 2010-2
5	S10V001918	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
6	S10V001938	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
7	S10V001958	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
8	S1011100023	DUP	S10V001958			
9	S10V002042	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
10	S10V002064	SAMPLE		20100584	B26C34	C Farm WMC 2010-2
11	S10V002376	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
12	S10V002517	SAMPLE		20100584	B26C38	C Farm WMC 2010-2
13	S10V002812	SAMPLE		20100584	B26C40	C Farm WMC 2010-2

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# 00024291

Analyst: Casey, Adam **Book#:** 135B64

Instrument: LSC2 LS6000 B-1A

Method: TRITIUM-LARGE VOLUME, LA-218-111 Rev/Mod H-0

Specification: C Farm WMC 2010-2

Prep Batch: 00024191

Batch Comment:

C Farm WMC 2010-2 for H3. ACC

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	S1011220112		0 0			Tritium	LIQUID	.0000213455583796253	1.9839E-05		3.019	2.61E-07	uCi/mL	92.943	% Recovery	
Sample Sequence 2																	
2	BLNK-PREP	S1011180049		0 0	W		Tritium	LIQUID		<3.7500E-07			3.75E-07	uCi/mL			
Sample Sequence 3																	
3	SAMPLE	S10V001873		0 1	W		Tritium	SOLID	N/A	7.5800E-05		127.555	5.14E-05	uCi/g			J
Sample Sequence 4																	
4	DUP	S1011180050	S10V001873	0 0	W		Tritium	SOLID	7.5800E-05	<6.3100E-05			6.31E-05	uCi/g			
Sample Sequence 5																	
5	SPK	S1011220113	S10V001873	0 0			Tritium	SOLID	.0000213455583796253	2.0684E-05		4.675262599	2.61E-07	uCi/g	96.9	% Recovery	
Sample Sequence 6																	
6	SAMPLE	S10V001890		0 1	W		Tritium	SOLID	N/A	<7.9800E-05			7.98E-05	uCi/g			U
Sample Sequence 7																	
7	SAMPLE	S10V001910		0 1	W		Tritium	SOLID	N/A	<6.2300E-05			6.23E-05	uCi/g			U
Sample Sequence 8																	
8	SAMPLE	S10V001930		0 1	W		Tritium	SOLID	N/A	<6.3700E-05			6.37E-05	uCi/g			U
Sample Sequence 9																	
9	SAMPLE	S10V001950		0 1	W		Tritium	SOLID	N/A	<5.1000E-05			5.10E-05	uCi/g			U
Sample Sequence 10																	
10	SAMPLE	S10V001970		0 1	W		Tritium	SOLID	N/A	<9.6700E-05			9.67E-05	uCi/g			U
Sample Sequence 11																	
11	SAMPLE	S10V002056		0 1	W		Tritium	SOLID	N/A	<5.1500E-05			5.15E-05	uCi/g			U
Sample Sequence 12																	
12	SAMPLE	S10V002076		0 1	W		Tritium	SOLID	N/A	<1.0200E-04			1.02E-04	uCi/g			U
Sample Sequence 13																	
13	SAMPLE	S10V002509		0 1	W		Tritium	SOLID	N/A	8.9200E-05		88.485	5.18E-05	uCi/g			J
Sample Sequence 14																	
14	SAMPLE	S10V002804		0 1	W		Tritium	SOLID	N/A	<5.2200E-05			5.22E-05	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# 00024291

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00024291

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# 00024291

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1011220112	STD				
2	S1011180049	BLNK-PREP				
3	S10V001873	SAMPLE		20100584	B26JK8	C Farm WMC 2010-2
4	S1011180050	DUP	S10V001873			
5	S1011220113	SPK	S10V001873			
6	S10V001890	SAMPLE		20100584	B26JK9	C Farm WMC 2010-2
7	S10V001910	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
8	S10V001930	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
9	S10V001950	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
10	S10V001970	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
11	S10V002056	SAMPLE		20100584	B26C34	C Farm WMC 2010-2
12	S10V002076	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
13	S10V002509	SAMPLE		20100584	B26C38	C Farm WMC 2010-2
14	S10V002804	SAMPLE		20100584	B26C40	C Farm WMC 2010-2

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# 00024055

Analyst: LaPlant, Gary

Book#:

Instrument: LSC3 LS6500 B-1A

Method: SELENIUM-79, LA-365-132 Rev/Mod J-0

Specification: C Farm WMC 2010-2

Prep Batch: 00024053

Batch Comment:

C Farm WMC 2010-2 Grp 584 for Se-79. ACC

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	S1011150111		0 0	E		Selenium-79	SOLID		2.3900E-06		402.017	2.16E-06	uCi/g			
1	BLNK-PREP	S1011150111		0 0	E		Selenium-C	SOLID		23.459				% Recovery			
Sample Sequence 2																	
2	SAMPLE	S10V001882		0 0	E		Selenium-79	SOLID	N/A	<2.3700E-06			1.76E-06	uCi/g			U
2	SAMPLE	S10V001882		0 0	E		Selenium-C	SOLID		28.949				% Recovery			
Sample Sequence 3																	
3	SAMPLE	S10V001899		0 0	E		Selenium-79	SOLID	N/A	<1.9500E-06			1.95E-06	uCi/g			U
3	SAMPLE	S10V001899		0 0	E		Selenium-C	SOLID		28.949				% Recovery			
Sample Sequence 4																	
4	SAMPLE	S10V001919		0 0	E		Selenium-79	SOLID	N/A	2.2300E-06		230.363	1.81E-06	uCi/g			BJ
4	SAMPLE	S10V001919		0 0	E		Selenium-C	SOLID		27.202				% Recovery			
Sample Sequence 5																	
5	SAMPLE	S10V001939		0 0	E		Selenium-79	SOLID	N/A	2.6500E-06		1069.553	1.70E-06	uCi/g			BJ
5	SAMPLE	S10V001939		0 0	E		Selenium-C	SOLID		30.447				% Recovery			
Sample Sequence 6																	
6	SAMPLE	S10V001959		0 0	E		Selenium-79	SOLID	N/A	<1.9900E-06			1.99E-06	uCi/g			U
6	SAMPLE	S10V001959		0 0	E		Selenium-C	SOLID		25.455				% Recovery			
Sample Sequence 7																	
7	DUP	S1011150112	S10V001959	0 0	E		Selenium-79	SOLID	<1.9900E-06	2.3200E-06		1280.167	1.92E-06	uCi/g	15.313	% RPD	
7	DUP	S1011150112	S10V001959	0 0	E		Selenium-C	SOLID	25.455	26.703				% Recovery			
Sample Sequence 8																	
8	SAMPLE	S10V002043		0 0	E		Selenium-79	SOLID	N/A	6.1700E-06		51.738	1.62E-06	uCi/g			BJ
8	SAMPLE	S10V002043		0 0	E		Selenium-C	SOLID		31.445				% Recovery			
Sample Sequence 9																	
9	SAMPLE	S10V002065		0 0	E		Selenium-79	SOLID	N/A	<2.8800E-06			2.88E-06	uCi/g			U
9	SAMPLE	S10V002065		0 0	E		Selenium-C	SOLID		25.705				% Recovery			
Sample Sequence 10																	
10	SAMPLE	S10V002378		0 0	E		Selenium-79	SOLID	N/A	<2.5200E-06			2.52E-06	uCi/g			U
10	SAMPLE	S10V002378		0 0	E		Selenium-C	SOLID		20.963				% Recovery			
Sample Sequence 11																	
11	SAMPLE	S10V002518		0 0	E		Selenium-79	SOLID	N/A	2.2200E-06		1166.649	1.79E-06	uCi/g			BJ
11	SAMPLE	S10V002518		0 0	E		Selenium-C	SOLID		30.197				% 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# 00024055

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
12	SAMPLE	S10V002813		0 0	E		Selenium-79	SOLID	N/A	<3.9700E-06			3.97E-06	uCi/g			U
12	SAMPLE	S10V002813		0 0	E		Selenium-C	SOLID		22.96				% Recovery			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00024055

Reviewer Signature **Date**

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# 00024055

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1011150111	BLNK-PREP				
2	S10V001882	SAMPLE		20100584	B26JK8	C Farm WMC 2010-2
3	S10V001899	SAMPLE		20100584	B26JK9	C Farm WMC 2010-2
4	S10V001919	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
5	S10V001939	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
6	S10V001959	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
7	S1011150112	DUP	S10V001959			
8	S10V002043	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
9	S10V002065	SAMPLE		20100584	B26C34	C Farm WMC 2010-2
10	S10V002378	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
11	S10V002518	SAMPLE		20100584	B26C38	C Farm WMC 2010-2
12	S10V002813	SAMPLE		20100584	B26C40	C Farm WMC 2010-2

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# 00022669

Analyst: Fabre, Martha **Book#:** 40B64B

Instrument: LSC2 LS6000 B-1A

Method: CARBON-14, LA-348-104 Rev/Mod I-0

Specification: C Farm WMC 2010-2

Prep Batch: 00022277

Batch Comment:

C Farm 2010-2 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	S1009290009		0 0			Carbon-14	LIQUID	.00120817274 150019	1.1072E-03		0.662	1.41E-06	uCi/mL	91.642	% Recovery	
Sample Sequence 2																	
2	BLNK-PREP	S1009170029		0 0	W		Carbon-14	SOLID		<1.4000E-06			1.40E-06	uCi/g			
Sample Sequence 3																	
3	SAMPLE	S10V001873		0 0	W		Carbon-14	SOLID	N/A	<1.4100E-06			1.41E-06	uCi/g			U
Sample Sequence 4																	
4	DUP	S1009170030	S10V001873	0 0	W		Carbon-14	SOLID	<1.4100E-06	<1.3900E-06			1.39E-06	uCi/g			
Sample Sequence 5																	
5	SPK	S1009290010	S10V001873	0 0			Carbon-14	SOLID	.00120817274 150019	1.1232E-03		0.658	1.40E-05	uCi/g	92.963	% Recovery	
Sample Sequence 6																	
6	SAMPLE	S10V001890		0 0	W		Carbon-14	SOLID	N/A	<1.3900E-06			1.39E-06	uCi/g			U
Sample Sequence 7																	
7	SAMPLE	S10V001910		0 0	W		Carbon-14	SOLID	N/A	<1.4100E-06			1.41E-06	uCi/g			U
Sample Sequence 8																	
8	SAMPLE	S10V001930		0 0	W		Carbon-14	SOLID	N/A	<1.3900E-06			1.39E-06	uCi/g			U
Sample Sequence 9																	
9	SAMPLE	S10V001950		0 0	W		Carbon-14	SOLID	N/A	<1.2900E-06			1.29E-06	uCi/g			U
Sample Sequence 10																	
10	SAMPLE	S10V001970		0 0	W		Carbon-14	SOLID	N/A	<1.3300E-06			1.33E-06	uCi/g			U
Sample Sequence 11																	
11	SAMPLE	S10V002056		0 0	W		Carbon-14	SOLID	N/A	<1.3100E-06			1.31E-06	uCi/g			U
Sample Sequence 12																	
12	SAMPLE	S10V002076		0 0	W		Carbon-14	SOLID	N/A	<1.3300E-06			1.33E-06	uCi/g			U
Sample Sequence 13																	
13	SAMPLE	S10V002509		0 0	W		Carbon-14	SOLID	N/A	<1.3300E-06			1.33E-06	uCi/g			U
Sample Sequence 14																	
14	SAMPLE	S10V002804		0 0	W		Carbon-14	SOLID	N/A	<1.3300E-06			1.33E-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# 00022669

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00022669

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# 00022669

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1009290009	STD				
2	S1009170029	BLNK-PREP				
3	S10V001873	SAMPLE		20100584	B26JK8	C Farm WMC 2010-2
4	S1009170030	DUP	S10V001873			
5	S1009290010	SPK	S10V001873			
6	S10V001890	SAMPLE		20100584	B26JK9	C Farm WMC 2010-2
7	S10V001910	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
8	S10V001930	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
9	S10V001950	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
10	S10V001970	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
11	S10V002056	SAMPLE		20100584	B26C34	C Farm WMC 2010-2
12	S10V002076	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
13	S10V002509	SAMPLE		20100584	B26C38	C Farm WMC 2010-2
14	S10V002804	SAMPLE		20100584	B26C40	C Farm WMC 2010-2

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# 00024054

Analyst: Fabre, Martha **Book#:** 51B64

Instrument: LSC3 LS6500 B-1A

Method: NICKEL-63, LA-285-102 Rev/Mod E-0

Specification: C Farm WMC 2010-2

Prep Batch: 00024053

Batch Comment:

C Farm WMC Grp 584 for Ni-63. ACC

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	S1011150113		0 0			Nickel-63	LIQUID	.0035131013138278	3.6805E-03		1.039	6.68E-06	uCi/mL	104.77	% Recovery	
1	STD	S1011150113		0 0			Nickel-C	LIQUID		76.023				% Recovery	N/A		
Sample Sequence 2																	
2	BLNK-PREP	S1011150111		0 0	E		Nickel-63	SOLID		<5.7300E-06			5.37E-06	uCi/g			
2	BLNK-PREP	S1011150111		0 0	E		Nickel-C	SOLID		42.026				% Recovery			
Sample Sequence 3																	
3	SAMPLE	S10V001882		0 0	E		Nickel-63	SOLID	N/A	<5.9600E-06			5.96E-06	uCi/g			U
3	SAMPLE	S10V001882		0 0	E		Nickel-C	SOLID		40.236				% Recovery			
Sample Sequence 4																	
4	SAMPLE	S10V001899		0 0	E		Nickel-63	SOLID	N/A	<5.7400E-06			5.74E-06	uCi/g			U
4	SAMPLE	S10V001899		0 0	E		Nickel-C	SOLID		41.138				% Recovery			
Sample Sequence 5																	
5	SAMPLE	S10V001919		0 0	E		Nickel-63	SOLID	N/A	<4.7000E-06			4.70E-06	uCi/g			U
5	SAMPLE	S10V001919		0 0	E		Nickel-C	SOLID		49.504				% Recovery			
Sample Sequence 6																	
6	SAMPLE	S10V001939		0 0	E		Nickel-63	SOLID	N/A	<5.9300E-06			5.93E-06	uCi/g			U
6	SAMPLE	S10V001939		0 0	E		Nickel-C	SOLID		42.753				% Recovery			
Sample Sequence 7																	
7	SAMPLE	S10V001959		0 0	E		Nickel-63	SOLID	N/A	<5.4200E-06			5.42E-06	uCi/g			U
7	SAMPLE	S10V001959		0 0	E		Nickel-C	SOLID		44.3				% Recovery			
Sample Sequence 8																	
8	DUP	S1011150112	S10V001959	0 0	E		Nickel-63	SOLID	<5.4200E-06	<5.3300E-06			5.33E-06	uCi/g			
8	DUP	S1011150112	S10V001959	0 0	E		Nickel-C	SOLID	44.3	44.784				% Recovery			
Sample Sequence 9																	
9	SAMPLE	S10V002043		0 0	E		Nickel-63	SOLID	N/A	<5.8600E-06			5.86E-06	uCi/g			U
9	SAMPLE	S10V002043		0 0	E		Nickel-C	SOLID		40.377				% Recovery			
Sample Sequence 10																	
10	SAMPLE	S10V002065		0 0	E		Nickel-63	SOLID	N/A	<8.6700E-06			8.67E-06	uCi/g			U
10	SAMPLE	S10V002065		0 0	E		Nickel-C	SOLID		43.154				% Recovery			
Sample Sequence 11																	
11	SAMPLE	S10V002378		0 0	E		Nickel-63	SOLID	N/A	<5.9700E-06			5.97E-06	uCi/g			U
11	SAMPLE	S10V002378		0 0	E		Nickel-C	SOLID		42.166				% 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# 00024054

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 12																	
12	SAMPLE	S10V002518		0 0	E		Nickel-63	SOLID	N/A	<5.7600E-06			5.76E-06	uCi/g			U
12	SAMPLE	S10V002518		0 0	E		Nickel-C	SOLID		44.006				% Recovery			
Sample Sequence 13																	
13	SAMPLE	S10V002813		0 0	E		Nickel-63	SOLID	N/A	<1.0100E-05			1.01E-05	uCi/g			U
13	SAMPLE	S10V002813		0 0	E		Nickel-C	SOLID		43.772				% Recovery			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00024054

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# 00024054

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1011150113	STD				
2	S1011150111	BLNK-PREP				
3	S10V001882	SAMPLE		20100584	B26JK8	C Farm WMC 2010-2
4	S10V001899	SAMPLE		20100584	B26JK9	C Farm WMC 2010-2
5	S10V001919	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
6	S10V001939	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
7	S10V001959	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
8	S1011150112	DUP	S10V001959			
9	S10V002043	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
10	S10V002065	SAMPLE		20100584	B26C34	C Farm WMC 2010-2
11	S10V002378	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
12	S10V002518	SAMPLE		20100584	B26C38	C Farm WMC 2010-2
13	S10V002813	SAMPLE		20100584	B26C40	C Farm WMC 2010-2

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# 00023600

Analyst: LaPlant, Gary **Book#:** 82B64

Instrument: GEA06 B-1F

Method: IODINE-129 in SOIL, LA-378-105 Rev/Mod D-0

Specification: C Farm WMC 2010-2

Prep Batch:

Batch Comment:

C-Farm WMC 2010-2 for I129 in Soil. 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	S1010280015		0 0			Iodine-129	LIQUID	.00319699978 398196	3.5330E-03		4.55	8.39E-06	uCi/mL	110.51	% Recovery	
1	STD	S1010280015		0 0			Iodine-C	LIQUID		82.395				% Recovery	N/A		
Sample Sequence 2																	
2	BLNK	S1010280016		0 0			Iodine-129	SOLID		<1.8338E-07			1.83E-07	uCi/g			
2	BLNK	S1010280016		0 0			Iodine-C	SOLID		76.815				% Recovery			
Sample Sequence 3																	
3	SAMPLE	S10V001888		0 0			Iodine-129	SOLID	N/A	<1.7022E-07			1.70E-07	uCi/g			U
3	SAMPLE	S10V001888		0 0			Iodine-C	SOLID		77.471				% Recovery			
Sample Sequence 4																	
4	DUP	S1010280017	S10V001888	0 0			Iodine-129	SOLID	<1.7022E-07	<1.6262E-07			1.63E-07	uCi/g			
4	DUP	S1010280017	S10V001888	0 0			Iodine-C	SOLID	77.471	80.754				% Recovery			
Sample Sequence 5																	
5	SAMPLE	S10V001908		0 0			Iodine-129	SOLID	N/A	<1.5249E-07			1.52E-07	uCi/g			U
5	SAMPLE	S10V001908		0 0			Iodine-C	SOLID		82.395				% Recovery			
Sample Sequence 6																	
6	SAMPLE	S10V001928		0 0			Iodine-129	SOLID	N/A	<1.4733E-07			1.47E-07	uCi/g			U
6	SAMPLE	S10V001928		0 0			Iodine-C	SOLID		81.739				% Recovery			
Sample Sequence 7																	
7	SAMPLE	S10V001948		0 0			Iodine-129	SOLID	N/A	<2.2303E-07			2.23E-07	uCi/g			U
7	SAMPLE	S10V001948		0 0			Iodine-C	SOLID		80.097				% Recovery			
Sample Sequence 8																	
8	SAMPLE	S10V001968		0 0			Iodine-129	SOLID	N/A	<1.4607E-07			1.46E-07	uCi/g			U
8	SAMPLE	S10V001968		0 0			Iodine-C	SOLID		81.41				% Recovery			
Sample Sequence 9																	
9	SAMPLE	S10V002054		0 0			Iodine-129	SOLID	N/A	<1.6885E-07			1.69E-07	uCi/g			U
9	SAMPLE	S10V002054		0 0			Iodine-C	SOLID		78.456				% Recovery			
Sample Sequence 10																	
10	SAMPLE	S10V002074		0 0			Iodine-129	SOLID	N/A	<1.5155E-07			1.52E-07	uCi/g			U
10	SAMPLE	S10V002074		0 0			Iodine-C	SOLID		80.426				% Recovery			
Sample Sequence 11																	
11	SAMPLE	S10V002281		0 0			Iodine-129	SOLID	N/A	<1.5479E-07			1.55E-07	uCi/g			U
11	SAMPLE	S10V002281		0 0			Iodine-C	SOLID		80.754				% 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# 00023600

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 12																	
12	SAMPLE	S10V002310		0 0			Iodine-129	SOLID	N/A	<1.5371E-07			1.54E-07	uCi/g			U
12	SAMPLE	S10V002310		0 0			Iodine-C	SOLID		79.769				% Recovery			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00023600

Reviewer Signature **Date**

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# 00023600

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1010280015	STD				
2	S1010280016	BLNK				
3	S10V001888	SAMPLE		20100584	B26JK9	C Farm WMC 2010-2
4	S1010280017	DUP	S10V001888			
5	S10V001908	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
6	S10V001928	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
7	S10V001948	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
8	S10V001968	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
9	S10V002054	SAMPLE		20100584	B26C34	C Farm WMC 2010-2
10	S10V002074	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
11	S10V002281	SAMPLE		20100660	B26JL0	C Farm WMC 2010-2
12	S10V002310	SAMPLE		20100660	B26JL1	C Farm WMC 2010-2

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# 00023602

Analyst: LaPlant, Gary **Book#:** 82B64

Instrument: GEA06 B-1F

Method: IODINE-129 in SOIL, LA-378-105 Rev/Mod D-0

Specification: C Farm WMC 2010-2

Prep Batch:

Batch Comment:

C-Farm WMC 2010-2 for I129. 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	S1010280019		0 0			Iodine-129	LIQUID	.00319699978 359553	3.6061E-03		4.54	8.14E-06	uCi/mL	112.8	% Recovery	
1	STD	S1010280019		0 0			Iodine-C	LIQUID		76.815				% Recovery	N/A		
Sample Sequence 2																	
2	BLNK	S1010280020		0 0			Iodine-129	SOLID		<1.9302E-07			1.93E-07	uCi/g			
2	BLNK	S1010280020		0 0			Iodine-C	SOLID		70.249				% Recovery			
Sample Sequence 3																	
3	SAMPLE	S10V002341		0 0			Iodine-129	SOLID	N/A	<1.7795E-07			1.78E-07	uCi/g			U
3	SAMPLE	S10V002341		0 0			Iodine-C	SOLID		74.517				% Recovery			
Sample Sequence 4																	
4	DUP	S1010280021	S10V002341	0 0			Iodine-129	SOLID	<1.7795E-07	<1.8058E-07			1.81E-07	uCi/g			
4	DUP	S1010280021	S10V002341	0 0			Iodine-C	SOLID	74.517	72.547				% Recovery			
Sample Sequence 5																	
5	SAMPLE	S10V002392		0 0			Iodine-129	SOLID	N/A	<1.5700E-07			1.57E-07	uCi/g			U
5	SAMPLE	S10V002392		0 0			Iodine-C	SOLID		79.113				% Recovery			
Sample Sequence 6																	
6	SAMPLE	S10V002411		0 0			Iodine-129	SOLID	N/A	<1.4127E-07			1.41E-07	uCi/g			U
6	SAMPLE	S10V002411		0 0			Iodine-C	SOLID		78.128				% Recovery			
Sample Sequence 7																	
7	SAMPLE	S10V002430		0 0			Iodine-129	SOLID	N/A	<1.5273E-07			1.53E-07	uCi/g			U
7	SAMPLE	S10V002430		0 0			Iodine-C	SOLID		79.113				% Recovery			
Sample Sequence 8																	
8	SAMPLE	S10V002449		0 0			Iodine-129	SOLID	N/A	<1.0177E-06			1.02E-06	uCi/g			U
8	SAMPLE	S10V002449		0 0			Iodine-C	SOLID		77.143				% Recovery			
Sample Sequence 9																	
9	SAMPLE	S10V002468		0 0			Iodine-129	SOLID	N/A	<1.6505E-07			1.65E-07	uCi/g			U
9	SAMPLE	S10V002468		0 0			Iodine-C	SOLID		79.769				% Recovery			
Sample Sequence 10																	
10	SAMPLE	S10V002487		0 0			Iodine-129	SOLID	N/A	<1.7617E-07			1.76E-07	uCi/g			U
10	SAMPLE	S10V002487		0 0			Iodine-C	SOLID		75.502				% Recovery			
Sample Sequence 11																	
11	SAMPLE	S10V002507		0 0			Iodine-129	SOLID	N/A	<1.5333E-07			1.53E-07	uCi/g			U
11	SAMPLE	S10V002507		0 0			Iodine-C	SOLID		74.189				% 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# 00023602

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 12																	
12	SAMPLE	S10V002801		0 0			Iodine-129	SOLID	N/A	<1.7608E-07			1.76E-07	uCi/g			U
12	SAMPLE	S10V002801		0 0			Iodine-C	SOLID		73.86				% Recovery			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00023602

Reviewer Signature **Date**

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

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LABCORE Completed Batch Report for Batch# 00023602

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1010280019	STD				
2	S1010280020	BLNK				
3	S10V002341	SAMPLE		20100660	B26C47	C Farm WMC 2010-2
4	S1010280021	DUP	S10V002341			
5	S10V002392	SAMPLE		20100660	B26C51	C Farm WMC 2010-2
6	S10V002411	SAMPLE		20100660	B26C53	C Farm WMC 2010-2
7	S10V002430	SAMPLE		20100660	B26C55	C Farm WMC 2010-2
8	S10V002449	SAMPLE		20100660	B26C57	C Farm WMC 2010-2
9	S10V002468	SAMPLE		20100660	B26C59	C Farm WMC 2010-2
10	S10V002487	SAMPLE		20100660	B26C61	C Farm WMC 2010-2
11	S10V002507	SAMPLE		20100584	B26C38	C Farm WMC 2010-2
12	S10V002801	SAMPLE		20100584	B26C40	C Farm WMC 2010-2

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# 00024101

Analyst: LaPlant, Gary **Book#:** 120B64

Instrument: A/B Detector 13 B-1A

Method: PLUTONIUM, LA-953-104 Rev/Mod H-1

Specification: C Farm WMC 2010-2

Prep Batch: 00024058

Batch Comment:

C Farm WMC 2010-2 Grp 584 for Pu. ACC

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	S1011160211		0 0			Pu-239/240	LIQUID	.00014199836 8778613	1.3788E-04		5.92	9.39E-06	uCi/mL	97.096	% Recovery	
1	STD	S1011160211		0 0			Plutonium-236T	LIQUID		74.953				% Recovery	N/A		
Sample Sequence 2																	
2	BLNK-PREP	S1011150117		0 0	E		Pu-239/240	SOLID		<6.0849E-07			6.08E-07	uCi/g			
2	BLNK-PREP	S1011150117		0 0	E		Plutonium-236T	SOLID		44.8				% Recovery			
2	BLNK-PREP	S1011150117		0 0	E		Plutonium-238	SOLID		<6.0849E-07			6.08E-07	uCi/g			
Sample Sequence 3																	
3	SAMPLE	S10V001880		0 0	E		Pu-239/240	SOLID	N/A	<3.0662E-07			3.07E-07	uCi/g			U
3	SAMPLE	S10V001880		0 0	E		Plutonium-236T	SOLID		85.648				% Recovery			
3	SAMPLE	S10V001880		0 0	E		Plutonium-238	SOLID	N/A	<3.0662E-07			3.07E-07	uCi/g			U
Sample Sequence 4																	
4	SAMPLE	S10V001897		0 0	E		Pu-239/240	SOLID	N/A	<3.1307E-07			3.13E-07	uCi/g			U
4	SAMPLE	S10V001897		0 0	E		Plutonium-236T	SOLID		77.737				% Recovery			
4	SAMPLE	S10V001897		0 0	E		Plutonium-238	SOLID	N/A	<3.1307E-07			3.13E-07	uCi/g			U
Sample Sequence 5																	
5	SAMPLE	S10V001917		0 0	E		Pu-239/240	SOLID	N/A	<2.8655E-07			2.87E-07	uCi/g			U
5	SAMPLE	S10V001917		0 0	E		Plutonium-236T	SOLID		74.007				% Recovery			
5	SAMPLE	S10V001917		0 0	E		Plutonium-238	SOLID	N/A	<2.8655E-07			2.87E-07	uCi/g			U
Sample Sequence 6																	
6	SAMPLE	S10V001937		0 0	E		Pu-239/240	SOLID	N/A	<3.2236E-07			3.22E-07	uCi/g			U
6	SAMPLE	S10V001937		0 0	E		Plutonium-236T	SOLID		86.708				% Recovery			
6	SAMPLE	S10V001937		0 0	E		Plutonium-238	SOLID	N/A	<3.2236E-07			3.22E-07	uCi/g			U
Sample Sequence 7																	
7	SAMPLE	S10V001957		0 0	E		Pu-239/240	SOLID	N/A	<3.3983E-07			3.40E-07	uCi/g			U
7	SAMPLE	S10V001957		0 0	E		Plutonium-236T	SOLID		83.53				% Recovery			
7	SAMPLE	S10V001957		0 0	E		Plutonium-238	SOLID	N/A	<3.3983E-07			3.40E-07	uCi/g			U
Sample Sequence 8																	
8	DUP	S1011150118	S10V001957	0 0	E		Pu-239/240	SOLID	<3.3983E-07	<3.4466E-07			3.45E-07	uCi/g			
8	DUP	S1011150118	S10V001957	0 0	E		Plutonium-236T	SOLID	83.53	82.019				% Recovery			
8	DUP	S1011150118	S10V001957	0 0	E		Plutonium-238	SOLID	<3.3983E-07	<3.4466E-07			3.45E-07	uCi/g			
Sample Sequence 9																	
9	SAMPLE	S10V002041		0 0	E		Pu-239/240	SOLID	N/A	<3.0454E-07			3.05E-07	uCi/g			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# 00024101

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
9	SAMPLE	S10V002041		0 0	E		Plutonium-236T	SOLID		92.062				% Recovery			
9	SAMPLE	S10V002041		0 0	E		Plutonium-238	SOLID	N/A	<3.0454E-07			3.05E-07	uCi/g			U
Sample Sequence 10																	
10	SAMPLE	S10V002063		0 0	E		Pu-239/240	SOLID	N/A	<2.8938E-07			2.89E-07	uCi/g			U
10	SAMPLE	S10V002063		0 0	E		Plutonium-236T	SOLID		79.093				% Recovery			
10	SAMPLE	S10V002063		0 0	E		Plutonium-238	SOLID	N/A	<2.8938E-07			2.89E-07	uCi/g			U
Sample Sequence 11																	
11	SAMPLE	S10V002373		0 0	E		Pu-239/240	SOLID	N/A	<3.3653E-07			3.37E-07	uCi/g			U
11	SAMPLE	S10V002373		0 0	E		Plutonium-236T	SOLID		81.554				% Recovery			
11	SAMPLE	S10V002373		0 0	E		Plutonium-238	SOLID	N/A	<3.3653E-07			3.37E-07	uCi/g			U
Sample Sequence 12																	
12	SAMPLE	S10V002516		0 0	E		Pu-239/240	SOLID	N/A	<2.9159E-07			2.92E-07	uCi/g			U
12	SAMPLE	S10V002516		0 0	E		Plutonium-236T	SOLID		73.043				% Recovery			
12	SAMPLE	S10V002516		0 0	E		Plutonium-238	SOLID	N/A	<2.9159E-07			2.92E-07	uCi/g			U
Sample Sequence 13																	
13	SAMPLE	S10V002811		0 0	E		Pu-239/240	SOLID	N/A	<3.3481E-07			3.35E-07	uCi/g			U
13	SAMPLE	S10V002811		0 0	E		Plutonium-236T	SOLID		71.281				% Recovery			
13	SAMPLE	S10V002811		0 0	E		Plutonium-238	SOLID	N/A	<3.3481E-07			3.35E-07	uCi/g			U

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00024101

Reviewer Signature **Date**

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# 00024101

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1011160211	STD				
2	S1011150117	BLNK-PREP				
3	S10V001880	SAMPLE		20100584	B26JK8	C Farm WMC 2010-2
4	S10V001897	SAMPLE		20100584	B26JK9	C Farm WMC 2010-2
5	S10V001917	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
6	S10V001937	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
7	S10V001957	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
8	S1011150118	DUP	S10V001957			
9	S10V002041	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
10	S10V002063	SAMPLE		20100584	B26C34	C Farm WMC 2010-2
11	S10V002373	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
12	S10V002516	SAMPLE		20100584	B26C38	C Farm WMC 2010-2
13	S10V002811	SAMPLE		20100584	B26C40	C Farm WMC 2010-2

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LABCORE Completed Batch Report for Batch# 00024102

Analyst: LaPlant, Gary **Book#:** 120B64

Instrument: A/B Detector 24 B-1F

Method: AMERICIUM, LA-953-104 Rev/Mod H-1

Specification: C Farm WMC 2010-2

Prep Batch: 00024058

Batch Comment:

C Farm WMC 2010-2 Grp 584 for Am. ACC

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	S1011160213		0 0			Americium-241	LIQUID	.000137	1.2843E-04		5.7	1.45E-05	uCi/mL	93.741	% Recovery	
1	STD	S1011160213		0 0			Americium-243T	LIQUID		77.978				% Recovery	N/A		
Sample Sequence 2																	
2	BLNK-PREP	S1011150117		0 0	E		Curium-243/244	SOLID		<2.0982E-07			2.10E-07	uCi/g			
2	BLNK-PREP	S1011150117		0 0	E		Americium-241	SOLID		<5.2456E-07			5.25E-07	uCi/g			
2	BLNK-PREP	S1011150117		0 0	E		Americium-243T	SOLID		81.766				% Recovery			
2	BLNK-PREP	S1011150117		0 0	E		Curium-242	SOLID		<2.0982E-07			2.10E-07	uCi/g			
Sample Sequence 3																	
3	SAMPLE	S10V001880		0 0	E		Curium-243/244	SOLID	N/A	<2.1287E-07			2.13E-07	uCi/g			U
3	SAMPLE	S10V001880		0 0	E		Americium-241	SOLID	N/A	<5.3219E-07			5.32E-07	uCi/g			U
3	SAMPLE	S10V001880		0 0	E		Americium-243T	SOLID		78.178				% Recovery			
3	SAMPLE	S10V001880		0 0	E		Curium-242	SOLID	N/A	<2.1287E-07			2.13E-07	uCi/g			U
Sample Sequence 4																	
4	SAMPLE	S10V001897		0 0	E		Curium-243/244	SOLID	N/A	<1.8038E-07			1.80E-07	uCi/g			U
4	SAMPLE	S10V001897		0 0	E		Americium-241	SOLID	N/A	<4.5094E-07			4.51E-07	uCi/g			U
4	SAMPLE	S10V001897		0 0	E		Americium-243T	SOLID		85.793				% Recovery			
4	SAMPLE	S10V001897		0 0	E		Curium-242	SOLID	N/A	<1.8038E-07			1.80E-07	uCi/g			U
Sample Sequence 5																	
5	SAMPLE	S10V001917		0 0	E		Curium-243/244	SOLID	N/A	<2.0175E-07			2.02E-07	uCi/g			U
5	SAMPLE	S10V001917		0 0	E		Americium-241	SOLID	N/A	<5.0438E-07			5.04E-07	uCi/g			U
5	SAMPLE	S10V001917		0 0	E		Americium-243T	SOLID		66.108				% Recovery			
5	SAMPLE	S10V001917		0 0	E		Curium-242	SOLID	N/A	<2.0175E-07			2.02E-07	uCi/g			U
Sample Sequence 6																	
6	SAMPLE	S10V001937		0 0	E		Curium-243/244	SOLID	N/A	<2.4369E-07			2.44E-07	uCi/g			U
6	SAMPLE	S10V001937		0 0	E		Americium-241	SOLID	N/A	<6.0923E-07			6.09E-07	uCi/g			U
6	SAMPLE	S10V001937		0 0	E		Americium-243T	SOLID		70.797				% Recovery			
6	SAMPLE	S10V001937		0 0	E		Curium-242	SOLID	N/A	<2.4369E-07			2.44E-07	uCi/g			U
Sample Sequence 7																	
7	SAMPLE	S10V001957		0 0	E		Curium-243/244	SOLID	N/A	<2.2194E-07			2.22E-07	uCi/g			U
7	SAMPLE	S10V001957		0 0	E		Americium-241	SOLID	N/A	<5.5486E-07			5.55E-07	uCi/g			U
7	SAMPLE	S10V001957		0 0	E		Americium-243T	SOLID		82.761				% Recovery			
7	SAMPLE	S10V001957		0 0	E		Curium-242	SOLID	N/A	<2.2194E-07			2.22E-07	uCi/g			U

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LABCORE Completed Batch Report for Batch# 00024102

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	DUP	S1011150118	S10V001957	0 0	E		Curium-243/244	SOLID	<2.2194E-07	<2.0477E-07			2.05E-07	uCi/g			
8	DUP	S1011150118	S10V001957	0 0	E		Americium-241	SOLID	<5.5486E-07	<5.1192E-07			5.12E-07	uCi/g			
8	DUP	S1011150118	S10V001957	0 0	E		Americium-243T	SOLID	82.761	85.69				% Recovery			
8	DUP	S1011150118	S10V001957	0 0	E		Curium-242	SOLID	<2.2194E-07	<2.0477E-07			2.05E-07	uCi/g			
Sample Sequence 9																	
9	SAMPLE	S10V002041		0 0	E		Curium-243/244	SOLID	N/A	<2.0257E-07			2.03E-07	uCi/g			U
9	SAMPLE	S10V002041		0 0	E		Americium-241	SOLID	N/A	<5.0642E-07			5.06E-07	uCi/g			U
9	SAMPLE	S10V002041		0 0	E		Americium-243T	SOLID		85.438				% Recovery			
9	SAMPLE	S10V002041		0 0	E		Curium-242	SOLID	N/A	<2.0257E-07			2.03E-07	uCi/g			U
Sample Sequence 10																	
10	SAMPLE	S10V002063		0 0	E		Curium-243/244	SOLID	N/A	<1.8304E-07			1.83E-07	uCi/g			U
10	SAMPLE	S10V002063		0 0	E		Americium-241	SOLID	N/A	<4.5760E-07			4.58E-07	uCi/g			U
10	SAMPLE	S10V002063		0 0	E		Americium-243T	SOLID		79.202				% Recovery			
10	SAMPLE	S10V002063		0 0	E		Curium-242	SOLID	N/A	<1.8304E-07			1.83E-07	uCi/g			U
Sample Sequence 11																	
11	SAMPLE	S10V002373		0 0	E		Curium-243/244	SOLID	N/A	<2.1787E-07			2.18E-07	uCi/g			U
11	SAMPLE	S10V002373		0 0	E		Americium-241	SOLID	N/A	<5.4467E-07			5.45E-07	uCi/g			U
11	SAMPLE	S10V002373		0 0	E		Americium-243T	SOLID		78.865				% Recovery			
11	SAMPLE	S10V002373		0 0	E		Curium-242	SOLID	N/A	<2.1787E-07			2.18E-07	uCi/g			U
Sample Sequence 12																	
12	SAMPLE	S10V002516		0 0	E		Curium-243/244	SOLID	N/A	<1.6630E-07			1.66E-07	uCi/g			U
12	SAMPLE	S10V002516		0 0	E		Americium-241	SOLID	N/A	<4.1575E-07			4.16E-07	uCi/g			U
12	SAMPLE	S10V002516		0 0	E		Americium-243T	SOLID		82.222				% Recovery			
12	SAMPLE	S10V002516		0 0	E		Curium-242	SOLID	N/A	<1.6630E-07			1.66E-07	uCi/g			U
Sample Sequence 13																	
13	SAMPLE	S10V002811		0 0	E		Curium-243/244	SOLID	N/A	<1.8128E-07			1.81E-07	uCi/g			U
13	SAMPLE	S10V002811		0 0	E		Americium-241	SOLID	N/A	<4.5319E-07			4.53E-07	uCi/g			U
13	SAMPLE	S10V002811		0 0	E		Americium-243T	SOLID		82.555				% Recovery			
13	SAMPLE	S10V002811		0 0	E		Curium-242	SOLID	N/A	<1.8128E-07			1.81E-07	uCi/g			U

Comments Section:

Data Flagger Status:
Flagging Completed

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LABCORE Completed Batch Report for Batch# 00024102

Final Page for Batch# 00024102

Reviewer Signature **Date**

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LABCORE Completed Batch Report for Batch# 00024102

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1011160213	STD				
2	S1011150117	BLNK-PREP				
3	S10V001880	SAMPLE		20100584	B26JK8	C Farm WMC 2010-2
4	S10V001897	SAMPLE		20100584	B26JK9	C Farm WMC 2010-2
5	S10V001917	SAMPLE		20100584	B26C26	C Farm WMC 2010-2
6	S10V001937	SAMPLE		20100584	B26C28	C Farm WMC 2010-2
7	S10V001957	SAMPLE		20100584	B26C30	C Farm WMC 2010-2
8	S1011150118	DUP	S10V001957			
9	S10V002041	SAMPLE		20100584	B26C32	C Farm WMC 2010-2
10	S10V002063	SAMPLE		20100584	B26C34	C Farm WMC 2010-2
11	S10V002373	SAMPLE		20100584	B26C36	C Farm WMC 2010-2
12	S10V002516	SAMPLE		20100584	B26C38	C Farm WMC 2010-2
13	S10V002811	SAMPLE		20100584	B26C40	C Farm WMC 2010-2

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