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Data Validation Report for CH2M Hill
Plateau Remediation Company

VSR11-047
Project WMA C

Chemical & Radiochemical Validation - Level C

Validation Performed By: Carl Schlosser **Date:** 6-21-2011

TABLE OF CONTENTS

Volatile Organics

Memorandum 3
Appendix 1 – Glossary of Data Reporting Qualifiers 7
Appendix 2 – Summary of Data Qualification 9
Appendix 3 – Annotated Laboratory Reports 11
Appendix 4 – Laboratory Narrative and Chain-of-Custody Documentation 14
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 87
Appendix 6 – Additional Documentation Requested By Client 94

Inorganics

Memorandum 116
Appendix 1 – Glossary of Data Reporting Qualifiers 120
Appendix 2 – Summary of Data Qualification 122
Appendix 3 – Annotated Laboratory Reports 124
Appendix 4 – Laboratory Narrative and Chain-of-Custody Documentation 133
Appendix 5 – Data Validation Supporting Documentation 157
Appendix 6 – Additional Documentation Requested By Client 164

General Chemistry

Memorandum 229
Appendix 1 – Glossary of Data Reporting Qualifiers 233
Appendix 2 – Summary of Data Qualification 235
Appendix 3 – Annotated Laboratory Reports 237
Appendix 4 – Laboratory Narrative and Chain-of-Custody Documentation 246
Appendix 5 – Data Validation Supporting Documentation 268
Appendix 6 – Additional Documentation Requested By Client 274

Radiochemical

Memorandum 316
Appendix 1 – Glossary of Data Reporting Qualifiers 319
Appendix 2 – Summary of Data Qualification 321
Appendix 3 – Annotated Laboratory Reports 323
Appendix 4 – Laboratory Narrative and Chain-of-Custody Documentation 328
Appendix 5 – Data Validation Supporting Documentation 350
Appendix 6 – Additional Documentation Requested By Client 357

Date: 21 June 2011
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: WMA C
Subject: Volatile Organics - Sample Data Group (SDG) 20100660

INTRODUCTION

This memorandum presents the results of data validation for SDG 20100660 prepared by 222-S Laboratory. The sample validated along with the analytical method is provided in the following table.

Sample ID	Sample Date	Media	Validation Level	Analytical Methods
B26C62	8/25/2010	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 sample was 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 result for sample B26C62 was a detect <5X the laboratory blank result and should be qualified as a

non-detect at the sample concentration (0.479 ug/kg) and flagged "U." The styrene result for sample B26C62 was a detect <5X the laboratory blank result and should be qualified as a non-detect at the sample concentration (0.327 ug/kg) and flagged "U."

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."

The 4-methyl-2-pentanone (a.k.a. hexone) and 2-butanone MS and/or MSD recoveries were above the upper acceptance limit. The associated results for sample B26C62 were non-detects and should not be qualified.

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 20100660 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: 20100660	Reviewer: AQA	Project: WMA C	Page 1 of 1
Analyte(s)	**DV Flag**	**Samples Affected**	**Reason**
Toluene	0.479U	B26C62	Lab blank contamination
Styrene	0.327U	B26C62	Lab blank contamination
trans-1,3-Dichloropropene Carbon disulfide	UJ	B26C62	Non-represented MS/MSD and LCS data

Comments: None

Appendix 3

Annotated Laboratory Reports

Data Summary Report

Sample Group: 20100660
Core Number: C7682
Customer Sample ID: B26C62
Sample Depth: 122-124

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002480			71-55-6	1,1,1-Trichloroethane	ug/kg	n/a	<0.0920	<0.0906	n/a	n/a	n/a	n/a	0.0906	n/a	U
S10V002480			79-00-5	1,1,2-Trichloroethane	ug/kg	n/a	<0.166	<0.163	n/a	n/a	n/a	n/a	0.163	n/a	U
S10V002480			79-34-5	1,1,2,2-Tetrachloroethane	ug/kg	n/a	<0.212	<0.208	n/a	n/a	n/a	n/a	0.208	n/a	U
S10V002480			75-35-4	1,1-Dichloroethene	ug/kg	104	<0.423	<0.417	n/a	n/a	n/a	n/a	0.417	n/a	U
S10V002480			107-06-2	1,2-Dichloroethane	ug/kg	n/a	<0.0538	<0.0530	n/a	n/a	n/a	n/a	0.0530	n/a	U
S10V002480			71-36-3	1-Butanol	ug/kg	117	<10.3	<10.1	n/a	n/a	n/a	n/a	10.1	n/a	U
S10V002480			108-10-1	Hexone	ug/kg	115	<1.71	<1.68	n/a	n/a	n/a	n/a	1.68	n/a	U
S10V002480			67-64-1	Acetone	ug/kg	108	<2.20	<2.16	n/a	n/a	n/a	n/a	2.16	n/a	U
S10V002480			71-43-2	Benzene	ug/kg	103	<0.147	<0.145	n/a	n/a	n/a	n/a	0.145	n/a	U
S10V002480			75-15-0	Carbon disulfide UJ	ug/kg	n/a	<0.161	<0.158	n/a	n/a	n/a	n/a	0.158	n/a	U
S10V002480			56-23-5	Carbon tetrachloride	ug/kg	n/a	<0.0934	<0.0919	n/a	n/a	n/a	n/a	0.0919	n/a	U
S10V002480			67-66-3	Chloroform	ug/kg	n/a	<0.131	<0.129	n/a	n/a	n/a	n/a	0.129	n/a	U
S10V002480			108-90-7	Chlorobenzene	ug/kg	104	<0.0864	<0.0850	n/a	n/a	n/a	n/a	0.0850	n/a	U
S10V002480			100-41-4	Ethylbenzene	ug/kg	n/a	<0.107	<0.106	n/a	n/a	n/a	n/a	0.106	n/a	U
S10V002480			1330-20-7	Xylenes (total)	ug/kg	n/a	<0.203	<0.200	n/a	n/a	n/a	n/a	0.200	n/a	U
S10V002480			78-93-3	2-Butanone	ug/kg	110	<1.96	<1.93	n/a	n/a	n/a	n/a	1.93	n/a	U
S10V002480			75-09-2	Methylenechloride	ug/kg	n/a	<0.0640	<0.0630	n/a	n/a	n/a	n/a	0.0630	n/a	U
S10V002480			127-18-4	Tetrachloroethene	ug/kg	n/a	<0.110	<0.108	n/a	n/a	n/a	n/a	0.108	n/a	U
S10V002480			100-42-5	Styrene 0.327U	ug/kg	n/a	0.371	0.327	n/a	n/a	n/a	n/a	0.125	n/a	BJ
S10V002480			108-88-3	Toluene 0.479U	ug/kg	103	0.208	0.479	n/a	n/a	n/a	n/a	0.0789	n/a	BJ
S10V002480			10061-02-6	trans-1,3-Dichloropropene UJ	ug/kg	n/a	<0.271	<0.267	n/a	n/a	n/a	n/a	0.267	n/a	U
S10V002480			79-01-6	Trichloroethene	ug/kg	105	<0.121	<0.119	n/a	n/a	n/a	n/a	0.119	n/a	U
S10V002480			75-01-4	Vinyl chloride	ug/kg	n/a	<0.173	<0.171	n/a	n/a	n/a	n/a	0.171	n/a	U
S10V002480			156-59-2	cis-Dichloroethylene	ug/kg	n/a	<0.182	<0.179	n/a	n/a	n/a	n/a	0.179	n/a	U
S10V002480			156-60-5	trans-Dichloroethylene	ug/kg	n/a	<0.303	<0.298	n/a	n/a	n/a	n/a	0.298	n/a	U
S10V002480			76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ug/kg	n/a	<0.116	<0.114	n/a	n/a	n/a	n/a	0.114	n/a	U
S10V002480			79-46-9	2-Nitropropane	ug/kg	n/a	<0.588	<0.579	n/a	n/a	n/a	n/a	0.579	n/a	U
S10V002480			141-78-6	Ethyl acetate	ug/kg	n/a	<0.587	<0.578	n/a	n/a	n/a	n/a	0.578	n/a	U
S10V002480			60-29-7	Diethyl ether	ug/kg	n/a	<0.256	<0.252	n/a	n/a	n/a	n/a	0.252	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
J - Estimated
B - Blank Contamination
X - Comment

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6-21-2011

M - RPD Outside Range
C - Blank Contamination
B - Estimated
N - MS/MSD Outside Range

Data Summary Report

Sample Group: 20100660

Core Number: C7682

Customer Sample ID: B26C62

Sample Depth: 122-124

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002480			75-69-4	Trichlorofluoromethane	ug/kg	n/a	<0.0940	<0.0925	n/a	n/a	n/a	n/a	0.0925	n/a	U
S10V002480			95-47-6	o-Xylene	ug/kg	n/a	<0.0920	<0.0906	n/a	n/a	n/a	n/a	0.0906	n/a	U
S10V002480			179601-23-1	m,p-Xylene	ug/kg	n/a	<0.167	<0.165	n/a	n/a	n/a	n/a	0.165	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
J - Estimated
B - Blank Contamination
X - Comment
M - RPD Outside Range
C - Blank Contamination
B - Estimated
N - 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 C7682 IN SUPPORT OF RCRA SOIL CHARACTERIZATION OF THE VADOSE ZONE

1.0 INTRODUCTION

This final report presents the results for the samples taken from Waste Management Area C between August 17, 2010 and August 25, 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 QC Results
Attachment 5	Tentatively Identified Compounds (TIC) for Organic Analyses
Attachment 6	Analytical Batch and Laboratory Sample Identification Number Index
Attachment 7	Geological Report
Attachment 8	Characterization Change Notices (CCN) and Correspondence
Attachment 9	Receipt Paperwork
Appendix A	Analytical Report for Analysis Performed at the Waste Sampling and Characterization Facility (WSCF) - Metals Analysis

2.0 SAMPLE RECEIPT AND BREAKDOWN

2.1 SAMPLE RECEIPT

A total of eight core intervals and two surface grab samples from core hole C7682 along with nine field blanks, six trip blanks, and one equipment blank were received by the 222-S Laboratory between August 17, 2010 and August 25, 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 8).

In order to facilitate shipping, the 222-S Laboratory personnel store the field blank sample containers designated for offsite laboratories in a small refrigerator in the sample receipt area, which is outside the laboratory's radiological contamination area. This refrigerator exceeded its lower temperature range, and one of the three 1-liter sample containers for polychlorinated biphenyl analysis and one of the two 1-liter sample containers for pesticides and the monobutyl and dibutyl phosphate analysis froze and cracked. This resulted in the monobutyl and dibutyl phosphate analysis not being performed for the equipment blank. The issue with the refrigerator freezing samples has been resolved.

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 7. 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 and was combined with interval I003 (see Attachment 2 and Attachment 9). The sample material recovered from I002 was used for the VOA sample liners, and shoe samples from interval I003 were used to make the composite sample.

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%.

"X" for comment on VOA, see Section 3.4.1, Batch 21533.

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, liner composite samples, and the equipment blank. 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 the current laboratory procedure (lachet micro-distillation) is reporting.

Batches 21785 and 21829: There were no notable quality control (QC) issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batches 22013 and 22014: The MS for these batches exceed the ±25% at 43% and 74%. These samples were batched with samples from a separate vadose project for which the MSs were within the required range. Since the MS for the C Farm sample failed twice, it is the laboratory's opinion that there is a matrix interference. All affected sample results have been flagged with an "N". For batch 22013 the LLS was recovered outside the ±30% limit at 28% recovery. This could indicate a low bias for results near the LLS level. All sample results in this batch were below the MDL.

3.2.2 Sulfide

Sulfide analysis by distillation and ion selective electrode was performed on the grab samples, liner composite samples, and the equipment blank. 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 solid 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, liner composite samples, and the equipment blank. 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 sample compositing was performed. The sampling to analysis time varied from 1 to 34 days for the solid samples (see Attachment 3) and 15 hours for the liquid sample. There was 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 holding 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, liner composite samples, and the equipment blank. 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, liner composite samples, and the equipment blank. 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.

Batch 21436: 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 21540: Ammonium was detected in the preparation blanks at a level below the quantitation limit and above the MDL. Ammonium was also detected in all but one of the samples below the quantitation limit and less than 5 times the level of the blank; therefore, these results have been flagged with a “C”. Ammonium was also detected in one sample above the quantitation limit but at more than 5 times the level of the blank; therefore, this result has not been flagged with a “C”.

Batch 21732: Ammonium was detected in the preparation blanks at a level below the quantitation limit and above the MDL. Ammonium was also detected the samples above the quantitation limit and less than 5 times the level of the blank; therefore, these results have been flagged with a “C”.

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 at a similar level; therefore, the result has been flagged with a “C”. The RPD was above the ±30% requirement. However, since the result was below the quantitation limit this criterion did not apply.

3.2.6 Ion Chromatography – Anions and Small Organic Acids

Ion chromatography analysis was performed on all grab samples, liner composite samples, and the equipment blank. 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.

Fluoride was detected in the equipment blank above the quantitation limit. Since fluoride is commonly found in drinking water, the laboratory believes the most likely source of the fluoride was probably the water used by field personnel to make the equipment blank.

Batch 21524: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batch 22189: The RPD for oxalate exceeded the ±30% requirement in the FSAP at 139%. The laboratory believes this is likely due to sample nonhomogeneity. Since the result for the duplicate was below the quantitation limit, reanalysis was not required and no flag has been applied. The high sample result for oxalate is anomalous for vadose soil.

Batch 22897: The RPD for sulfate exceeded the ±30% requirement in the FSAP at 34%. The laboratory believes this is likely due to sample nonhomogeneity. This was discussed with the client, and the laboratory was instructed to report the result with this narration (see Attachment 8). The RPDs for nitrite and oxalate exceeded the ±30% requirement in the FSAP. Since the results for both analytes were below the quantitation limit, this criteria does not apply. A low level of nitrite was detected in the preparation blank, and the result has been flagged with a "C". Since both blank and sample results were below the quantitation limit, reanalysis was not required.

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, liner composite samples, and the equipment blank. 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 22570: The interference check standard-A (ICSA) produced positive results for arsenic, cadmium, selenium, manganese, and nickel. Since the sample results for these elements were below the MDL and the interference check sample AB (ICSAB) recoveries were within the required limit, the data usability was not affected. The initial low level standard (LLS) recovery for potassium was above the ±30% limit at 150%. Since the sample result for potassium was below the MDL, the data usability was not affected.

Batch 24239: The ICSA produced positive results for manganese. However, in the ICSAB, manganese was recovered at 98%, and there appears to be no positive interference at this concentration. Since the sample concentration for manganese is near the ICSAB concentration, the data usability was not affected. 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. Cobalt was detected in the preparation blank at slightly above the MDL. One sample result for cobalt was less than 5 times the blank result and has been flagged with "C". Since both the blank and sample results were below the quantitation limit, reanalysis was not required. The remaining 8 sample results were more than 5 times the blank result. The MS recoveries for aluminum, calcium, iron, magnesium, potassium, sodium, 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.

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, liner composite samples, and the equipment blank. The ICP/MS ^{126}Sn and ^{99}Tc analysis was performed on the same basic 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 performed 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 solid sample results for ^{126}Sn were above the MDL and below the quantitation limit. 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. 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 24429: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batch 23853: There were no notable issues with this batch, and all QC requirements in the QAPP were met. However, the laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples from another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

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.

Batch 23162: There were no notable issues with this batch, and all QC requirements in the QAPP were met. However, the laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples from another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

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 24022: The closing low level standard (LLS) for ^{235}U and ^{238}U exceeded the ±30% limit at 17% and 35%. The sample results for these isotopes were below the MDL. This could indicate a low bias for results near the LLS. However, assuming a 90% low bias, the adjusted results would still be below the quantitation limit. The closing continuing calibration blank (CCB) result for ^{237}Np was slightly above the MDL. The sample result for this isotope was below the MDL.

Batch 23864: The preparation blank and CCB results for ^{230}Th and ^{236}U were slightly above the MDL. Some of the samples had similar results that should be considered equivalent to the blank. The affected results have been flagged with a "B". The laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples for another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

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. Due to an extended room outage at the 222-S

Laboratory, samples were sent to the WSCF Laboratory by WRPS for analysis. Table 2 lists the samples and analytes that were analyzed and reported by WSCF for C7682. The WSCF report is included in Appendix A of this report, and these results will be placed in the Hanford Environmental Information System. The WSCF report is included in its entirety, but not all results pertain to this report. 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. All samples were analyzed within the holding time.

Table 2. ICPMS Analysis Performed at the WSCF Laboratory

Client Sample No.	Sample Depth	ICP/MS Analysis Performed at WSCF
B26JL0	Surface	Arsenic, Cadmium, Lead, Selenium, Silver, Thallium
B26JL1	Surface Dup	Arsenic, Cadmium, Lead, Selenium, Silver, Thallium
B26C47	5-7ft	Selenium, Silver, Arsenic
B26C51	12-14ft	Selenium, Silver, Arsenic
B26C53	14-16ft	Selenium, Silver, Arsenic
B26C55	18-20ft	Selenium, Silver, Arsenic
B26C57	47-47ft	Selenium, Silver, Arsenic
B26C61	122-124ft	Selenium, Silver, Arsenic

Batch 22376: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met. This batch only reported antimony.

Batch 24036: The laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples for another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4. The serial dilution for lead exceeded the ±10% requirement at +24%. This would indicate a low bias.

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, liner composite samples, and the equipment blank. 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, liner composite samples, and the equipment blank. 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 these batches, 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, liner composite samples, and directly on the equipment blank. 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.

Batch 22818: The preparation blank demonstrated a positive result below the quantitation limit. This result had a very large counting uncertainty and was below the target detection limit. The sample result was below the MDA, and therefore, the data usability was not affected.

Batch 23378: There were no notable issues with the batch, and all QC requirements in the FSAP, SAP, and QAPP were met. However, the laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples for another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

3.3.4 Selenium-79

The ^{79}Se analysis by LSC was performed on the grab samples, liner composite samples, and the equipment blank. 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 23910: The carrier recovery for one sample was below the 30% level at 26%; however, even with the reduced sensitivity, the sample MDA was below the target detection. The sample result was below the MDA, and therefore, reanalysis was not performed.

3.3.5 Carbon-14

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

Batch 22686: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met. However, the laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples for another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

3.3.6 Nickel-63

The ^{63}Ni analysis by LSC was performed on the grab samples, liner composite samples, and the equipment blank. 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 these batches, 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 all grab samples, liner composite samples, and the equipment blank. 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, liner composite samples, and the equipment blank. 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, liner composite samples, and the equipment blank. 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, six trip blanks, and one equipment blank 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 except for one met the required holding time. The equipment blank sample, B26PF, was analyzed 4 days past the holding time, due to an oversight in holding time tracking. 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 8). Isobutanol, another poor purger, was reported as a semivolatile organic compound.

Seven 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 source of chloroform may be the water used by sampling personnel to make the various field blanks.

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.

Batch 21533: The method blank results for toluene and styrene were above the MDL but below the quantitation limit. All of the samples contained toluene and most contained styrene, and all of which have been flagged with at "B". Since the blank results were below the quantitation limit, reanalysis was not required. Carbon disulfide was detected in the method blank below the quantitation limit but was not detected in the samples. The continuing calibration verification standard (CCV) demonstrated a % difference (%D) for chloro-methane of -26%, which exceeds the ±20% limit. This could indicate a slight low bias for this compound; however, the raw response for this compound's monitor ions was well below the MDL. The %D for 1-butanol in the CCV exceeded the ±20% limit at +29%. Since 1-butanol was not detected in the samples, the usability of the data was not affected.

The internal standards for one sample, B26JM1 (S10V002306), were recovered extremely low, ranging from -89% to -90%. This was not discovered until November 7, 2010, well after the holding time had expired. Therefore, no reanalysis was performed and the results have been flagged with an "X". Examination of the raw response numbers indicated that approximately 5 to 6 times less sample was transferred to the column for this sample than others in the batch. This effectively raises the MDLs for this sample's results by a factor of 5. Since the quantitation limit is 10 times the MDL, it is unlikely that any results above the quantitation limit were missed. Additionally, the surrogate recoveries were within the required ranges, indicating that enough internal standard was recovered to make meaningful adjustments to the raw instrument responses.

Batch 21601: The method blank result for toluene was above the MDL but below the quantitation limit. Since all toluene sample results in the batch were below the MDL, the data usability was not affected.

Batch 21716: The method blank result for toluene was above the MDL but below the quantitation limit. Since all toluene results in the batch were below the MDL, the data usability was not affected. The internal standards for MSD for sample B26CY5 (S10V002245) were recovered extremely low, ranging from -94% to -95%. The spike and surrogate compound recoveries were within the required ranges, indicating that enough internal standard was recovered to make meaningful adjustments to the raw instrument responses for the surrogate and spike compounds. Since the MSD is only used to verify the RPD between the MS and MSD, which it did, reanalysis was not required.

Batch 21718: The method blank result for toluene was above the MDL but below the quantitation limit. One of the samples in this batch contained toluene at a similar level and has been flagged with at "B".

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

Batch 23317: The method blank result for toluene was above the MDL but below the quantitation limit. Since the toluene result for the sample was below the MDL, the data usability was not affected. The %D for 1-butanol in the CCV exceeded the ±20% limit at +29%. Since 1-butanol was not detected in the sample, the usability of the data was not affected.

3.4.2 Semivolatile Organic Analysis

The semivolatile organic analysis (SVOA) by GC/MS was performed on methylene chloride extractions of all grab samples, liner composite samples, and the equipment blank. 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. There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

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 3 lists the analytical procedures used for analysis of the Area C samples.

Table 3. Analytical Procedures

Analysis	Preparation Method	Analysis Procedure
Inorganic Analyses		
Cyanide (soil)	LA-695-103, Rev. J-0 (SW-846 9010C)	LA-695-103, Rev. J-0 (SW-846 9014)
Cyanide (water)	LA-695-102, Rev. L-0 (SW-846 9010C)	LA-695-102, Rev. L-0 (SW-846 9014)

Analysis	Preparation Method	Analysis Procedure
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)
pH (water)	LA-212-106, Rev. H-0-A (SW-846 9040C)	LA-212-106, Rev. H-0-A (SW-846 9040C)
Mercury – Cold Vapor Atomic Absorption	LA-325-110, Rev. A-0 (SW-846 7471A) (solid)	LA-325-110, Rev. A-0 (SW-846 7471A) (solid)
	LA-325-106, Rev. G-0 (SW-846 7470A) (liquid)	LA-325-106, Rev. G-0 (SW-846 7470A) (liquid)
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-506-102, Rev. F-1
Metals – ICP/MS	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-506-102, Rev. F-1 (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
^{90}Sr – Separation/Beta counting (liquid)		LA-220-104, Rev. I-0
^{3}H – LSC	LA-504-101, Rev. M-0 (solid)	LA-218-111, Rev. G-0
^{14}C – LSC	LA-504-101, Rev. M-0 (solid)	LA-348-104, Rev. I-0
^{79}Se – Separation/LSC	LA-544-101, Rev. F-0 (solid)	LA-365-132, Rev. I-0
^{63}Ni – Separation/LSC	LA-544-101, Rev. F-0 (solid)	LA-285-102, Rev. E-0
^{129}I – Separation/GEA (soil)	LA-378-105, Rev. D-0	LA-378-105, Rev. D-0
^{129}I – Separation/GEA (water)	LA-378-103, Rev. D-0	LA-378-103, Rev. K-0
^{241}Am, $^{243/244,\ 242}$Cm – Separation/AEA	LA-544-101, Rev. F-0 (solid)	LA-953-104, Rev. H-1
$^{239/240,\ 238}$Pu – Separation/AEA	LA-544-101, Rev. F-0 (solid)	LA-953-104, Rev. H-1
Organic Analyses		
VOC – GC/MS	Direct	LA-523-118, Rev. H-O (SW-846 8260B)

Analysis	Preparation Method	Analysis Procedure
SVOC – GC/MS	LA-523-138, Rev. G-0 (SW-846 3540C) (solid) LA-523-115, Rev. H-0 (SW-846 3520C) (liquid)	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.

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Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			V10-003-174	PAGE 1 OF 1
COLLECTOR Harris/Snook	**COMPANY CONTACT** TEMPLETON, AM	**TELEPHONE NO.** 373-5589	**PROJECT COORDINATOR** BERLIN, PC	**PRICE CODE** 8P	**DATA TURNAROUND**
SAMPLING LOCATION C7682 I008	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V10-003	**AIR QUALITY** ☐	75 Days / 75 Days
ICE CHEST NO. TFVS-09-003	**FIELD LOGBOOK NO.** TFVZ-10-000004	**ACTUAL SAMPLE DEPTH** 122'-124'	**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 <-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		
B26C62	SOIL	8-25-10	1005	—	✓

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Dan Harris Dan Harris	8-25-10 1105	RKSteele RKSteele	8-25-10 1105
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, and 1 methanol process control sample.
** 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.

GRP # 20100660
SAM # S10V00 2480
Y 2481

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: VSR11-047		
VALIDATOR: Carl Schloesslin		LAB: 222-S Lab		DATE: 6-21-2011	
			SDG: 20100660		
ANALYSES PERFORMED					
SW-846 8260 X		SW-846 8260 (TCLP)	SW-846 8270		SW-846 8270 (TCLP)
SAMPLES/MATRIX Soil sample B26C62					

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 0.21 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 LCS and MS/MSD.

4-methyl-2-pentanone (hexone) MS %R = 138%, MSD %R = 145%
2-butanone MSD %R = 133%

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
20100657	S10V002251	LIQUID	SW846-8260C	SW846-5030C	08/17/10 08:55	08/17/10 11:00	08/25/10 17:49	N
20100657	S10V002241	LIQUID	SW846-8260C	SW846-5030C	08/17/10 09:30	08/17/10 11:00	08/26/10 14:11	N
20100657	S10V002242	LIQUID	SW846-8260C	SW846-5030C	08/17/10 09:30	08/17/10 11:00	08/25/10 16:20	N
20100657	S10V002252	LIQUID	SW846-8260C	SW846-5030C	08/18/10 08:45	08/18/10 12:00	08/25/10 18:19	N
20100657	S10V002243	LIQUID	SW846-8260C	SW846-5030C	08/18/10 09:25	08/18/10 12:00	08/25/10 16:50	N
20100657	S10V002244	LIQUID	SW846-8260C	SW846-5030C	08/18/10 10:30	08/18/10 13:27	08/25/10 17:20	N
20100657	S10V002253	LIQUID	SW846-8260C	SW846-5030C	08/19/10 08:30	08/19/10 12:45	08/26/10 17:10	N
20100657	S10V002245	LIQUID	SW846-8260C	SW846-5030C	08/19/10 08:45	08/19/10 11:40	08/26/10 14:41	N
20100657	S10V002246	LIQUID	SW846-8260C	SW846-5030C	08/19/10 10:05	08/19/10 11:40	08/26/10 16:10	N
20100657	S10V002255	LIQUID	SW846-8260C	SW846-5030C	08/23/10 08:45	08/23/10 11:15	08/26/10 18:38	N
20100657	S10V002247	LIQUID	SW846-8260C	SW846-5030C	08/23/10 08:55	08/23/10 11:15	08/26/10 18:09	N
20100657	S10V002254	LIQUID	SW846-8260C	SW846-5030C	08/24/10 09:30	08/24/10 11:30	08/26/10 17:39	N
20100657	S10V002248	LIQUID	SW846-8260C	SW846-5030C	08/24/10 09:35	08/24/10 11:30	08/26/10 16:40	N
20100657	S10V002256	LIQUID	SW846-8260C	SW846-5030C	08/25/10 08:45	08/25/10 11:05	08/27/10 14:45	N
20100657	S10V002249	LIQUID	SW846-8260C	SW846-5030C	08/25/10 08:55	08/25/10 11:05	08/27/10 14:15	N
20100660	S10V002273	SOLID	SW846-8260C	SW-846 5035A	08/17/10 09:30	08/17/10 11:00	08/24/10 14:14	N
20100660	S10V002306	SOLID	SW846-8260C	SW-846 5035A	08/17/10 09:30	08/17/10 11:00	08/24/10 16:12	N
20100660	S10V002327	SOLID	SW846-8260C	SW-846 5035A	08/18/10 09:00	08/18/10 12:00	08/24/10 16:41	N
20100660	S10V002358	SOLID	SW846-8260C	SW-846 5035A	08/18/10 10:15	08/18/10 12:00	08/24/10 17:11	N
20100660	S10V002404	SOLID	SW846-8260C	SW-846 5035A	08/19/10 09:10	08/19/10 11:40	08/24/10 17:41	N
20100660	S10V002423	SOLID	SW846-8260C	SW-846 5035A	08/19/10 10:30	08/19/10 11:40	08/24/10 18:10	N
20100660	S10V002442	SOLID	SW846-8260C	SW-846 5035A	08/23/10 10:00	08/23/10 11:15	08/24/10 18:40	N
20100660	S10V002461	SOLID	SW846-8260C	SW-846 5035A	08/24/10 10:30	08/24/10 11:30	08/24/10 19:09	N
20100660	S10V002480	SOLID	SW846-8260C	SW-846 5035A	08/25/10 10:05	08/25/10 11:05	08/27/10 17:14	N
20100676	S10V002645	LIQUID	SW846-8260C	SW846-5030C	08/23/10 00:45	08/23/10 11:10	09/10/10 15:59	Y

LABCORE Completed Batch Report for Batch# 00021719

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, Groups 20100660 & 584

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	S1008300032		0 0			1,1,1-Trichloroethane	SOLID		<9.2000E-02			0.092	ug/Kg			U
1	BLNK	S1008300032		0 0			1,1,2-Trichloroethane	SOLID		<1.6580E-01			0.1658	ug/Kg			U
1	BLNK	S1008300032		0 0			1,1,2,2-Tetrachloroethane	SOLID		<2.1160E-01			0.2116	ug/Kg			U
1	BLNK	S1008300032		0 0			1,1-Dichloroethene	SOLID		<4.2320E-01			0.4232	ug/Kg			U
1	BLNK	S1008300032		0 0			1,2-Dichloroethane	SOLID		<5.3799E-02			0.053799	ug/Kg			U
1	BLNK	S1008300032		0 0			1-Butanol	SOLID		<1.0292E+01			10.292	ug/Kg			U
1	BLNK	S1008300032		0 0			4-Methyl-2-pentanone	SOLID		<1.7080E+00			1.708	ug/Kg			U
1	BLNK	S1008300032		0 0			Acetone	SOLID		<2.1996E+00			2.1996	ug/Kg			U
1	BLNK	S1008300032		0 0			Benzene	SOLID		<1.4740E-01			0.1474	ug/Kg			U
1	BLNK	S1008300032		0 0			Carbon Disulfide	SOLID		<1.6080E-01			0.1608	ug/Kg			U
1	BLNK	S1008300032		0 0			Carbon Tetrachloride	SOLID		<9.3400E-02			0.0934	ug/Kg			U
1	BLNK	S1008300032		0 0			Chloroform	SOLID		<1.3080E-01			0.1308	ug/Kg			U
1	BLNK	S1008300032		0 0			Chlorobenzene	SOLID		<8.6400E-02			0.0864	ug/Kg			U
1	BLNK	S1008300032		0 0			Ethylbenzene	SOLID		<1.0720E-01			0.1072	ug/Kg			U
1	BLNK	S1008300032		0 0			Xylenes (total)	SOLID		<2.0320E-01			0.2032	ug/Kg			U
1	BLNK	S1008300032		0 0			2-Butanone	SOLID		<1.9644E+00			1.9644	ug/Kg			U
1	BLNK	S1008300032		0 0			Methylene Chloride	SOLID		<6.3999E-02			0.063999	ug/Kg			U
1	BLNK	S1008300032		0 0			Tetrachloroethene	SOLID		<1.0980E-01			0.1098	ug/Kg			U
1	BLNK	S1008300032		0 0			Toluene	SOLID		2.0800E-01			0.080199	ug/Kg			J
1	BLNK	S1008300032		0 0			trans-1,3-Dichloropropene	SOLID		<2.7100E-01			0.271	ug/Kg			U
1	BLNK	S1008300032		0 0			Trichloroethene	SOLID		<1.2100E-01			0.121	ug/Kg			U
1	BLNK	S1008300032		0 0			Vinyl Chloride	SOLID		<1.7340E-01			0.1734	ug/Kg			U
1	BLNK	S1008300032		0 0			cis-Dichloroethylene	SOLID		<1.8160E-01			0.1816	ug/Kg			U
1	BLNK	S1008300032		0 0			trans-Dichloroethylene	SOLID		<3.0300E-01			0.303	ug/Kg			U
1	BLNK	S1008300032		0 0			112Trichloro-122Trifluoroethan	SOLID		<1.1620E-01			0.1162	ug/Kg			U
1	BLNK	S1008300032		0 0			2-Nitropropane	SOLID		<5.8800E-01			0.588	ug/Kg			U
1	BLNK	S1008300032		0 0			Ethyl acetate	SOLID		<5.8720E-01			0.5872	ug/Kg			U
1	BLNK	S1008300032		0 0			Diethyl ether	SOLID		<2.5620E-01			0.2562	ug/Kg			U
1	BLNK	S1008300032		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# 00021719

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
1	BLNK	S1008300032		0 0			o-Xylene	SOLID		<9.2000E-02			0.092	ug/Kg			U
1	BLNK	S1008300032		0 0			m,p-Xylene	SOLID		<1.6740E-01			0.1674	ug/Kg			U
1	BLNK	S1008300032		0 0			Styrene	SOLID		3.7110E-01			0.1266	ug/Kg			J
Sample Sequence 2																	
2	LCS	S1008300033		0 0			1,1-Dichloroethene	SOLID	20	2.0767E+01			0.4232	ug/Kg	103.84	% Recovery	
2	LCS	S1008300033		0 0			1-Butanol	SOLID	200	2.3426E+02			10.292	ug/Kg	117.13	% Recovery	
2	LCS	S1008300033		0 0			4-Methyl-2-pentanone	SOLID	100	1.1459E+02			1.708	ug/Kg	114.59	% Recovery	
2	LCS	S1008300033		0 0			Acetone	SOLID	100	1.0757E+02			2.1996	ug/Kg	107.57	% Recovery	
2	LCS	S1008300033		0 0			Benzene	SOLID	20	2.0558E+01			0.1474	ug/Kg	102.79	% Recovery	
2	LCS	S1008300033		0 0			Chlorobenzene	SOLID	20	2.0725E+01			0.0864	ug/Kg	103.62	% Recovery	
2	LCS	S1008300033		0 0			2-Butanone	SOLID	100	1.0951E+02			1.9644	ug/Kg	109.51	% Recovery	
2	LCS	S1008300033		0 0			Toluene	SOLID	20	2.0522E+01			0.080199	ug/Kg	102.61	% Recovery	
2	LCS	S1008300033		0 0			Trichloroethene	SOLID	20	2.0963E+01			0.121	ug/Kg	104.82	% Recovery	
Sample Sequence 3																	
3	SAMPLE	S10V002480		0 0			1,1,1-Trichloroethane	SOLID	N/A	<9.0551E-02			0.090551	ug/Kg			U
3	SAMPLE	S10V002480		0 0			1,1,2-Trichloroethane	SOLID	N/A	<1.6319E-01			0.16319	ug/Kg			U
3	SAMPLE	S10V002480		0 0			1,1,2,2-Tetrachloroethane	SOLID	N/A	<2.0827E-01			0.20827	ug/Kg			U
3	SAMPLE	S10V002480		0 0			1,1-Dichloroethene	SOLID	N/A	<4.1654E-01			0.41654	ug/Kg			U
3	SAMPLE	S10V002480		0 0			1,2-Dichloroethane	SOLID	N/A	<5.2952E-02			0.052952	ug/Kg			U
3	SAMPLE	S10V002480		0 0			1-Butanol	SOLID	N/A	<1.0130E+01			10.13	ug/Kg			U
3	SAMPLE	S10V002480		0 0			4-Methyl-2-pentanone	SOLID	N/A	<1.6811E+00			1.6811	ug/Kg			U
3	SAMPLE	S10V002480		0 0			Acetone	SOLID	N/A	<2.1650E+00			2.165	ug/Kg			U
3	SAMPLE	S10V002480		0 0			Benzene	SOLID	N/A	<1.4508E-01			0.14508	ug/Kg			U
3	SAMPLE	S10V002480		0 0			Carbon Disulfide	SOLID	N/A	<1.5827E-01			0.15827	ug/Kg			U
3	SAMPLE	S10V002480		0 0			Carbon Tetrachloride	SOLID	N/A	<9.1929E-02			0.091929	ug/Kg			U
3	SAMPLE	S10V002480		0 0			Chloroform	SOLID	N/A	<1.2874E-01			0.12874	ug/Kg			U
3	SAMPLE	S10V002480		0 0			Chlorobenzene	SOLID	N/A	<8.5039E-02			0.085039	ug/Kg			U
3	SAMPLE	S10V002480		0 0			Ethylbenzene	SOLID	N/A	<1.0551E-01			0.10551	ug/Kg			U
3	SAMPLE	S10V002480		0 0			Xylenes (total)	SOLID	N/A	<2.0000E-01			0.2	ug/Kg			U
3	SAMPLE	S10V002480		0 0			2-Butanone	SOLID	N/A	<1.9335E+00			1.9335	ug/Kg			U
3	SAMPLE	S10V002480		0 0			Methylene Chloride	SOLID	N/A	<6.2992E-02			0.062992	ug/Kg			U
3	SAMPLE	S10V002480		0 0			Tetrachloroethene	SOLID	N/A	<1.0807E-01			0.10807	ug/Kg			U
3	SAMPLE	S10V002480		0 0			Toluene	SOLID	N/A	4.7930E-01			0.078937	ug/Kg			BJ
3	SAMPLE	S10V002480		0 0			trans-1,3-Dichloropropene	SOLID	N/A	<2.6673E-01			0.26673	ug/Kg			U
3	SAMPLE	S10V002480		0 0			Trichloroethene	SOLID	N/A	<1.1909E-01			0.11909	ug/Kg			U
3	SAMPLE	S10V002480		0 0			Vinyl Chloride	SOLID	N/A	<1.7067E-01			0.17067	ug/Kg			U
3	SAMPLE	S10V002480		0 0			cis-Dichloroethylene	SOLID	N/A	<1.7874E-01			0.17874	ug/Kg			U
3	SAMPLE	S10V002480		0 0			trans-Dichloroethylene	SOLID	N/A	<2.9823E-01			0.29823	ug/Kg			U
3	SAMPLE	S10V002480		0 0			112Trichloro-122Trifluoroethan	SOLID	N/A	<1.1437E-01			0.11437	ug/Kg			U
3	SAMPLE	S10V002480		0 0			2-Nitropropane	SOLID	N/A	<5.7874E-01			0.57874	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# 00021719

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
3	SAMPLE	S10V002480		0 0			Ethyl acetate	SOLID	N/A	<5.7795E-01			0.57795	ug/Kg			U
3	SAMPLE	S10V002480		0 0			Diethyl ether	SOLID	N/A	<2.5216E-01			0.25216	ug/Kg			U
3	SAMPLE	S10V002480		0 0			Trichlorofluoromethane	SOLID	N/A	<9.2519E-02			0.092519	ug/Kg			U
3	SAMPLE	S10V002480		0 0			o-Xylene	SOLID	N/A	<9.0551E-02			0.090551	ug/Kg			U
3	SAMPLE	S10V002480		0 0			m,p-Xylene	SOLID	N/A	<1.6476E-01			0.16476	ug/Kg			U
3	SAMPLE	S10V002480		0 0			4-Bromofluorobenzene	SOLID	19.68503	1.9977E+01			0.13071	ug/Kg	101.48	% Recovery	
3	SAMPLE	S10V002480		0 0			Dibromofluoromethane	SOLID	19.68503	2.1258E+01			0.17795	ug/Kg	107.99	% Recovery	
3	SAMPLE	S10V002480		0 0			1,2-Dichloroethane-d4	SOLID	19.68503	2.2003E+01			0.18858	ug/Kg	111.78	% Recovery	
3	SAMPLE	S10V002480		0 0			Toluene-d8	SOLID	19.68503	1.9962E+01			0.1687	ug/Kg	101.41	% Recovery	
3	SAMPLE	S10V002480		0 0			Styrene	SOLID	N/A	3.2670E-01			0.12461	ug/Kg			BJ
3	SAMPLE	S10V002480		0 0			1-Hexanol, 2-ethyl-	SOLID		6.3650745				ug/Kg			JNT
3	SAMPLE	S10V002480		0 0			2-Octanone	SOLID	N/A	4.5768482				ug/Kg			JNT
3	SAMPLE	S10V002480		0 0			3-Heptanone	SOLID	N/A	2.5488568				ug/Kg			JNT
3	SAMPLE	S10V002480		0 0			Unknown-1	SOLID		0.9265983				ug/Kg			JT
3	SAMPLE	S10V002480		0 0			Unknown-2	SOLID		1.2736069				ug/Kg			JT
Sample Sequence 4																	
4	SAMPLE	S10V001866		0 0			1,1,1-Trichloroethane	SOLID	N/A	<7.5782E-02			0.075782	ug/Kg			U
4	SAMPLE	S10V001866		0 0			1,1,2-Trichloroethane	SOLID	N/A	<1.3657E-01			0.13657	ug/Kg			U
4	SAMPLE	S10V001866		0 0			1,1,2,2-Tetrachloroethane	SOLID	N/A	<1.7430E-01			0.1743	ug/Kg			U
4	SAMPLE	S10V001866		0 0			1,1-Dichloroethene	SOLID	N/A	<3.4860E-01			0.3486	ug/Kg			U
4	SAMPLE	S10V001866		0 0			1,2-Dichloroethane	SOLID	N/A	<4.4316E-02			0.044316	ug/Kg			U
4	SAMPLE	S10V001866		0 0			1-Butanol	SOLID	N/A	<8.4778E+00			8.4778	ug/Kg			U
4	SAMPLE	S10V001866		0 0			4-Methyl-2-pentanone	SOLID	N/A	<1.4069E+00			1.4069	ug/Kg			U
4	SAMPLE	S10V001866		0 0			Acetone	SOLID	N/A	<1.8119E+00			1.8119	ug/Kg			U
4	SAMPLE	S10V001866		0 0			Benzene	SOLID	N/A	<1.2142E-01			0.12142	ug/Kg			U
4	SAMPLE	S10V001866		0 0			Carbon Disulfide	SOLID	N/A	<1.3245E-01			0.13245	ug/Kg			U
4	SAMPLE	S10V001866		0 0			Carbon Tetrachloride	SOLID	N/A	<7.6935E-02			0.076935	ug/Kg			U
4	SAMPLE	S10V001866		0 0			Chloroform	SOLID	N/A	<1.0774E-01			0.10774	ug/Kg			U
4	SAMPLE	S10V001866		0 0			Chlorobenzene	SOLID	N/A	<7.1169E-02			0.071169	ug/Kg			U
4	SAMPLE	S10V001866		0 0			Ethylbenzene	SOLID	N/A	<8.8303E-02			0.088303	ug/Kg			U
4	SAMPLE	S10V001866		0 0			Xylenes (total)	SOLID	N/A	<1.6738E-01			0.16738	ug/Kg			U
4	SAMPLE	S10V001866		0 0			2-Butanone	SOLID	N/A	<1.6181E+00			1.6181	ug/Kg			U
4	SAMPLE	S10V001866		0 0			Methylene Chloride	SOLID	N/A	<5.2718E-02			0.052718	ug/Kg			U
4	SAMPLE	S10V001866		0 0			Tetrachloroethene	SOLID	N/A	<9.0444E-02			0.090444	ug/Kg			U
4	SAMPLE	S10V001866		0 0			Toluene	SOLID	N/A	2.6710E-01			0.066062	ug/Kg			BJ
4	SAMPLE	S10V001866		0 0			trans-1,3-Dichloropropene	SOLID	N/A	<2.2323E-01			0.22323	ug/Kg			U
4	SAMPLE	S10V001866		0 0			Trichloroethene	SOLID	N/A	<9.9670E-02			0.09967	ug/Kg			U
4	SAMPLE	S10V001866		0 0			Vinyl Chloride	SOLID	N/A	<1.4283E-01			0.14283	ug/Kg			U
4	SAMPLE	S10V001866		0 0			cis-Dichloroethylene	SOLID	N/A	<1.4959E-01			0.14959	ug/Kg			U
4	SAMPLE	S10V001866		0 0			trans-Dichloroethylene	SOLID	N/A	<2.4959E-01			0.24959	ug/Kg			U

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LABCORE Completed Batch Report for Batch# 00021719

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
4	SAMPLE	S10V001866		0 0			112Trichloro-122Trifluoroethan	SOLID	N/A	<9.5716E-02			0.095716	ug/Kg			U
4	SAMPLE	S10V001866		0 0			2-Nitropropane	SOLID	N/A	<4.8435E-01			0.48435	ug/Kg			U
4	SAMPLE	S10V001866		0 0			Ethyl acetate	SOLID	N/A	<4.8369E-01			0.48369	ug/Kg			U
4	SAMPLE	S10V001866		0 0			Diethyl ether	SOLID	N/A	<2.1104E-01			0.21104	ug/Kg			U
4	SAMPLE	S10V001866		0 0			Trichlorofluoromethane	SOLID	N/A	<7.7429E-02			0.077429	ug/Kg			U
4	SAMPLE	S10V001866		0 0			o-Xylene	SOLID	N/A	<7.5782E-02			0.075782	ug/Kg			U
4	SAMPLE	S10V001866		0 0			m,p-Xylene	SOLID	N/A	<1.3789E-01			0.13789	ug/Kg			U
4	SAMPLE	S10V001866		0 0			4-Bromofluorobenzene	SOLID	16.47446	1.7266E+01			0.10939	ug/Kg	104.8	% Recovery	
4	SAMPLE	S10V001866		0 0			Dibromofluoromethane	SOLID	16.47446	1.7715E+01			0.14893	ug/Kg	107.53	% Recovery	
4	SAMPLE	S10V001866		0 0			1,2-Dichloroethane-d4	SOLID	16.47446	1.8890E+01			0.15782	ug/Kg	114.66	% Recovery	
4	SAMPLE	S10V001866		0 0			Toluene-d8	SOLID	16.47446	1.6838E+01			0.14119	ug/Kg	102.21	% Recovery	
4	SAMPLE	S10V001866		0 0			Styrene	SOLID	N/A	3.0850E-01			0.10428	ug/Kg			BJ
4	SAMPLE	S10V001866		0 0			Unknown-1	SOLID		5.3728307				ug/Kg			JT
Sample Sequence 5																	
5	MS	S1008300035	S10V001866	0 0			1,1-Dichloroethene	SOLID	17.60563	1.8598E+01			0.37254	ug/Kg	105.64	% Recovery	
5	MS	S1008300035	S10V001866	0 0			1-Butanol	SOLID	176.0563	1.6875E+02			9.0599	ug/Kg	95.85	% Recovery	
5	MS	S1008300035	S10V001866	0 0			4-Methyl-2-pentanone	SOLID	88.02816	1.2109E+02			1.5035	ug/Kg	137.56	% Recovery	
5	MS	S1008300035	S10V001866	0 0			Acetone	SOLID	88.02816	1.0641E+02			1.9363	ug/Kg	120.88	% Recovery	
5	MS	S1008300035	S10V001866	0 0			Benzene	SOLID	17.60563	1.8384E+01			0.12975	ug/Kg	104.42	% Recovery	
5	MS	S1008300035	S10V001866	0 0			Chlorobenzene	SOLID	17.60563	1.7832E+01			0.076056	ug/Kg	101.29	% Recovery	
5	MS	S1008300035	S10V001866	0 0			2-Butanone	SOLID	88.02816	1.0878E+02			1.7292	ug/Kg	123.57	% Recovery	
5	MS	S1008300035	S10V001866	0 0			Toluene	SOLID	17.60563	1.8169E+01			0.070598	ug/Kg	101.68	% Recovery	
5	MS	S1008300035	S10V001866	0 0			Trichloroethene	SOLID	17.60563	1.7569E+01			0.10651	ug/Kg	99.792	% Recovery	
Sample Sequence 6																	
6	MSD	S1008300036	S10V001866	0 0			1,1-Dichloroethene	SOLID	19.30501	2.0441E+01			0.40849	ug/Kg	105.88	% Recovery	
															0.22693	% RPD	
6	MSD	S1008300036	S10V001866	0 0			1-Butanol	SOLID	193.0501	1.9011E+02			9.9344	ug/Kg	98.477	% Recovery	
															2.7037	% RPD	
6	MSD	S1008300036	S10V001866	0 0			4-Methyl-2-pentanone	SOLID	96.52509	1.3977E+02			1.6486	ug/Kg	144.8	% Recovery	
															5.1282	% RPD	
6	MSD	S1008300036	S10V001866	0 0			Acetone	SOLID	96.52509	1.1884E+02			2.1232	ug/Kg	123.12	% Recovery	
															1.8361	% RPD	
6	MSD	S1008300036	S10V001866	0 0			Benzene	SOLID	19.30501	2.0669E+01			0.14228	ug/Kg	107.07	% Recovery	
															2.5060	% RPD	
6	MSD	S1008300036	S10V001866	0 0			Chlorobenzene	SOLID	19.30501	1.9033E+01			0.083397	ug/Kg	98.591	% Recovery	
															2.7006	% RPD	
6	MSD	S1008300036	S10V001866	0 0			2-Butanone	SOLID	96.52509	1.2805E+02			1.8961	ug/Kg	132.66	% Recovery	
															7.0952	% RPD	
6	MSD	S1008300036	S10V001866	0 0			Toluene	SOLID	19.30501	1.9555E+01			0.077413	ug/Kg	99.911	% Recovery	
															1.7550	% RPD	
6	MSD	S1008300036	S10V001866	0 0			Trichloroethene	SOLID	19.30501	1.9442E+01			0.1168	ug/Kg	100.71	% Recovery	
															0.91570	% RPD	

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LABCORE Completed Batch Report for Batch# 00021719

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 7																	
7	SAMPLE	S10V001883		0 0			1,1,1-Trichloroethane	SOLID	N/A	<7.6033E-02			0.076033	ug/Kg			U
7	SAMPLE	S10V001883		0 0			1,1,2-Trichloroethane	SOLID	N/A	<1.3702E-01			0.13702	ug/Kg			U
7	SAMPLE	S10V001883		0 0			1,1,2,2-Tetrachloroethane	SOLID	N/A	<1.7488E-01			0.17488	ug/Kg			U
7	SAMPLE	S10V001883		0 0			1,1-Dichloroethene	SOLID	N/A	<3.4975E-01			0.34975	ug/Kg			U
7	SAMPLE	S10V001883		0 0			1,2-Dichloroethane	SOLID	N/A	<4.4462E-02			0.044462	ug/Kg			U
7	SAMPLE	S10V001883		0 0			1-Butanol	SOLID	N/A	<8.5058E+00			8.5058	ug/Kg			U
7	SAMPLE	S10V001883		0 0			4-Methyl-2-pentanone	SOLID	N/A	<1.4116E+00			1.4116	ug/Kg			U
7	SAMPLE	S10V001883		0 0			Acetone	SOLID	N/A	<1.8179E+00			1.8179	ug/Kg			U
7	SAMPLE	S10V001883		0 0			Benzene	SOLID	N/A	<1.2182E-01			0.12182	ug/Kg			U
7	SAMPLE	S10V001883		0 0			Carbon Disulfide	SOLID	N/A	<1.3289E-01			0.13289	ug/Kg			U
7	SAMPLE	S10V001883		0 0			Carbon Tetrachloride	SOLID	N/A	<7.7190E-02			0.07719	ug/Kg			U
7	SAMPLE	S10V001883		0 0			Chloroform	SOLID	N/A	<1.0810E-01			0.1081	ug/Kg			U
7	SAMPLE	S10V001883		0 0			Chlorobenzene	SOLID	N/A	<7.1404E-02			0.071404	ug/Kg			U
7	SAMPLE	S10V001883		0 0			Ethylbenzene	SOLID	N/A	<8.8595E-02			0.088595	ug/Kg			U
7	SAMPLE	S10V001883		0 0			Xylenes (total)	SOLID	N/A	<1.6793E-01			0.16793	ug/Kg			U
7	SAMPLE	S10V001883		0 0			2-Butanone	SOLID	N/A	<1.6235E+00			1.6235	ug/Kg			U
7	SAMPLE	S10V001883		0 0			Methylene Chloride	SOLID	N/A	<5.2892E-02			0.052892	ug/Kg			U
7	SAMPLE	S10V001883		0 0			Tetrachloroethene	SOLID	N/A	<9.0743E-02			0.090743	ug/Kg			U
7	SAMPLE	S10V001883		0 0			Toluene	SOLID	N/A	2.5760E-01			0.06628	ug/Kg			BJ
7	SAMPLE	S10V001883		0 0			trans-1,3-Dichloropropene	SOLID	N/A	<2.2397E-01			0.22397	ug/Kg			U
7	SAMPLE	S10V001883		0 0			Trichloroethene	SOLID	N/A	<1.0000E-01			0.1	ug/Kg			U
7	SAMPLE	S10V001883		0 0			Vinyl Chloride	SOLID	N/A	<1.4330E-01			0.1433	ug/Kg			U
7	SAMPLE	S10V001883		0 0			cis-Dichloroethylene	SOLID	N/A	<1.5008E-01			0.15008	ug/Kg			U
7	SAMPLE	S10V001883		0 0			trans-Dichloroethylene	SOLID	N/A	<2.5041E-01			0.25041	ug/Kg			U
7	SAMPLE	S10V001883		0 0			112Trichloro-122Trifluoroethan	SOLID	N/A	<9.6033E-02			0.096033	ug/Kg			U
7	SAMPLE	S10V001883		0 0			2-Nitropropane	SOLID	N/A	<4.8595E-01			0.48595	ug/Kg			U
7	SAMPLE	S10V001883		0 0			Ethyl acetate	SOLID	N/A	<4.8529E-01			0.48529	ug/Kg			U
7	SAMPLE	S10V001883		0 0			Diethyl ether	SOLID	N/A	<2.1174E-01			0.21174	ug/Kg			U
7	SAMPLE	S10V001883		0 0			Trichlorofluoromethane	SOLID	N/A	<7.7685E-02			0.077685	ug/Kg			U
7	SAMPLE	S10V001883		0 0			o-Xylene	SOLID	N/A	<7.6033E-02			0.076033	ug/Kg			U
7	SAMPLE	S10V001883		0 0			m,p-Xylene	SOLID	N/A	<1.3835E-01			0.13835	ug/Kg			U
7	SAMPLE	S10V001883		0 0			4-Bromofluorobenzene	SOLID	16.52892	1.7509E+01			0.10975	ug/Kg	105.93	% Recovery	
7	SAMPLE	S10V001883		0 0			Dibromofluoromethane	SOLID	16.52892	1.9240E+01			0.14942	ug/Kg	116.4	% Recovery	
7	SAMPLE	S10V001883		0 0			1,2-Dichloroethane-d4	SOLID	16.52892	1.9859E+01			0.15835	ug/Kg	120.15	% Recovery	
7	SAMPLE	S10V001883		0 0			Toluene-d8	SOLID	16.52892	1.6478E+01			0.14165	ug/Kg	99.692	% Recovery	

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LABCORE Completed Batch Report for Batch# 00021719

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00021719

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# 00021719

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1008300032	BLNK				
2	S1008300033	LCS				
3	S10V002480	SAMPLE		20100660	B26C62	C Farm WMC 2010-2
4	S10V001866	SAMPLE		20100584	B26JL8	C Farm WMC 2010-2
5	S1008300035	MS	S10V001866			
6	S1008300036	MSD	S10V001866			
7	S10V001883	SAMPLE		20100584	B26JL9	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

VOA Batch #21719

FORM 2

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 100827_CFARM

Level:(low/med) LOW

	CLIENT SAMPLE NO.	SMC1 #	SMC2 (DCE)#	SMC3 (TOL)#	OTHER (BFB)#	TOT OUT
01	CCB	108	111	105	107	0
02	LCS	109	114	105	105	0
03						
04						
05						
06						
07						
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

		QC LIMITS
SMC1	= Dibromofluoromethane	(77-129)
SMC2 (DCE)	= 1,2-Dichloroethane-d4	(73-140)
SMC3 (TOL)	= Toluene-d8	(70-126)
OTHER(BFB)	= Bromofluorobenzene	(79-125)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

VOA Batch #21719

FORM 2

SOIL VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 100827_CFARM

Level:(low/med) LOW

	CLIENT SAMPLE NO.	SMC1 #	SMC2 (DCE)#	SMC3 (TOL)#	OTHER (BFB)#	TOT OUT
01	S10V002480	108	112	101	101	0
02	S10V001866	108	115	102	105	0
03	S10V001866MS	113	118	103	104	0
04	S10V001866MS	115	123	104	105	0
05	S10V001883	116	120	100	106	0
06						
07						
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

		QC LIMITS
SMC1	= Dibromofluoromethane	(74-126)
SMC2 (DCE)	= 1,2-Dichloroethane-d4	(78-133)
SMC3 (TOL)	= Toluene-d8	(74-128)
OTHER(BFB)	= Bromofluorobenzene	(64-144)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

VOA Batch #21719

FORM 3
SOIL VOLATILE LAB CONTROL SAMPLE

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: 100827_CFARM

Matrix Spike - 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.
1,1-Dichloroethene	20.000		20.767	104	66-141
Acetone	100.00		107.57	108	58-135
2-Butanone	100.00		109.51	110	50-149
n-Butanol	200.00		234.26	117	53-148
Benzene	20.000		20.558	103	70-126
Trichloroethene	20.000		20.963	105	71-127
Methyl Isobutyl Ketone	100.00		114.59	114	61-145
Toluene	20.000		20.522	103	71-125
2-Hexanone	100.00		116.72	117	59-148
Chlorobenzene	20.000		20.725	104	81-120

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 10 outside limits

COMMENTS: _____

Date: 21 June 2011
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: WMA C
Subject: Semivolatile Organics - Sample Data Group (SDG) 20100660

INTRODUCTION

This memorandum presents the results of data validation for SDG 2010060 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
B26C59	8/24/2010	Soil	C	8270C
B26JL0	8/17/2010	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 were non-detects and should be qualified as estimates and flagged "UJ."

For batch 21694, the MS and/or MSD recoveries for 1,2,4-trichlorobenzene, acenaphthene, 4-chloro-3-methylphenol and n-nitroso-di-n-dipropylamine were below the lower acceptance limits. The 1,2,4-trichlorobenzene, acenaphthene, fluoranthene, naphthalene, 4-chloro-3-methylphenol and n-nitroso-di-n-dipropylamine results for sample B26C59 were non-detects and should be qualified as estimates and flagged "UJ."

For batch 22129, the MS and/or 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 B26JL0 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.

For both batches, 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 were non-detects and should be qualified as estimates and flagged "UJ."

For batch 21694, 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 B26C59 were non-detects and should be qualified as estimates and flagged "UJ."

For batch 22129, the LCS recoveries for 1,2,4-trichlorobenzene and n-nitroso-di-n-dipropylamine were below the lower acceptance limits. The 1,2,4-trichlorobenzene and n-nitroso-di-n-dipropylamine results for sample B26JL0 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 20100660 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: 20100660	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 bis(2-ethylhexyl)phthalate butylbenzylphthalate di-n-butylphthalate di-n-octylphthalate 2-methylphenol 3&4-methylphenol total methylphenols 2-nitrophenol hexachlorobutadiene hexachloroethane 1,2-dichlorobenzene	UJ	B26C59, B26JL0	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	B26C59, B26JL0	Low LCS and/or MS and/or MSD recoveries

Comments: None

Appendix 3

Annotated Laboratory Reports

Data Summary Report

Sample Group: 20100660
Core Number: C7682
Customer Sample ID: B26C59
Sample Depth: 88-90

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002467			%WATERA	%WATER-APD		%	n/a	n/a	4.150	n/a	n/a	n/a	n/a	0.01000	n/a	
S10V002467			57-12-5	Cyanide		ug/g	105	<0.0370	<2.58	n/a	n/a	n/a	n/a	2.58	n/a	U
S10V002467			7439-97-6	Mercury		ug/g	87.7	<1.00E-04	<9.63E-03	n/a	n/a	n/a	n/a	9.63E-03	n/a	U
S10V002467			PH	pH		unitless	n/a	n/a	8.59	n/a	n/a	n/a	n/a	0.0100	n/a	
S10V002467			12597-04-5	Sulfide		ug/g	96.1	<0.180	8.04	n/a	n/a	n/a	n/a	7.10	n/a	B
S10V002468			13966-00-2	Potassium-40		uCi/g	n/a	n/a	1.88E-05	1.76E-05	n/a	n/a	n/a	7.75E-06	28.59	
S10V002468			10198-40-0	Cobalt-60		uCi/g	98.2	<3.92E-07	<3.95E-07	<3.81E-07	n/a	n/a	n/a	3.95E-07	n/a	U
S10V002468			14234-35-6	Antimony-125		uCi/g	n/a	<1.02E-06	<1.05E-06	<1.02E-06	n/a	n/a	n/a	1.05E-06	n/a	U
S10V002468			10045-97-3	Cesium-137		uCi/g	100	<5.19E-07	<5.86E-07	<5.37E-07	n/a	n/a	n/a	5.86E-07	n/a	U
S10V002468			14683-23-9	Europium-152		uCi/g	n/a	<1.88E-06	<1.92E-06	<1.99E-06	n/a	n/a	n/a	1.92E-06	n/a	U
S10V002468			15585-10-1	Europium-154		uCi/g	n/a	<1.08E-06	<1.38E-06	<1.19E-06	n/a	n/a	n/a	1.38E-06	n/a	U
S10V002468			14391-16-3	Europium-155		uCi/g	n/a	<9.28E-07	<1.03E-06	<1.02E-06	n/a	n/a	n/a	1.03E-06	n/a	U
S10V002468			14274-82-9	Thorium-228		uCi/g	n/a	<2.19E-05	<2.43E-05	<2.43E-05	n/a	n/a	n/a	2.43E-05	n/a	U
S10V002468			15065-10-8	Thorium-234		uCi/g	n/a	<1.82E-05	<2.01E-05	<1.87E-05	n/a	n/a	n/a	2.01E-05	n/a	U
S10V002468			15046-84-1	Iodine-129		uCi/g	113	<1.93E-07	<1.65E-07	n/a	n/a	n/a	n/a	1.65E-07	n/a	U
S10V002469		WV	14133-76-7	Technetium-99		ug/g	110	<3.00E-06	<3.02E-06	n/a	n/a	n/a	n/a	3.02E-06	n/a	U
S10V002470		W	14762-75-5	Carbon-14		uCi/g	92.4	<1.33E-07	<1.31E-06	n/a	n/a	n/a	n/a	1.31E-06	n/a	U
S10V002470		W	10028-17-8	Tritium		uCi/g	94.7	<4.95E-06	2.68E-06	n/a	n/a	n/a	n/a	2.50E-06	164.945	
S10V002471		A	7440-36-0	Antimony		ug/g	99.9	<2.00E-04	0.170	n/a	n/a	n/a	n/a	9.84E-03	n/a	
S10V002472		O	120-82-1	1,2,4-Trichlorobenzene	UJ	ug/kg	60.8	<77.4	<76.5	n/a	n/a	n/a	n/a	76.5	n/a	U
S10V002472		O	95-50-1	1,2-Dichlorobenzene	UJ	ug/kg	n/a	<101	<99.5	n/a	n/a	n/a	n/a	99.5	n/a	U
S10V002472		O	121-14-2	2,4-Dinitrotoluene		ug/kg	80.2	<38.1	<37.7	n/a	n/a	n/a	n/a	37.7	n/a	U
S10V002472		O	95-95-4	2,4,5-Trichlorophenol	UJ	ug/kg	n/a	<44.0	<43.5	n/a	n/a	n/a	n/a	43.5	n/a	U
S10V002472		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
S10V002472		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
S10V002472		O	88-75-5	2-Nitrophenol	UJ	ug/kg	n/a	<53.7	<53.1	n/a	n/a	n/a	n/a	53.1	n/a	U
S10V002472		O	65794-96-9	3 &4 Methylphenol	UJ	ug/kg	n/a	<51.4	<50.8	n/a	n/a	n/a	n/a	50.8	n/a	U
S10V002472		O	83-32-9	Acenaphthene	UJ	ug/kg	68.8	<17.6	<17.4	n/a	n/a	n/a	n/a	17.4	n/a	U
S10V002472		O	56-55-3	Benzo(a)anthracene		ug/kg	n/a	<37.8	<37.4	n/a	n/a	n/a	n/a	37.4	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
J - Estimated
B - Blank Contamination
X - Comment

LS
6-21-2011

M - RPD Outside Range
C - Blank Contamination
B - Estimated
N - MS/MSD Outside Range

Data Summary Report

Sample Group: 20100660
Core Number: C7682
Customer Sample ID: B26C59
Sample Depth: 88-90

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002472		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
S10V002472		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
S10V002472		O	117-81-7	Bis(2-ethylhexyl) phthalate	UJ	ug/kg	n/a	<590	<583	n/a	n/a	n/a	n/a	583	n/a	U
S10V002472		O	207-08-9	Benzo(k)fluoranthene		ug/kg	n/a	<39.1	<38.7	n/a	n/a	n/a	n/a	38.7	n/a	U
S10V002472		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
S10V002472		O	59-50-7	4-Chloro-3-methylphenol	UJ	ug/kg	62.4	<43.2	<42.7	n/a	n/a	n/a	n/a	42.7	n/a	U
S10V002472		O	95-57-8	2-Chlorophenol	UJ	ug/kg	67.6	<66.5	<65.7	n/a	n/a	n/a	n/a	65.7	n/a	U
S10V002472		O	218-01-9	Chrysene		ug/kg	n/a	<81.4	<80.5	n/a	n/a	n/a	n/a	80.5	n/a	U
S10V002472		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
S10V002472		O	84-74-2	Di-n-butylphthalate	UJ	ug/kg	n/a	<562	<556	n/a	n/a	n/a	n/a	556	n/a	U
S10V002472		O	117-84-0	Di-n-octylphthalate	UJ	ug/kg	n/a	<47.7	<47.2	n/a	n/a	n/a	n/a	47.2	n/a	U
S10V002472		O	621-64-7	N-Nitroso-di-n-dipropylamine	UJ	ug/kg	61.9	<58.1	<57.4	n/a	n/a	n/a	n/a	57.4	n/a	U
S10V002472		O	206-44-0	Fluoranthene	UJ	ug/kg	n/a	<35.4	<35.0	n/a	n/a	n/a	n/a	35.0	n/a	U
S10V002472		O	87-68-3	Hexachlorobutadiene	UJ	ug/kg	n/a	<69.7	<68.9	n/a	n/a	n/a	n/a	68.9	n/a	U
S10V002472		O	67-72-1	Hexachloroethane	UJ	ug/kg	n/a	<112	<111	n/a	n/a	n/a	n/a	111	n/a	U
S10V002472		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
S10V002472		O	91-20-3	Naphthalene	UJ	ug/kg	n/a	<62.6	<61.9	n/a	n/a	n/a	n/a	61.9	n/a	U
S10V002472		O	98-95-3	Nitrobenzene		ug/kg	n/a	<64.6	<63.9	n/a	n/a	n/a	n/a	63.9	n/a	U
S10V002472		O	129-00-0	Pyrene		ug/kg	80.1	<62.9	<62.2	n/a	n/a	n/a	n/a	62.2	n/a	U
S10V002472		O	110-86-1	Pyridine	UJ	ug/kg	n/a	<65.0	<64.3	n/a	n/a	n/a	n/a	64.3	n/a	U
S10V002472		O	126-73-8	Tributyl phosphate	UJ	ug/kg	n/a	<108	<107	n/a	n/a	n/a	n/a	107	n/a	U
S10V002472		O	128-37-0	BHT		ug/kg	n/a	<236	<233	n/a	n/a	n/a	n/a	233	n/a	U
S10V002472		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
S10V002472		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
S10V002472		O	108-94-1	Cyclohexanone	UJ	ug/kg	n/a	<558	<552	n/a	n/a	n/a	n/a	552	n/a	U
S10V002472		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
S10V002472		O	78-83-1	Isobutanol	UJ	ug/kg	n/a	<460	<455	n/a	n/a	n/a	n/a	455	n/a	U
~~S10V002473~~		~~W~~	~~16984-48-8~~	~~Fluoride~~		~~ug/g~~	~~98.6~~	~~<1.61E-03~~	~~0.739~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.0160~~	~~n/a~~	
~~S10V002473~~		~~W~~	~~GLYCOLAT~~	~~Glycolate~~		~~ug/g~~	~~98.0~~	~~<9.37E-03~~	~~<0.0933~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.0933~~	~~n/a~~	~~U~~

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
J - Estimated
B - Blank Contamination
X - Comment

LS
6-21-2011

M - RPD Outside Range
C - Blank Contamination
B - Estimated
N - MS/MSD Outside Range

Data Summary Report

Sample Group: 20100660
Core Number: C7682
Customer Sample ID: B26JL0
Sample Depth: Surface

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002280			%WATERA	%WATER-APD		%	n/a	n/a	4.880	n/a	n/a	n/a	n/a	0.01000	n/a	
S10V002280			57-12-5	Cyanide		ug/g	96.5	<0.0370	<2.66	<2.65	n/a	n/a	74.4	2.66	n/a	UN
S10V002280			7439-97-6	Mercury		ug/g	100	<1.00E-04	<9.16E-03	n/a	n/a	n/a	101	9.16E-03	n/a	U
S10V002280			PH	pH		unitless	n/a	n/a	9.37	n/a	n/a	n/a	n/a	0.0100	n/a	
S10V002280			12597-04-5	Sulfide		ug/g	95.5	<0.180	10.2	10.4	10.3	1.85	97.2	7.12	n/a	B
S10V002281			13966-00-2	Potassium-40		uCi/g	n/a	n/a	2.00E-05	n/a	n/a	n/a	n/a	7.73E-06	26.95	
S10V002281			10198-40-0	Cobalt-60		uCi/g	98.2	<3.92E-07	<4.11E-07	n/a	n/a	n/a	n/a	4.11E-07	n/a	U
S10V002281			14234-35-6	Antimony-125		uCi/g	n/a	<1.02E-06	<9.85E-07	n/a	n/a	n/a	n/a	9.85E-07	n/a	U
S10V002281			10045-97-3	Cesium-137		uCi/g	100	<5.19E-07	<5.66E-07	n/a	n/a	n/a	n/a	5.66E-07	n/a	U
S10V002281			14683-23-9	Europium-152		uCi/g	n/a	<1.88E-06	<1.90E-06	n/a	n/a	n/a	n/a	1.90E-06	n/a	U
S10V002281			15585-10-1	Europium-154		uCi/g	n/a	<1.08E-06	<1.22E-06	n/a	n/a	n/a	n/a	1.22E-06	n/a	U
S10V002281			14391-16-3	Europium-155		uCi/g	n/a	<9.28E-07	<1.03E-06	n/a	n/a	n/a	n/a	1.03E-06	n/a	U
S10V002281			14274-82-9	Thorium-228		uCi/g	n/a	<2.19E-05	<2.48E-05	n/a	n/a	n/a	n/a	2.48E-05	n/a	U
S10V002281			15065-10-8	Thorium-234		uCi/g	n/a	<1.82E-05	<1.97E-05	n/a	n/a	n/a	n/a	1.97E-05	n/a	U
S10V002281			15046-84-1	Iodine-129		uCi/g	111	<1.83E-07	<1.55E-07	n/a	n/a	n/a	n/a	1.55E-07	n/a	U
S10V002282		WV	14133-76-7	Technetium-99		ug/g	110	<3.00E-06	<2.95E-06	n/a	n/a	n/a	n/a	2.95E-06	n/a	U
S10V002283		W	14762-75-5	Carbon-14		uCi/g	92.4	<1.33E-07	<1.39E-06	n/a	n/a	n/a	n/a	1.39E-06	n/a	U
S10V002283		W	10028-17-8	Tritium		uCi/g	94.7	<4.95E-06	<4.62E-06	n/a	n/a	n/a	n/a	4.62E-06	n/a	U
S10V002284		A	7440-36-0	Antimony		ug/g	99.9	<2.00E-04	0.207	0.191	0.199	8.07	81.1	9.43E-03	n/a	
S10V002285		O	120-82-1	1,2,4-Trichlorobenzene	UJ	ug/kg	65.7	<77.4	<77.4	n/a	n/a	n/a	n/a	77.4	n/a	U
S10V002285		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
S10V002285		O	121-14-2	2,4-Dinitrotoluene		ug/kg	89.9	<38.1	<38.1	n/a	n/a	n/a	n/a	38.1	n/a	U
S10V002285		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
S10V002285		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
S10V002285		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
S10V002285		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
S10V002285		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
S10V002285		O	83-32-9	Acenaphthene	UJ	ug/kg	75.0	<17.6	<17.6	n/a	n/a	n/a	n/a	17.6	n/a	U
S10V002285		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
J - Estimated
B - Blank Contamination
X - Comment
M - RPD Outside Range
C - Blank Contamination
B - Estimated
N - MS/MSD Outside Range

LS
6-21-2011

Data Summary Report

Sample Group: 20100660
Core Number: C7682
Customer Sample ID: B26JL0
Sample Depth: Surface

Sample#	R	A#	CAS #	Analyte		Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002285		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
S10V002285		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
S10V002285		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
S10V002285		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
S10V002285		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
S10V002285		O	59-50-7	4-Chloro-3-methylphenol	UJ	ug/kg	69.6	<43.2	<43.2	n/a	n/a	n/a	n/a	43.2	n/a	U
S10V002285		O	95-57-8	2-Chlorophenol	UJ	ug/kg	73.2	<66.5	<66.5	n/a	n/a	n/a	n/a	66.5	n/a	U
S10V002285		O	218-01-9	Chrysene		ug/kg	n/a	<81.4	<81.4	n/a	n/a	n/a	n/a	81.4	n/a	U
S10V002285		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
S10V002285		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
S10V002285		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
S10V002285		O	621-64-7	N-Nitroso-di-n-dipropylamine	UJ	ug/kg	66.9	<58.1	<58.1	n/a	n/a	n/a	n/a	58.1	n/a	U
S10V002285		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
S10V002285		O	87-68-3	Hexachlorobutadiene	UJ	ug/kg	n/a	<69.7	<69.7	n/a	n/a	n/a	n/a	69.7	n/a	U
S10V002285		O	67-72-1	Hexachloroethane	UJ	ug/kg	n/a	<112	<112	n/a	n/a	n/a	n/a	112	n/a	U
S10V002285		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
S10V002285		O	91-20-3	Naphthalene	UJ	ug/kg	n/a	<62.6	<62.6	n/a	n/a	n/a	n/a	62.6	n/a	U
S10V002285		O	98-95-3	Nitrobenzene		ug/kg	n/a	<64.6	<64.6	n/a	n/a	n/a	n/a	64.6	n/a	U
S10V002285		O	129-00-0	Pyrene		ug/kg	83.7	<62.9	<62.9	n/a	n/a	n/a	n/a	62.9	n/a	U
S10V002285		O	110-86-1	Pyridine	UJ	ug/kg	n/a	<65.0	<65.0	n/a	n/a	n/a	n/a	65.0	n/a	U
S10V002285		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
S10V002285		O	128-37-0	BHT		ug/kg	n/a	<236	<236	n/a	n/a	n/a	n/a	236	n/a	U
S10V002285		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
S10V002285		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
S10V002285		O	108-94-1	Cyclohexanone	UJ	ug/kg	n/a	<558	<558	n/a	n/a	n/a	n/a	558	n/a	U
S10V002285		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
S10V002285		O	78-83-1	Isobutanol	UJ	ug/kg	n/a	<460	<460	n/a	n/a	n/a	n/a	460	n/a	U
~~S10V002286~~		~~W~~	~~16984-48-8~~	~~Fluoride~~		~~ug/g~~	~~98.0~~	~~<1.61E-03~~	~~1.96~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.0161~~	~~n/a~~	
~~S10V002286~~		~~W~~	~~GLYCOLAT~~	~~Glycolate~~		~~ug/g~~	~~98.0~~	~~<9.37E-03~~	~~<0.0935~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.0935~~	~~n/a~~	~~U~~

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
J - Estimated
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X - Comment

LS
6-21-2011

M - RPD Outside Range
C - Blank Contamination
B - Estimated
N - 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 C7682 IN SUPPORT OF RCRA SOIL CHARACTERIZATION OF THE VADOSE ZONE

1.0 INTRODUCTION

This final report presents the results for the samples taken from Waste Management Area C between August 17, 2010 and August 25, 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 QC Results
Attachment 5	Tentatively Identified Compounds (TIC) for Organic Analyses
Attachment 6	Analytical Batch and Laboratory Sample Identification Number Index
Attachment 7	Geological Report
Attachment 8	Characterization Change Notices (CCN) and Correspondence
Attachment 9	Receipt Paperwork
Appendix A	Analytical Report for Analysis Performed at the Waste Sampling and Characterization Facility (WSCF) - Metals Analysis

2.0 SAMPLE RECEIPT AND BREAKDOWN

2.1 SAMPLE RECEIPT

A total of eight core intervals and two surface grab samples from core hole C7682 along with nine field blanks, six trip blanks, and one equipment blank were received by the 222-S Laboratory between August 17, 2010 and August 25, 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 8).

In order to facilitate shipping, the 222-S Laboratory personnel store the field blank sample containers designated for offsite laboratories in a small refrigerator in the sample receipt area, which is outside the laboratory's radiological contamination area. This refrigerator exceeded its lower temperature range, and one of the three 1-liter sample containers for polychlorinated biphenyl analysis and one of the two 1-liter sample containers for pesticides and the monobutyl and dibutyl phosphate analysis froze and cracked. This resulted in the monobutyl and dibutyl phosphate analysis not being performed for the equipment blank. The issue with the refrigerator freezing samples has been resolved.

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 7. 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 and was combined with interval I003 (see Attachment 2 and Attachment 9). The sample material recovered from I002 was used for the VOA sample liners, and shoe samples from interval I003 were used to make the composite sample.

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%.

"X" for comment on VOA, see Section 3.4.1, Batch 21533.

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, liner composite samples, and the equipment blank. 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 the current laboratory procedure (lachet micro-distillation) is reporting.

Batches 21785 and 21829: There were no notable quality control (QC) issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batches 22013 and 22014: The MS for these batches exceed the ±25% at 43% and 74%. These samples were batched with samples from a separate vadose project for which the MSs were within the required range. Since the MS for the C Farm sample failed twice, it is the laboratory's opinion that there is a matrix interference. All affected sample results have been flagged with an "N". For batch 22013 the LLS was recovered outside the ±30% limit at 28% recovery. This could indicate a low bias for results near the LLS level. All sample results in this batch were below the MDL.

3.2.2 Sulfide

Sulfide analysis by distillation and ion selective electrode was performed on the grab samples, liner composite samples, and the equipment blank. 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 solid 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, liner composite samples, and the equipment blank. 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 sample compositing was performed. The sampling to analysis time varied from 1 to 34 days for the solid samples (see Attachment 3) and 15 hours for the liquid sample. There was 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 holding 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, liner composite samples, and the equipment blank. 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, liner composite samples, and the equipment blank. 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.

Batch 21436: 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 21540: Ammonium was detected in the preparation blanks at a level below the quantitation limit and above the MDL. Ammonium was also detected in all but one of the samples below the quantitation limit and less than 5 times the level of the blank; therefore, these results have been flagged with a “C”. Ammonium was also detected in one sample above the quantitation limit but at more than 5 times the level of the blank; therefore, this result has not been flagged with a “C”.

Batch 21732: Ammonium was detected in the preparation blanks at a level below the quantitation limit and above the MDL. Ammonium was also detected the samples above the quantitation limit and less than 5 times the level of the blank; therefore, these results have been flagged with a “C”.

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 at a similar level; therefore, the result has been flagged with a “C”. The RPD was above the ±30% requirement. However, since the result was below the quantitation limit this criterion did not apply.

3.2.6 Ion Chromatography – Anions and Small Organic Acids

Ion chromatography analysis was performed on all grab samples, liner composite samples, and the equipment blank. 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.

Fluoride was detected in the equipment blank above the quantitation limit. Since fluoride is commonly found in drinking water, the laboratory believes the most likely source of the fluoride was probably the water used by field personnel to make the equipment blank.

Batch 21524: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batch 22189: The RPD for oxalate exceeded the ±30% requirement in the FSAP at 139%. The laboratory believes this is likely due to sample nonhomogeneity. Since the result for the duplicate was below the quantitation limit, reanalysis was not required and no flag has been applied. The high sample result for oxalate is anomalous for vadose soil.

Batch 22897: The RPD for sulfate exceeded the ±30% requirement in the FSAP at 34%. The laboratory believes this is likely due to sample nonhomogeneity. This was discussed with the client, and the laboratory was instructed to report the result with this narration (see Attachment 8). The RPDs for nitrite and oxalate exceeded the ±30% requirement in the FSAP. Since the results for both analytes were below the quantitation limit, this criteria does not apply. A low level of nitrite was detected in the preparation blank, and the result has been flagged with a "C". Since both blank and sample results were below the quantitation limit, reanalysis was not required.

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, liner composite samples, and the equipment blank. 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 22570: The interference check standard-A (ICSA) produced positive results for arsenic, cadmium, selenium, manganese, and nickel. Since the sample results for these elements were below the MDL and the interference check sample AB (ICSAB) recoveries were within the required limit, the data usability was not affected. The initial low level standard (LLS) recovery for potassium was above the ±30% limit at 150%. Since the sample result for potassium was below the MDL, the data usability was not affected.

Batch 24239: The ICSA produced positive results for manganese. However, in the ICSAB, manganese was recovered at 98%, and there appears to be no positive interference at this concentration. Since the sample concentration for manganese is near the ICSAB concentration, the data usability was not affected. 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. Cobalt was detected in the preparation blank at slightly above the MDL. One sample result for cobalt was less than 5 times the blank result and has been flagged with "C". Since both the blank and sample results were below the quantitation limit, reanalysis was not required. The remaining 8 sample results were more than 5 times the blank result. The MS recoveries for aluminum, calcium, iron, magnesium, potassium, sodium, 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.

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, liner composite samples, and the equipment blank. The ICP/MS ^{126}Sn and ^{99}Tc analysis was performed on the same basic 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 performed 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 solid sample results for ^{126}Sn were above the MDL and below the quantitation limit. 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. 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 24429: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batch 23853: There were no notable issues with this batch, and all QC requirements in the QAPP were met. However, the laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples from another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

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.

Batch 23162: There were no notable issues with this batch, and all QC requirements in the QAPP were met. However, the laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples from another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

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 24022: The closing low level standard (LLS) for ^{235}U and ^{238}U exceeded the ±30% limit at 17% and 35%. The sample results for these isotopes were below the MDL. This could indicate a low bias for results near the LLS. However, assuming a 90% low bias, the adjusted results would still be below the quantitation limit. The closing continuing calibration blank (CCB) result for ^{237}Np was slightly above the MDL. The sample result for this isotope was below the MDL.

Batch 23864: The preparation blank and CCB results for ^{230}Th and ^{236}U were slightly above the MDL. Some of the samples had similar results that should be considered equivalent to the blank. The affected results have been flagged with a "B". The laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples for another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

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. Due to an extended room outage at the 222-S

Laboratory, samples were sent to the WSCF Laboratory by WRPS for analysis. Table 2 lists the samples and analytes that were analyzed and reported by WSCF for C7682. The WSCF report is included in Appendix A of this report, and these results will be placed in the Hanford Environmental Information System. The WSCF report is included in its entirety, but not all results pertain to this report. 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. All samples were analyzed within the holding time.

Table 2. ICPMS Analysis Performed at the WSCF Laboratory

Client Sample No.	Sample Depth	ICP/MS Analysis Performed at WSCF
B26JL0	Surface	Arsenic, Cadmium, Lead, Selenium, Silver, Thallium
B26JL1	Surface Dup	Arsenic, Cadmium, Lead, Selenium, Silver, Thallium
B26C47	5-7ft	Selenium, Silver, Arsenic
B26C51	12-14ft	Selenium, Silver, Arsenic
B26C53	14-16ft	Selenium, Silver, Arsenic
B26C55	18-20ft	Selenium, Silver, Arsenic
B26C57	47-47ft	Selenium, Silver, Arsenic
B26C61	122-124ft	Selenium, Silver, Arsenic

Batch 22376: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met. This batch only reported antimony.

Batch 24036: The laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples for another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4. The serial dilution for lead exceeded the ±10% requirement at +24%. This would indicate a low bias.

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, liner composite samples, and the equipment blank. 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, liner composite samples, and the equipment blank. 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 these batches, 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, liner composite samples, and directly on the equipment blank. 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.

Batch 22818: The preparation blank demonstrated a positive result below the quantitation limit. This result had a very large counting uncertainty and was below the target detection limit. The sample result was below the MDA, and therefore, the data usability was not affected.

Batch 23378: There were no notable issues with the batch, and all QC requirements in the FSAP, SAP, and QAPP were met. However, the laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples for another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

3.3.4 Selenium-79

The ^{79}Se analysis by LSC was performed on the grab samples, liner composite samples, and the equipment blank. 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 23910: The carrier recovery for one sample was below the 30% level at 26%; however, even with the reduced sensitivity, the sample MDA was below the target detection. The sample result was below the MDA, and therefore, reanalysis was not performed.

3.3.5 Carbon-14

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

Batch 22686: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met. However, the laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples for another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

3.3.6 Nickel-63

The ^{63}Ni analysis by LSC was performed on the grab samples, liner composite samples, and the equipment blank. 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 these batches, 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 all grab samples, liner composite samples, and the equipment blank. 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, liner composite samples, and the equipment blank. 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, liner composite samples, and the equipment blank. 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, six trip blanks, and one equipment blank 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 except for one met the required holding time. The equipment blank sample, B26PF, was analyzed 4 days past the holding time, due to an oversight in holding time tracking. 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 8). Isobutanol, another poor purger, was reported as a semivolatile organic compound.

Seven 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 source of chloroform may be the water used by sampling personnel to make the various field blanks.

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.

Batch 21533: The method blank results for toluene and styrene were above the MDL but below the quantitation limit. All of the samples contained toluene and most contained styrene, and all of which have been flagged with at "B". Since the blank results were below the quantitation limit, reanalysis was not required. Carbon disulfide was detected in the method blank below the quantitation limit but was not detected in the samples. The continuing calibration verification standard (CCV) demonstrated a % difference (%D) for chloro-methane of -26%, which exceeds the ±20% limit. This could indicate a slight low bias for this compound; however, the raw response for this compound's monitor ions was well below the MDL. The %D for 1-butanol in the CCV exceeded the ±20% limit at +29%. Since 1-butanol was not detected in the samples, the usability of the data was not affected.

The internal standards for one sample, B26JM1 (S10V002306), were recovered extremely low, ranging from -89% to -90%. This was not discovered until November 7, 2010, well after the holding time had expired. Therefore, no reanalysis was performed and the results have been flagged with an "X". Examination of the raw response numbers indicated that approximately 5 to 6 times less sample was transferred to the column for this sample than others in the batch. This effectively raises the MDLs for this sample's results by a factor of 5. Since the quantitation limit is 10 times the MDL, it is unlikely that any results above the quantitation limit were missed. Additionally, the surrogate recoveries were within the required ranges, indicating that enough internal standard was recovered to make meaningful adjustments to the raw instrument responses.

Batch 21601: The method blank result for toluene was above the MDL but below the quantitation limit. Since all toluene sample results in the batch were below the MDL, the data usability was not affected.

Batch 21716: The method blank result for toluene was above the MDL but below the quantitation limit. Since all toluene results in the batch were below the MDL, the data usability was not affected. The internal standards for MSD for sample B26CY5 (S10V002245) were recovered extremely low, ranging from -94% to -95%. The spike and surrogate compound recoveries were within the required ranges, indicating that enough internal standard was recovered to make meaningful adjustments to the raw instrument responses for the surrogate and spike compounds. Since the MSD is only used to verify the RPD between the MS and MSD, which it did, reanalysis was not required.

Batch 21718: The method blank result for toluene was above the MDL but below the quantitation limit. One of the samples in this batch contained toluene at a similar level and has been flagged with at "B".

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

Batch 23317: The method blank result for toluene was above the MDL but below the quantitation limit. Since the toluene result for the sample was below the MDL, the data usability was not affected. The %D for 1-butanol in the CCV exceeded the ±20% limit at +29%. Since 1-butanol was not detected in the sample, the usability of the data was not affected.

3.4.2 Semivolatile Organic Analysis

The semivolatile organic analysis (SVOA) by GC/MS was performed on methylene chloride extractions of all grab samples, liner composite samples, and the equipment blank. 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. There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

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 3 lists the analytical procedures used for analysis of the Area C samples.

Table 3. Analytical Procedures

Analysis	Preparation Method	Analysis Procedure
Inorganic Analyses		
Cyanide (soil)	LA-695-103, Rev. J-0 (SW-846 9010C)	LA-695-103, Rev. J-0 (SW-846 9014)
Cyanide (water)	LA-695-102, Rev. L-0 (SW-846 9010C)	LA-695-102, Rev. L-0 (SW-846 9014)

Analysis	Preparation Method	Analysis Procedure
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)
pH (water)	LA-212-106, Rev. H-0-A (SW-846 9040C)	LA-212-106, Rev. H-0-A (SW-846 9040C)
Mercury – Cold Vapor Atomic Absorption	LA-325-110, Rev. A-0 (SW-846 7471A) (solid)	LA-325-110, Rev. A-0 (SW-846 7471A) (solid)
	LA-325-106, Rev. G-0 (SW-846 7470A) (liquid)	LA-325-106, Rev. G-0 (SW-846 7470A) (liquid)
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-506-102, Rev. F-1
Metals – ICP/MS	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-506-102, Rev. F-1 (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
^{90}Sr – Separation/Beta counting (liquid)		LA-220-104, Rev. I-0
^{3}H – LSC	LA-504-101, Rev. M-0 (solid)	LA-218-111, Rev. G-0
^{14}C – LSC	LA-504-101, Rev. M-0 (solid)	LA-348-104, Rev. I-0
^{79}Se – Separation/LSC	LA-544-101, Rev. F-0 (solid)	LA-365-132, Rev. I-0
^{63}Ni – Separation/LSC	LA-544-101, Rev. F-0 (solid)	LA-285-102, Rev. E-0
^{129}I – Separation/GEA (soil)	LA-378-105, Rev. D-0	LA-378-105, Rev. D-0
^{129}I – Separation/GEA (water)	LA-378-103, Rev. D-0	LA-378-103, Rev. K-0
^{241}Am, $^{243/244,\ 242}$Cm – Separation/AEA	LA-544-101, Rev. F-0 (solid)	LA-953-104, Rev. H-1
$^{239/240,\ 238}$Pu – Separation/AEA	LA-544-101, Rev. F-0 (solid)	LA-953-104, Rev. H-1
Organic Analyses		
VOC – GC/MS	Direct	LA-523-118, Rev. H-O (SW-846 8260B)

Analysis	Preparation Method	Analysis Procedure
SVOC – GC/MS	LA-523-138, Rev. G-0 (SW-846 3540C) (solid) LA-523-115, Rev. H-0 (SW-846 3520C) (liquid)	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	V10-003-171	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8P	DATA TURNAROUND
Dan Harris	TEMPLETON, AM	373-5589	BERLIN, PC	AIR QUALITY ☐	75 Days / 75 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**		
C7682 I007	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	88' - 90'	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~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	
B26C59	SOIL	8-24-10	1030	—

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Dan Harris Dan Harris	8-24-10 1130	RtSteele RtSteele	8.24.10 1130
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ov 6/pk

GRP # 20100660
SAM # 510U00 2464
2465
2466

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			V10-003-171	PAGE 2 OF 2
COLLECTOR Dan 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 C7682 I007	**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** 88'-90'	**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	V10-003-259	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8P	DATA TURNAROUND
Ekstrom / Campbell	TEMPLETON, AM	373-5589	BERLIN, PC	AIR QUALITY ☐	75 Days / 75 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**		
C7682 Surface	WMA C Sampling for CMS		V10-003		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
TFVS-09-003	TFV2-10-000004	Surface	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~4C
HOLDING TIME	14/40 Days
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B26JL0	SOIL	8/17/10	0930	✓

S10V002280

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
RBLittle BCEkstrom	8/17/10 1100	RHSteele RHSteele	8.17.10 1100	0°C
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	2225-20100660
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			V10-003-259	PAGE 2 OF 2
COLLECTOR Ekstrom / Campbell	COMPANY CONTACT TEMPLETON, AM	TELEPHONE NO. 373-5589	PROJECT COORDINATOR BERLIN, PC	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C7682 Surface	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V10-003	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO. TFVS-09-003	FIELD LOGBOOK NO. TFVZ-10-000004	ACTUAL SAMPLE DEPTH Surface	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: VSR11-047		
VALIDATOR: Carl Schloesslin		LAB: 222-S Lab		DATE: 6-21-2011	
			SDG: 20100660		
ANALYSES PERFORMED					
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270 X		SW-846 8270 (TCLP)
SAMPLES/MATRIX Soil samples B26C59 and B26JL0					

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 21694

1,2,4-trichlorobenzene	LCS %R = 61%, MS %R = 57%, MSD %R = 55%
acenaphthene	LCS %R = 69%, MS %R = 69%, MSD %R = OK
4-chloro-3-methylphenol	LCS %R = 62%, MS %R = 68%, MSD %R = 69%
2-chlorophenol	LCS %R = 68%, MS %R = OK, MSD %R = OK
n-nitroso-di-n-dipropylamine	LCS %R = 62%, MS %R = 65%, MSD %R = 66%

Batch 22129

1,2,4-trichlorobenzene	LCS %R = 66%, MS %R = 63%, MSD %R = 57%
acenaphthene	LCS %R = OK, MS %R = OK, MSD %R = 69%
4-chloro-3-methylphenol	LCS %R = OK, MS %R = 64%, MSD %R = 64%
2-chlorophenol	LCS %R = OK, MS %R = OK, MSD %R = 65%
n-nitroso-di-n-dipropylamine	LCS %R = 67%, MS %R = 64%, MSD %R = 62%

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
20100660	S10V002285	SOLID	SW-846-8270D	SW-846 3540C	08/17/10 09:30	08/17/10 11:00	08/23/10 15:52	09/01/10 16:11	N
20100660	S10V002314	SOLID	SW-846-8270D	SW-846 3540C	08/17/10 09:30	08/17/10 11:00	08/23/10 15:52	09/01/10 13:33	N
20100660	S10V002349	SOLID	SW-846-8270D	SW-846 3540C	08/18/10 09:00	08/18/10 12:00	08/23/10 15:52	09/01/10 16:57	N
20100660	S10V002396	SOLID	SW-846-8270D	SW-846 3540C	08/18/10 11:30	08/18/10 12:00	08/23/10 15:52	09/01/10 17:42	N
20100660	S10V002415	SOLID	SW-846-8270D	SW-846 3540C	08/19/10 09:10	08/19/10 11:40	08/25/10 15:45	09/02/10 00:15	N
20100660	S10V002434	SOLID	SW-846-8270D	SW-846 3540C	08/19/10 10:30	08/19/10 11:40	08/25/10 15:45	09/02/10 01:00	N
20100660	S10V002453	SOLID	SW-846-8270D	SW-846 3540C	08/23/10 10:00	08/23/10 11:15	08/25/10 15:45	09/01/10 21:59	N
20100660	S10V002472	SOLID	SW-846-8270D	SW-846 3540C	08/24/10 10:30	08/24/10 11:30	08/25/10 15:45	09/02/10 01:45	N
20100660	S10V002491	SOLID	SW-846-8270D	SW-846 3540C	08/25/10 10:05	08/25/10 11:05	09/07/10 16:02	09/13/10 14:52	N
20100676	S10V002646	LIQUID	SW-846-8270D	SW-846 3520C	08/23/10 00:45	08/23/10 11:10	08/31/10 10:58	09/08/10 14:35	N

LABCORE Completed Batch Report for Batch# 00021694

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: 00021543

Batch Comment:

C Farm WMC 2010-2 SVOA SOL Group # 20100660

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	S1008250001		0 0	O		1,2,4-Trichlorobenzene	SOLID		<7.7400E+01			77.4	ug/Kg			U
1	BLNK	S1008250001		0 0	O		1,2-Dichlorobenzene	SOLID		<1.0070E+02			100.7	ug/Kg			U
1	BLNK	S1008250001		0 0	O		2,4-Dinitrotoluene	SOLID		<3.8100E+01			38.1	ug/Kg			U
1	BLNK	S1008250001		0 0	O		2,4,5-Trichlorophenol	SOLID		<4.4000E+01			44	ug/Kg			U
1	BLNK	S1008250001		0 0	O		2,4,6-Trichlorophenol	SOLID		<4.9500E+01			49.5	ug/Kg			U
1	BLNK	S1008250001		0 0	O		2-Methylphenol	SOLID		<5.7500E+01			57.5	ug/Kg			U
1	BLNK	S1008250001		0 0	O		2-Nitrophenol	SOLID		<5.3700E+01			53.7	ug/Kg			U
1	BLNK	S1008250001		0 0	O		3 & 4 Methylphenol Total	SOLID		<5.1400E+01			51.4	ug/Kg			U
1	BLNK	S1008250001		0 0	O		Acenaphthene	SOLID		<1.7600E+01			17.6	ug/Kg			U
1	BLNK	S1008250001		0 0	O		Benzo(a)anthracene	SOLID		<3.7800E+01			37.8	ug/Kg			U
1	BLNK	S1008250001		0 0	O		Benzo(b)fluoranthene	SOLID		<4.8900E+01			48.9	ug/Kg			U
1	BLNK	S1008250001		0 0	O		Benzo(a)pyrene	SOLID		<4.1200E+01			41.2	ug/Kg			U
1	BLNK	S1008250001		0 0	O		bis(2-Ethylhexyl)phthalate	SOLID		<5.9020E+02			590.2	ug/Kg			U
1	BLNK	S1008250001		0 0	O		Benzo(k)fluoranthene	SOLID		<3.9100E+01			39.1	ug/Kg			U
1	BLNK	S1008250001		0 0	O		Butylbenzylphthalate	SOLID		<5.0000E+01			50	ug/Kg			U
1	BLNK	S1008250001		0 0	O		4-Chloro-3-methylphenol	SOLID		<4.3200E+01			43.2	ug/Kg			U
1	BLNK	S1008250001		0 0	O		2-Chlorophenol	SOLID		<6.6500E+01			66.5	ug/Kg			U
1	BLNK	S1008250001		0 0	O		Chrysene	SOLID		<8.1400E+01			81.4	ug/Kg			U
1	BLNK	S1008250001		0 0	O		Dibenz(a,h)anthracene	SOLID		<5.1100E+01			51.1	ug/Kg			U
1	BLNK	S1008250001		0 0	O		Di-n-butylphthalate	SOLID		<5.6230E+02			562.3	ug/Kg			U
1	BLNK	S1008250001		0 0	O		Di-n-octylphthalate	SOLID		<4.7700E+01			47.7	ug/Kg			U
1	BLNK	S1008250001		0 0	O		N-Nitrosodipropylamine	SOLID		<5.8100E+01			58.1	ug/Kg			U
1	BLNK	S1008250001		0 0	O		Fluoranthene	SOLID		<3.5400E+01			35.4	ug/Kg			U
1	BLNK	S1008250001		0 0	O		Hexachlorobutadiene	SOLID		<6.9700E+01			69.7	ug/Kg			U
1	BLNK	S1008250001		0 0	O		Hexachloroethane	SOLID		<1.1180E+02			111.8	ug/Kg			U
1	BLNK	S1008250001		0 0	O		Indeno(1,2,3-cd)pyrene	SOLID		<5.1000E+01			51	ug/Kg			U
1	BLNK	S1008250001		0 0	O		Naphthalene	SOLID		<6.2600E+01			62.6	ug/Kg			U
1	BLNK	S1008250001		0 0	O		Nitrobenzene	SOLID		<6.4600E+01			64.6	ug/Kg			U
1	BLNK	S1008250001		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# 00021694

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
1	BLNK	S1008250001		0 0	O		Pyridine	SOLID		<6.5000E+01			65	ug/Kg			U
1	BLNK	S1008250001		0 0	O		Tri-n-butylphosphate	SOLID		<1.0780E+02			107.8	ug/Kg			U
1	BLNK	S1008250001		0 0	O		2,6 bis-4Methylphenol	SOLID		<2.3560E+02			235.6	ug/Kg			U
1	BLNK	S1008250001		0 0	O		2-Ethoxyethanol	SOLID		<1.8240E+02			182.4	ug/Kg			U
1	BLNK	S1008250001		0 0	O		Methylphenols, Total	SOLID		<1.0660E+02			106.6	ug/Kg			U
1	BLNK	S1008250001		0 0	O		Cyclohexanone	SOLID		<5.5810E+02			558.1	ug/Kg			U
1	BLNK	S1008250001		0 0	O		N-Nitrosomorpholine	SOLID		<1.9130E+02			191.3	ug/Kg			U
1	BLNK	S1008250001		0 0	O		Isobutanol	SOLID		<4.6030E+02			460.3	ug/Kg			U
1	BLNK	S1008250001		0 0	O		1,2-Benzenedicarboxyli	SOLID		555.59932				ug/Kg			JNT
Sample Sequence 2																	
2	LCS	S1008250002		0 0	O		1,2,4-Trichlorobenzene	SOLID	2000	1.2159E+03			77.4	ug/Kg	60.795	% Recovery	
2	LCS	S1008250002		0 0	O		2,4-Dinitrotoluene	SOLID	2000	1.6040E+03			38.1	ug/Kg	80.2	% Recovery	
2	LCS	S1008250002		0 0	O		Acenaphthene	SOLID	2000	1.3766E+03			17.6	ug/Kg	68.83	% Recovery	
2	LCS	S1008250002		0 0	O		4-Chloro-3-methylphenol	SOLID	4000	2.4943E+03			43.2	ug/Kg	62.358	% Recovery	
2	LCS	S1008250002		0 0	O		2-Chlorophenol	SOLID	4000	2.7042E+03			66.5	ug/Kg	67.605	% Recovery	
2	LCS	S1008250002		0 0	O		N-Nitrosodipropylamine	SOLID	2000	1.2372E+03			58.1	ug/Kg	61.86	% Recovery	
2	LCS	S1008250002		0 0	O		Pyrene	SOLID	2000	1.6019E+03			62.9	ug/Kg	80.095	% Recovery	
Sample Sequence 3																	
3	SAMPLE	S10V002415		0 0	O		1,2,4-Trichlorobenzene	SOLID	N/A	<7.6744E+01			76.744	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		1,2-Dichlorobenzene	SOLID	N/A	<9.9846E+01			99.846	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		2,4-Dinitrotoluene	SOLID	N/A	<3.7777E+01			37.777	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		2,4,5-Trichlorophenol	SOLID	N/A	<4.3627E+01			43.627	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		2,4,6-Trichlorophenol	SOLID	N/A	<4.9080E+01			49.08	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		2-Methylphenol	SOLID	N/A	<5.7013E+01			57.013	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		2-Nitrophenol	SOLID	N/A	<5.3245E+01			53.245	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		3 & 4 Methylphenol Total	SOLID	N/A	<5.0964E+01			50.964	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		Acenaphthene	SOLID	N/A	<1.7451E+01			17.451	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		Benzo(a)anthracene	SOLID	N/A	<3.7480E+01			37.48	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		Benzo(b)fluoranthene	SOLID	N/A	<4.8485E+01			48.485	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		Benzo(a)pyrene	SOLID	N/A	<4.0851E+01			40.851	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		bis(2-Ethylhexyl)phthalate	SOLID	N/A	<5.8520E+02			585.2	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		Benzo(k)fluoranthene	SOLID	N/A	<3.8769E+01			38.769	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		Butylbenzylphthalate	SOLID	N/A	2.0011E+02			49.576	ug/Kg			J
3	SAMPLE	S10V002415		0 0	O		4-Chloro-3-methylphenol	SOLID	N/A	<4.2834E+01			42.834	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		2-Chlorophenol	SOLID	N/A	<6.5936E+01			65.936	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		Chrysene	SOLID	N/A	<8.0710E+01			80.71	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		Dibenz(a,h)anthracene	SOLID	N/A	<5.0667E+01			50.667	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		Di-n-butylphthalate	SOLID	N/A	<5.5753E+02			557.53	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		Di-n-octylphthalate	SOLID	N/A	<4.7296E+01			47.296	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		N-Nitrosodipropylamine	SOLID	N/A	<5.7607E+01			57.607	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# 00021694

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
3	SAMPLE	S10V002415		0 0	O		Fluoranthene	SOLID	N/A	<3.5100E+01			35.1	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		Hexachlorobutadiene	SOLID	N/A	<6.9109E+01			69.109	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		Hexachloroethane	SOLID	N/A	<1.1085E+02			110.85	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		Indeno(1,2,3-cd)pyrene	SOLID	N/A	<5.0568E+01			50.568	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		Naphthalene	SOLID	N/A	<6.2069E+01			62.069	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		Nitrobenzene	SOLID	N/A	<6.4052E+01			64.052	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		Pyrene	SOLID	N/A	<6.2367E+01			62.367	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		Pyridine	SOLID	N/A	<6.4449E+01			64.449	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		Tri-n-butylphosphate	SOLID	N/A	<1.0689E+02			106.89	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		2,6 bis-4Methylphenol	SOLID	N/A	<2.3360E+02			233.6	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		2-Ethoxyethanol	SOLID	N/A	<1.8085E+02			180.85	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		Methylphenols, Total	SOLID	N/A	<1.0570E+02			105.7	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		Cyclohexanone	SOLID	N/A	<5.5337E+02			553.37	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		N-Nitrosomorpholine	SOLID	N/A	<1.8968E+02			189.68	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		Isobutanol	SOLID	N/A	<4.5640E+02			456.4	ug/Kg			U
3	SAMPLE	S10V002415		0 0	O		2-Fluorobiphenyl	SOLID	1983.044	1.3280E+03				ug/Kg	66.968	% Recovery	
3	SAMPLE	S10V002415		0 0	O		2-Fluorophenol	SOLID	3966.089	2.4912E+03				ug/Kg	62.813	% Recovery	
3	SAMPLE	S10V002415		0 0	O		Nitrobenzene-d5	SOLID	1983.044	9.6130E+02				ug/Kg	48.476	% Recovery	
3	SAMPLE	S10V002415		0 0	O		2,4,6-Tribromophenol	SOLID	3966.089	3.6530E+03				ug/Kg	92.106	% Recovery	
3	SAMPLE	S10V002415		0 0	O		Terphenyl-d14	SOLID	1983.044	1.9298E+03				ug/Kg	97.315	% Recovery	
3	SAMPLE	S10V002415		0 0	O		Phenol-d6	SOLID	3966.089	3.0090E+03				ug/Kg	75.9	% Recovery	
3	SAMPLE	S10V002415		0 0	O		1,2-Benzenedicarboxyli	SOLID		422.60769				ug/Kg			BJNT
Sample Sequence 4																	
4	SAMPLE	S10V002434		0 0	O		1,2,4-Trichlorobenzene	SOLID	N/A	<7.7111E+01			77.111	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		1,2-Dichlorobenzene	SOLID	N/A	<1.0032E+02			100.32	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		2,4-Dinitrotoluene	SOLID	N/A	<3.7958E+01			37.958	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		2,4,5-Trichlorophenol	SOLID	N/A	<4.3836E+01			43.836	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		2,4,6-Trichlorophenol	SOLID	N/A	<4.9315E+01			49.315	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		2-Methylphenol	SOLID	N/A	<5.7285E+01			57.285	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		2-Nitrophenol	SOLID	N/A	<5.3499E+01			53.499	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		3 & 4 Methylphenol Total	SOLID	N/A	<5.1208E+01			51.208	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		Acenaphthene	SOLID	N/A	<1.7534E+01			17.534	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		Benzo(a)anthracene	SOLID	N/A	<3.7659E+01			37.659	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		Benzo(b)fluoranthene	SOLID	N/A	<4.8717E+01			48.717	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		Benzo(a)pyrene	SOLID	N/A	<4.1046E+01			41.046	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		bis(2-Ethylhexyl)phthalate	SOLID	N/A	<5.8800E+02			588	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		Benzo(k)fluoranthene	SOLID	N/A	<3.8954E+01			38.954	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		Butylbenzylphthalate	SOLID	N/A	<4.9813E+01			49.813	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		4-Chloro-3-methylphenol	SOLID	N/A	<4.3039E+01			43.039	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		2-Chlorophenol	SOLID	N/A	<6.6252E+01			66.252	ug/Kg			U

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LABCORE Completed Batch Report for Batch# 00021694

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
4	SAMPLE	S10V002434		0 0	O		Chrysene	SOLID	N/A	<8.1096E+01			81.096	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		Dibenz(a,h)anthracene	SOLID	N/A	<5.0909E+01			50.909	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		Di-n-butylphthalate	SOLID	N/A	<5.6020E+02			560.2	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		Di-n-octylphthalate	SOLID	N/A	<4.7522E+01			47.522	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		N-Nitrosodipropylamine	SOLID	N/A	<5.7883E+01			57.883	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		Fluoranthene	SOLID	N/A	<3.5268E+01			35.268	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		Hexachlorobutadiene	SOLID	N/A	<6.9440E+01			69.44	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		Hexachloroethane	SOLID	N/A	<1.1138E+02			111.38	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		Indeno(1,2,3-cd)pyrene	SOLID	N/A	<5.0809E+01			50.809	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		Naphthalene	SOLID	N/A	<6.2366E+01			62.366	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		Nitrobenzene	SOLID	N/A	<6.4359E+01			64.359	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		Pyrene	SOLID	N/A	<6.2665E+01			62.665	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		Pyridine	SOLID	N/A	<6.4757E+01			64.757	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		Tri-n-butylphosphate	SOLID	N/A	<1.0740E+02			107.4	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		2,6 bis-4Methylphenol	SOLID	N/A	<2.3472E+02			234.72	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		2-Ethoxyethanol	SOLID	N/A	<1.8172E+02			181.72	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		Methylphenols, Total	SOLID	N/A	<1.0620E+02			106.2	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		Cyclohexanone	SOLID	N/A	<5.5601E+02			556.01	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		N-Nitrosomorpholine	SOLID	N/A	<1.9059E+02			190.59	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		Isobutanol	SOLID	N/A	<4.5858E+02			458.58	ug/Kg			U
4	SAMPLE	S10V002434		0 0	O		2-Fluorobiphenyl	SOLID	1992.528	1.3042E+03				ug/Kg	65.455	% Recovery	
4	SAMPLE	S10V002434		0 0	O		2-Fluorophenol	SOLID	3985.056	2.4267E+03				ug/Kg	60.895	% Recovery	
4	SAMPLE	S10V002434		0 0	O		Nitrobenzene-d5	SOLID	1992.528	1.1459E+03				ug/Kg	57.51	% Recovery	
4	SAMPLE	S10V002434		0 0	O		2,4,6-Tribromophenol	SOLID	3985.056	3.3979E+03				ug/Kg	85.266	% Recovery	
4	SAMPLE	S10V002434		0 0	O		Terphenyl-d14	SOLID	1992.528	1.7696E+03				ug/Kg	88.812	% Recovery	
4	SAMPLE	S10V002434		0 0	O		Phenol-d6	SOLID	3985.056	2.7410E+03				ug/Kg	68.8	% Recovery	
4	SAMPLE	S10V002434		0 0	O		Unknown Phthalate-1	SOLID		538.69211				ug/Kg			JT
4	SAMPLE	S10V002434		0 0	O		Unknown-2	SOLID		213.49245				ug/Kg			JT
4	SAMPLE	S10V002434		0 0	O		Unknown-3	SOLID		272.67426				ug/Kg			JT
Sample Sequence 5																	
5	SAMPLE	S10V002453		0 0	O		1,2,4-Trichlorobenzene	SOLID	N/A	<7.7168E+01			77.168	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		1,2-Dichlorobenzene	SOLID	N/A	<1.0040E+02			100.4	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		2,4-Dinitrotoluene	SOLID	N/A	<3.7986E+01			37.986	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		2,4,5-Trichlorophenol	SOLID	N/A	<4.3868E+01			43.868	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		2,4,6-Trichlorophenol	SOLID	N/A	<4.9352E+01			49.352	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		2-Methylphenol	SOLID	N/A	<5.7328E+01			57.328	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		2-Nitrophenol	SOLID	N/A	<5.3539E+01			53.539	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		3 & 4 Methylphenol Total	SOLID	N/A	<5.1246E+01			51.246	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		Acenaphthene	SOLID	N/A	<1.7547E+01			17.547	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		Benzo(a)anthracene	SOLID	N/A	<3.7687E+01			37.687	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		Benzo(b)fluoranthene	SOLID	N/A	<4.8754E+01			48.754	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		Benzo(a)pyrene	SOLID	N/A	<4.1077E+01			41.077	ug/Kg			U

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LABCORE Completed Batch Report for Batch# 00021694

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
5	SAMPLE	S10V002453		0 0	O		bis(2-Ethylhexyl)phthalate	SOLID	N/A	<5.8843E+02			588.43	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		Benzo(k)fluoranthene	SOLID	N/A	<3.8983E+01			38.983	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		Butylbenzylphthalate	SOLID	N/A	<4.9850E+01			49.85	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		4-Chloro-3-methylphenol	SOLID	N/A	<4.3071E+01			43.071	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		2-Chlorophenol	SOLID	N/A	<6.6301E+01			66.301	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		Chrysene	SOLID	N/A	<8.1157E+01			81.157	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		Dibenz(a,h)anthracene	SOLID	N/A	<5.0947E+01			50.947	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		Di-n-butylphthalate	SOLID	N/A	<5.6062E+02			560.62	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		Di-n-octylphthalate	SOLID	N/A	<4.7557E+01			47.557	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		N-Nitrosodipropylamine	SOLID	N/A	<5.7926E+01			57.926	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		Fluoranthene	SOLID	N/A	<3.5294E+01			35.294	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		Hexachlorobutadiene	SOLID	N/A	<6.9492E+01			69.492	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		Hexachloroethane	SOLID	N/A	<1.1147E+02			111.47	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		Indeno(1,2,3-cd)pyrene	SOLID	N/A	<5.0847E+01			50.847	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		Naphthalene	SOLID	N/A	<6.2413E+01			62.413	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		Nitrobenzene	SOLID	N/A	<6.4407E+01			64.407	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		Pyrene	SOLID	N/A	<6.2712E+01			62.712	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		Pyridine	SOLID	N/A	<6.4806E+01			64.806	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		Tri-n-butylphosphate	SOLID	N/A	<1.0748E+02			107.48	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		2,6 bis-4Methylphenol	SOLID	N/A	<2.3490E+02			234.9	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		2-Ethoxyethanol	SOLID	N/A	<1.8185E+02			181.85	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		Methylphenols, Total	SOLID	N/A	<1.0628E+02			106.28	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		Cyclohexanone	SOLID	N/A	<5.5643E+02			556.43	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		N-Nitrosomorpholine	SOLID	N/A	<1.9073E+02			190.73	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		Isobutanol	SOLID	N/A	<4.5892E+02			458.92	ug/Kg			U
5	SAMPLE	S10V002453		0 0	O		2-Fluorobiphenyl	SOLID	1994.017	1.2426E+03				ug/Kg	62.316	% Recovery	
5	SAMPLE	S10V002453		0 0	O		2-Fluorophenol	SOLID	3988.035	2.3408E+03				ug/Kg	58.696	% Recovery	
5	SAMPLE	S10V002453		0 0	O		Nitrobenzene-d5	SOLID	1994.017	1.0864E+03				ug/Kg	54.483	% Recovery	
5	SAMPLE	S10V002453		0 0	O		2,4,6-Tribromophenol	SOLID	3988.035	3.3524E+03				ug/Kg	84.061	% Recovery	
5	SAMPLE	S10V002453		0 0	O		Terphenyl-d14	SOLID	1994.017	1.6819E+03				ug/Kg	84.347	% Recovery	
5	SAMPLE	S10V002453		0 0	O		Phenol-d6	SOLID	3988.035	2.6780E+03				ug/Kg	67.2	% Recovery	
5	SAMPLE	S10V002453		0 0	O		1,2-Benzenedicarboxyli	SOLID		468.78227				ug/Kg			BJNT
Sample Sequence 6																	
6	MS	S1008250004	S10V002453	0 0	O		1,2,4-Trichlorobenzene	SOLID	1986.294	1.1309E+03			76.87	ug/Kg	56.935	% Recovery	
6	MS	S1008250004	S10V002453	0 0	O		2,4-Dinitrotoluene	SOLID	1986.294	1.6592E+03			37.839	ug/Kg	83.532	% Recovery	
6	MS	S1008250004	S10V002453	0 0	O		Acenaphthene	SOLID	1986.294	1.3767E+03			17.479	ug/Kg	69.31	% Recovery	
6	MS	S1008250004	S10V002453	0 0	O		4-Chloro-3-methylphenol	SOLID	3972.589	2.7065E+03			42.904	ug/Kg	68.129	% Recovery	
6	MS	S1008250004	S10V002453	0 0	O		2-Chlorophenol	SOLID	3972.589	2.8306E+03			66.044	ug/Kg	71.253	% Recovery	
6	MS	S1008250004	S10V002453	0 0	O		N-Nitrosodipropylamine	SOLID	1986.294	1.2864E+03			57.702	ug/Kg	64.764	% Recovery	
6	MS	S1008250004	S10V002453	0 0	O		Pyrene	SOLID	1986.294	1.7597E+03			62.469	ug/Kg	88.592	% Recovery	

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LABCORE Completed Batch Report for Batch# 00021694

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 7																	
7	MSD	S1008250005	S10V002453	0 0	O		1,2,4-Trichlorobenzene	SOLID	1994.316	1.0868E+03			77.18	ug/Kg	54.495	% Recovery	
															4.3794	% RPD	
7	MSD	S1008250005	S10V002453	0 0	O		2,4-Dinitrotoluene	SOLID	1994.316	1.7429E+03			37.992	ug/Kg	87.393	% Recovery	
															4.5178	% RPD	
7	MSD	S1008250005	S10V002453	0 0	O		Acenaphthene	SOLID	1994.316	1.4315E+03			17.55	ug/Kg	71.779	% Recovery	
															3.4999	% RPD	
7	MSD	S1008250005	S10V002453	0 0	O		4-Chloro-3-methylphenol	SOLID	3988.632	2.7376E+03			43.077	ug/Kg	68.635	% Recovery	
															0.73996	% RPD	
7	MSD	S1008250005	S10V002453	0 0	O		2-Chlorophenol	SOLID	3988.632	2.8950E+03			66.311	ug/Kg	72.581	% Recovery	
															1.8466	% RPD	
7	MSD	S1008250005	S10V002453	0 0	O		N-Nitrosodipropylamine	SOLID	1994.316	1.3259E+03			57.935	ug/Kg	66.484	% Recovery	
															2.6210	% RPD	
7	MSD	S1008250005	S10V002453	0 0	O		Pyrene	SOLID	1994.316	1.7225E+03			62.721	ug/Kg	86.37	% Recovery	
															2.5400	% RPD	
Sample Sequence 8																	
8	SAMPLE	S10V002472		0 0	O		1,2,4-Trichlorobenzene	SOLID	N/A	<7.6512E+01			76.512	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		1,2-Dichlorobenzene	SOLID	N/A	<9.9545E+01			99.545	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		2,4-Dinitrotoluene	SOLID	N/A	<3.7663E+01			37.663	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		2,4,5-Trichlorophenol	SOLID	N/A	<4.3495E+01			43.495	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		2,4,6-Trichlorophenol	SOLID	N/A	<4.8932E+01			48.932	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		2-Methylphenol	SOLID	N/A	<5.6841E+01			56.841	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		2-Nitrophenol	SOLID	N/A	<5.3084E+01			53.084	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		3 & 4 Methylphenol Total	SOLID	N/A	<5.0811E+01			50.811	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		Acenaphthene	SOLID	N/A	<1.7398E+01			17.398	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		Benzo(a)anthracene	SOLID	N/A	<3.7367E+01			37.367	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		Benzo(b)fluoranthene	SOLID	N/A	<4.8339E+01			48.339	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		Benzo(a)pyrene	SOLID	N/A	<4.0728E+01			40.728	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		bis(2-Ethylhexyl)phthalate	SOLID	N/A	<5.8343E+02			583.43	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		Benzo(k)fluoranthene	SOLID	N/A	<3.8652E+01			38.652	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		Butylbenzylphthalate	SOLID	N/A	<4.9427E+01			49.427	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		4-Chloro-3-methylphenol	SOLID	N/A	<4.2705E+01			42.705	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		2-Chlorophenol	SOLID	N/A	<6.5737E+01			65.737	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		Chrysene	SOLID	N/A	<8.0467E+01			80.467	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		Dibenz(a,h)anthracene	SOLID	N/A	<5.0514E+01			50.514	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		Di-n-butylphthalate	SOLID	N/A	<5.5585E+02			555.85	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		Di-n-octylphthalate	SOLID	N/A	<4.7153E+01			47.153	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		N-Nitrosodipropylamine	SOLID	N/A	<5.7434E+01			57.434	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		Fluoranthene	SOLID	N/A	<3.4994E+01			34.994	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		Hexachlorobutadiene	SOLID	N/A	<6.8901E+01			68.901	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# 00021694

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
8	SAMPLE	S10V002472		0 0	O		Hexachloroethane	SOLID	N/A	<1.1052E+02			110.52	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		Indeno(1,2,3-cd)pyrene	SOLID	N/A	<5.0415E+01			50.415	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		Naphthalene	SOLID	N/A	<6.1882E+01			61.882	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		Nitrobenzene	SOLID	N/A	<6.3859E+01			63.859	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		Pyrene	SOLID	N/A	<6.2179E+01			62.179	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		Pyridine	SOLID	N/A	<6.4255E+01			64.255	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		Tri-n-butylphosphate	SOLID	N/A	<1.0656E+02			106.56	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		2,6 bis-4Methylphenol	SOLID	N/A	<2.3290E+02			232.9	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		2-Ethoxyethanol	SOLID	N/A	<1.8031E+02			180.31	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		Methylphenols, Total	SOLID	N/A	<1.0538E+02			105.38	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		Cyclohexanone	SOLID	N/A	<5.5170E+02			551.7	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		N-Nitrosomorpholine	SOLID	N/A	<1.8911E+02			189.11	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		Isobutanol	SOLID	N/A	<4.5502E+02			455.02	ug/Kg			U
8	SAMPLE	S10V002472		0 0	O		2-Fluorobiphenyl	SOLID	1977.066	1.2503E+03				ug/Kg	63.24	% Recovery	
8	SAMPLE	S10V002472		0 0	O		2-Fluorophenol	SOLID	3954.132	2.2545E+03				ug/Kg	57.016	% Recovery	
8	SAMPLE	S10V002472		0 0	O		Nitrobenzene-d5	SOLID	1977.066	9.6879E+02				ug/Kg	49.001	% Recovery	
8	SAMPLE	S10V002472		0 0	O		2,4,6-Tribromophenol	SOLID	3954.132	3.6104E+03				ug/Kg	91.307	% Recovery	
8	SAMPLE	S10V002472		0 0	O		Terphenyl-d14	SOLID	1977.066	1.7987E+03				ug/Kg	90.978	% Recovery	
8	SAMPLE	S10V002472		0 0	O		Phenol-d6	SOLID	3954.132	2.6572E+03				ug/Kg	67.2	% Recovery	
8	SAMPLE	S10V002472		0 0	O		1,2-Benzenedicarboxyli	SOLID		413.25921				ug/Kg			BJNT
8	SAMPLE	S10V002472		0 0	O		Unknown-1	SOLID		234.47727				ug/Kg			JT

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00021694

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# 00021694

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1008250001	BLNK				
2	S1008250002	LCS				
3	S10V002415	SAMPLE		20100660	B26C53	C Farm WMC 2010-2
4	S10V002434	SAMPLE		20100660	B26C55	C Farm WMC 2010-2
5	S10V002453	SAMPLE		20100660	B26C57	C Farm WMC 2010-2
6	S1008250004	MS	S10V002453			
7	S1008250005	MSD	S10V002453			
8	S10V002472	SAMPLE		20100660	B26C59	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

SVOA Batch # 21694

FORM 2
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: Contract:

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

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	67	61	72	84	88			0
02	LCS	71	68	66	73	82	94			0
03	S10V002453	62	59	54	67	84	84			0
04	S10V002453MS	73	72	68	78	90	101			0
05	S10V002453MS	73	75	67	80	93	97			0
06	S10V002415	67	63	48	76	92	97			0
07	S10V002434	65	61	58	69	85	89			0
08	S10V002472	63	57	49	67	91	91			0
09										
10										
11										
12										
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

SVOA Batch # 21694

FORM 3
SOIL SEMIVOLATILE LAB CONTROL SAMPLE

Lab Name: Contract:

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

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		1215.9	61	2-128
2,4-Dinitrotoluene	2000.0		1604.0	80	55-111
Acenaphthene	2000.0		1376.6	69	36-114
4-Chloro-3-Methylphenol	4000.0		2494.3	62	42-103
2-Chlorophenol	4000.0		2704.2	68	28-111
N-Nitroso-di-n-prop.(1)	2000.0		1237.2	62	18-108
Pyrene	2000.0		1601.9	80	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# 00022129

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: 00021492

Batch Comment:

C Farm WMC 2010-2 SVOA SOL Group# 20100660

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	S1008230023		0 0	O		1,2,4-Trichlorobenzene	SOLID		<7.7400E+01			77.4	ug/Kg			U
1	BLNK	S1008230023		0 0	O		1,2-Dichlorobenzene	SOLID		<1.0070E+02			100.7	ug/Kg			U
1	BLNK	S1008230023		0 0	O		2,4-Dinitrotoluene	SOLID		<3.8100E+01			38.1	ug/Kg			U
1	BLNK	S1008230023		0 0	O		2,4,5-Trichlorophenol	SOLID		<4.4000E+01			44	ug/Kg			U
1	BLNK	S1008230023		0 0	O		2,4,6-Trichlorophenol	SOLID		<4.9500E+01			49.5	ug/Kg			U
1	BLNK	S1008230023		0 0	O		2-Methylphenol	SOLID		<5.7500E+01			57.5	ug/Kg			U
1	BLNK	S1008230023		0 0	O		2-Nitrophenol	SOLID		<5.3700E+01			53.7	ug/Kg			U
1	BLNK	S1008230023		0 0	O		3 & 4 Methylphenol Total	SOLID		<5.1400E+01			51.4	ug/Kg			U
1	BLNK	S1008230023		0 0	O		Acenaphthene	SOLID		<1.7600E+01			17.6	ug/Kg			U
1	BLNK	S1008230023		0 0	O		Benzo(a)anthracene	SOLID		<3.7800E+01			37.8	ug/Kg			U
1	BLNK	S1008230023		0 0	O		Benzo(b)fluoranthene	SOLID		<4.8900E+01			48.9	ug/Kg			U
1	BLNK	S1008230023		0 0	O		Benzo(a)pyrene	SOLID		<4.1200E+01			41.2	ug/Kg			U
1	BLNK	S1008230023		0 0	O		bis(2-Ethylhexyl)phthalate	SOLID		<5.9020E+02			590.2	ug/Kg			U
1	BLNK	S1008230023		0 0	O		Benzo(k)fluoranthene	SOLID		<3.9100E+01			39.1	ug/Kg			U
1	BLNK	S1008230023		0 0	O		Butylbenzylphthalate	SOLID		<5.0000E+01			50	ug/Kg			U
1	BLNK	S1008230023		0 0	O		4-Chloro-3-methylphenol	SOLID		<4.3200E+01			43.2	ug/Kg			U
1	BLNK	S1008230023		0 0	O		2-Chlorophenol	SOLID		<6.6500E+01			66.5	ug/Kg			U
1	BLNK	S1008230023		0 0	O		Chrysene	SOLID		<8.1400E+01			81.4	ug/Kg			U
1	BLNK	S1008230023		0 0	O		Dibenz(a,h)anthracene	SOLID		<5.1100E+01			51.1	ug/Kg			U
1	BLNK	S1008230023		0 0	O		Di-n-butylphthalate	SOLID		<5.6230E+02			562.3	ug/Kg			U
1	BLNK	S1008230023		0 0	O		Di-n-octylphthalate	SOLID		<4.7700E+01			47.7	ug/Kg			U
1	BLNK	S1008230023		0 0	O		N-Nitrosodipropylamine	SOLID		<5.8100E+01			58.1	ug/Kg			U
1	BLNK	S1008230023		0 0	O		Fluoranthene	SOLID		<3.5400E+01			35.4	ug/Kg			U
1	BLNK	S1008230023		0 0	O		Hexachlorobutadiene	SOLID		<6.9700E+01			69.7	ug/Kg			U
1	BLNK	S1008230023		0 0	O		Hexachloroethane	SOLID		<1.1180E+02			111.8	ug/Kg			U
1	BLNK	S1008230023		0 0	O		Indeno(1,2,3-cd)pyrene	SOLID		<5.1000E+01			51	ug/Kg			U
1	BLNK	S1008230023		0 0	O		Naphthalene	SOLID		<6.2600E+01			62.6	ug/Kg			U
1	BLNK	S1008230023		0 0	O		Nitrobenzene	SOLID		<6.4600E+01			64.6	ug/Kg			U
1	BLNK	S1008230023		0 0	O		Pyrene	SOLID		<6.2900E+01			62.9	ug/Kg			U

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00022129

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
1	BLNK	S1008230023		0 0	O		Pyridine	SOLID		<6.5000E+01			65	ug/Kg			U
1	BLNK	S1008230023		0 0	O		Tri-n-butylphosphate	SOLID		<1.0780E+02			107.8	ug/Kg			U
1	BLNK	S1008230023		0 0	O		2,6 bis-4Methylphenol	SOLID		<2.3560E+02			235.6	ug/Kg			U
1	BLNK	S1008230023		0 0	O		2-Ethoxyethanol	SOLID		<1.8240E+02			182.4	ug/Kg			U
1	BLNK	S1008230023		0 0	O		Methylphenols, Total	SOLID		<1.0660E+02			106.6	ug/Kg			U
1	BLNK	S1008230023		0 0	O		Cyclohexanone	SOLID		<5.5810E+02			558.1	ug/Kg			U
1	BLNK	S1008230023		0 0	O		N-Nitrosomorpholine	SOLID		<1.9130E+02			191.3	ug/Kg			U
1	BLNK	S1008230023		0 0	O		Isobutanol	SOLID		<4.6030E+02			460.3	ug/Kg			U
1	BLNK	S1008230023		0 0	O		1,2-Benzenedicarboxyli	SOLID		820.6169				ug/Kg			JNT
1	BLNK	S1008230023		0 0	O		Amylene Hydrate	SOLID		215.19495				ug/Kg			JNT
1	BLNK	S1008230023		0 0	O		Unknown-1	SOLID		248.33777				ug/Kg			JT
Sample Sequence 2																	
2	LCS	S1008230024		0 0	O		1,2,4-Trichlorobenzene	SOLID	2000	1.3149E+03			77.4	ug/Kg	65.745	% Recovery	
2	LCS	S1008230024		0 0	O		2,4-Dinitrotoluene	SOLID	2000	1.7979E+03			38.1	ug/Kg	89.895	% Recovery	
2	LCS	S1008230024		0 0	O		Acenaphthene	SOLID	2000	1.4994E+03			17.6	ug/Kg	74.97	% Recovery	
2	LCS	S1008230024		0 0	O		4-Chloro-3-methylphenol	SOLID	4000	2.7860E+03			43.2	ug/Kg	69.65	% Recovery	
2	LCS	S1008230024		0 0	O		2-Chlorophenol	SOLID	4000	2.9264E+03			66.5	ug/Kg	73.16	% Recovery	
2	LCS	S1008230024		0 0	O		N-Nitrosodipropylamine	SOLID	2000	1.3383E+03			58.1	ug/Kg	66.915	% Recovery	
2	LCS	S1008230024		0 0	O		Pyrene	SOLID	2000	1.6733E+03			62.9	ug/Kg	83.665	% Recovery	
Sample Sequence 3																	
3	SAMPLE	S10V002285		0 0	O		1,2,4-Trichlorobenzene	SOLID	N/A	<7.7396E+01			77.396	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		1,2-Dichlorobenzene	SOLID	N/A	<1.0069E+02			100.69	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		2,4-Dinitrotoluene	SOLID	N/A	<3.8098E+01			38.098	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		2,4,5-Trichlorophenol	SOLID	N/A	<4.3998E+01			43.998	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		2,4,6-Trichlorophenol	SOLID	N/A	<4.9498E+01			49.498	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		2-Methylphenol	SOLID	N/A	<5.7497E+01			57.497	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		2-Nitrophenol	SOLID	N/A	<5.3697E+01			53.697	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		3 & 4 Methylphenol Total	SOLID	N/A	<5.1397E+01			51.397	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		Acenaphthene	SOLID	N/A	<1.7599E+01			17.599	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		Benzo(a)anthracene	SOLID	N/A	<3.7798E+01			37.798	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		Benzo(b)fluoranthene	SOLID	N/A	<4.8898E+01			48.898	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		Benzo(a)pyrene	SOLID	N/A	<4.1198E+01			41.198	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		bis(2-Ethylhexyl)phthalate	SOLID	N/A	<5.9017E+02			590.17	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		Benzo(k)fluoranthene	SOLID	N/A	<3.9098E+01			39.098	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		Butylbenzylphthalate	SOLID	N/A	<4.9998E+01			49.998	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		4-Chloro-3-methylphenol	SOLID	N/A	<4.3198E+01			43.198	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		2-Chlorophenol	SOLID	N/A	<6.6497E+01			66.497	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		Chrysene	SOLID	N/A	<8.1396E+01			81.396	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		Dibenz(a,h)anthracene	SOLID	N/A	<5.1097E+01			51.097	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		Di-n-butylphthalate	SOLID	N/A	<5.6227E+02			562.27	ug/Kg			U

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

LABCORE Completed Batch Report for Batch# 00022129

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
3	SAMPLE	S10V002285		0 0	O		Di-n-octylphthalate	SOLID	N/A	<4.7698E+01			47.698	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		N-Nitrosodipropylamine	SOLID	N/A	<5.8097E+01			58.097	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		Fluoranthene	SOLID	N/A	<3.5398E+01			35.398	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		Hexachlorobutadiene	SOLID	N/A	<6.9697E+01			69.697	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		Hexachloroethane	SOLID	N/A	<1.1179E+02			111.79	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		Indeno(1,2,3-cd)pyrene	SOLID	N/A	<5.0997E+01			50.997	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		Naphthalene	SOLID	N/A	<6.2597E+01			62.597	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		Nitrobenzene	SOLID	N/A	<6.4597E+01			64.597	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		Pyrene	SOLID	N/A	<6.2897E+01			62.897	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		Pyridine	SOLID	N/A	<6.4997E+01			64.997	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		Tri-n-butylphosphate	SOLID	N/A	<1.0779E+02			107.79	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		2,6 bis-4Methylphenol	SOLID	N/A	<2.3559E+02			235.59	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		2-Ethoxyethanol	SOLID	N/A	<1.8239E+02			182.39	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		Methylphenols, Total	SOLID	N/A	<1.0659E+02			106.59	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		Cyclohexanone	SOLID	N/A	<5.5807E+02			558.07	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		N-Nitrosomorpholine	SOLID	N/A	<1.9129E+02			191.29	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		Isobutanol	SOLID	N/A	<4.6028E+02			460.28	ug/Kg			U
3	SAMPLE	S10V002285		0 0	O		2-Fluorobiphenyl	SOLID	1999.9	1.5251E+03				ug/Kg	76.259	% Recovery	
3	SAMPLE	S10V002285		0 0	O		2-Fluorophenol	SOLID	3999.8	2.7629E+03				ug/Kg	69.076	% Recovery	
3	SAMPLE	S10V002285		0 0	O		Nitrobenzene-d5	SOLID	1999.9	1.3919E+03				ug/Kg	69.598	% Recovery	
3	SAMPLE	S10V002285		0 0	O		2,4,6-Tribromophenol	SOLID	3999.8	3.4825E+03				ug/Kg	87.067	% Recovery	
3	SAMPLE	S10V002285		0 0	O		Terphenyl-d14	SOLID	1999.9	1.9033E+03				ug/Kg	95.17	% Recovery	
3	SAMPLE	S10V002285		0 0	O		Phenol-d6	SOLID	3999.8	3.0588E+03				ug/Kg	76.5	% Recovery	
3	SAMPLE	S10V002285		0 0	O		3-Buten-2-one, 3-methy	SOLID		245.08813				ug/Kg			JNT
3	SAMPLE	S10V002285		0 0	O		Amylene Hydrate	SOLID		227.96464				ug/Kg			BJNT
3	SAMPLE	S10V002285		0 0	O		Unknown Phthalate-1	SOLID		378.44394				ug/Kg			JT
Sample Sequence 4																	
4	SAMPLE	S10V002314		0 0	O		1,2,4-Trichlorobenzene	SOLID	N/A	<7.7076E+01			77.076	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		1,2-Dichlorobenzene	SOLID	N/A	<1.0028E+02			100.28	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		2,4-Dinitrotoluene	SOLID	N/A	<3.7941E+01			37.941	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		2,4,5-Trichlorophenol	SOLID	N/A	<4.3816E+01			43.816	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		2,4,6-Trichlorophenol	SOLID	N/A	<4.9293E+01			49.293	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		2-Methylphenol	SOLID	N/A	<5.7260E+01			57.26	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		2-Nitrophenol	SOLID	N/A	<5.3475E+01			53.475	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		3 & 4 Methylphenol Total	SOLID	N/A	<5.1185E+01			51.185	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		Acenaphthene	SOLID	N/A	<1.7526E+01			17.526	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		Benzo(a)anthracene	SOLID	N/A	<3.7642E+01			37.642	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		Benzo(b)fluoranthene	SOLID	N/A	<4.8695E+01			48.695	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		Benzo(a)pyrene	SOLID	N/A	<4.1028E+01			41.028	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		bis(2-Ethylhexyl)phthalate	SOLID	N/A	<5.8773E+02			587.73	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		Benzo(k)fluoranthene	SOLID	N/A	<3.8936E+01			38.936	ug/Kg			U

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LABCORE Completed Batch Report for Batch# 00022129

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
4	SAMPLE	S10V002314		0 0	O		Butylbenzylphthalate	SOLID	N/A	<4.9791E+01			49.791	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		4-Chloro-3-methylphenol	SOLID	N/A	<4.3019E+01			43.019	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		2-Chlorophenol	SOLID	N/A	<6.6222E+01			66.222	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		Chrysene	SOLID	N/A	<8.1060E+01			81.06	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		Dibenz(a,h)anthracene	SOLID	N/A	<5.0886E+01			50.886	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		Di-n-butylphthalate	SOLID	N/A	<5.5995E+02			559.95	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		Di-n-octylphthalate	SOLID	N/A	<4.7500E+01			47.5	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		N-Nitrosodipropylamine	SOLID	N/A	<5.7857E+01			57.857	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		Fluoranthene	SOLID	N/A	<3.5252E+01			35.252	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		Hexachlorobutadiene	SOLID	N/A	<6.9408E+01			69.408	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		Hexachloroethane	SOLID	N/A	<1.1133E+02			111.33	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		Indeno(1,2,3-cd)pyrene	SOLID	N/A	<5.0787E+01			50.787	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		Naphthalene	SOLID	N/A	<6.2338E+01			62.338	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		Nitrobenzene	SOLID	N/A	<6.4330E+01			64.33	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		Pyrene	SOLID	N/A	<6.2637E+01			62.637	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		Pyridine	SOLID	N/A	<6.4728E+01			64.728	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		Tri-n-butylphosphate	SOLID	N/A	<1.0735E+02			107.35	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		2,6 bis-4Methylphenol	SOLID	N/A	<2.3461E+02			234.61	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		2-Ethoxyethanol	SOLID	N/A	<1.8164E+02			181.64	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		Methylphenols, Total	SOLID	N/A	<1.0615E+02			106.15	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		Cyclohexanone	SOLID	N/A	<5.5577E+02			555.77	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		N-Nitrosomorpholine	SOLID	N/A	<1.9050E+02			190.5	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		Isobutanol	SOLID	N/A	<4.5837E+02			458.37	ug/Kg			U
4	SAMPLE	S10V002314		0 0	O		2-Fluorobiphenyl	SOLID	1991.635	1.3344E+03				ug/Kg	67	% Recovery	
4	SAMPLE	S10V002314		0 0	O		2-Fluorophenol	SOLID	3983.27	2.4898E+03				ug/Kg	62.506	% Recovery	
4	SAMPLE	S10V002314		0 0	O		Nitrobenzene-d5	SOLID	1991.635	1.1951E+03				ug/Kg	60.006	% Recovery	
4	SAMPLE	S10V002314		0 0	O		2,4,6-Tribromophenol	SOLID	3983.27	3.3059E+03				ug/Kg	82.995	% Recovery	
4	SAMPLE	S10V002314		0 0	O		Terphenyl-d14	SOLID	1991.635	1.8334E+03				ug/Kg	92.055	% Recovery	
4	SAMPLE	S10V002314		0 0	O		Phenol-d6	SOLID	3983.27	2.7040E+03				ug/Kg	67.9	% Recovery	
4	SAMPLE	S10V002314		0 0	O		1,2-Benzenedicarboxyli	SOLID		205.24655				ug/Kg			BJNT
Sample Sequence 5																	
5	MS	S1008230026	S10V002314	0 0	O		1,2,4-Trichlorobenzene	SOLID	1996.506	1.2634E+03			77.265	ug/Kg	63.281	% Recovery	
5	MS	S1008230026	S10V002314	0 0	O		2,4-Dinitrotoluene	SOLID	1996.506	1.7189E+03			38.033	ug/Kg	86.095	% Recovery	
5	MS	S1008230026	S10V002314	0 0	O		Acenaphthene	SOLID	1996.506	1.4491E+03			17.569	ug/Kg	72.582	% Recovery	
5	MS	S1008230026	S10V002314	0 0	O		4-Chloro-3-methylphenol	SOLID	3993.012	2.5363E+03			43.125	ug/Kg	63.518	% Recovery	
5	MS	S1008230026	S10V002314	0 0	O		2-Chlorophenol	SOLID	3993.012	2.8327E+03			66.384	ug/Kg	70.941	% Recovery	
5	MS	S1008230026	S10V002314	0 0	O		N-Nitrosodipropylamine	SOLID	1996.506	1.2873E+03			57.998	ug/Kg	64.478	% Recovery	
5	MS	S1008230026	S10V002314	0 0	O		Pyrene	SOLID	1996.506	1.5002E+03			62.79	ug/Kg	75.141	% Recovery	
Sample Sequence 6																	
6	MSD	S1008230027	S10V002314	0 0	O		1,2,4-Trichlorobenzene	SOLID	1999.5	1.1458E+03			77.381	ug/Kg	57.304	% Recovery	
															9.9133	% RPD	

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LABCORE Completed Batch Report for Batch# 00022129

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
6	MSD	S1008230027	S10V002314	0 0	O		2,4-Dinitrotoluene	SOLID	1999.5	1.6628E+03			38.09	ug/Kg	83.161	% Recovery	
															3.4669	% RPD	
6	MSD	S1008230027	S10V002314	0 0	O		Acenaphthene	SOLID	1999.5	1.3819E+03			17.596	ug/Kg	69.112	% Recovery	
															4.8979	% RPD	
6	MSD	S1008230027	S10V002314	0 0	O		4-Chloro-3-methylphenol	SOLID	3999	2.5478E+03			43.189	ug/Kg	63.711	% Recovery	
															0.30339	% RPD	
6	MSD	S1008230027	S10V002314	0 0	O		2-Chlorophenol	SOLID	3999	2.6077E+03			66.483	ug/Kg	65.209	% Recovery	
															8.4201	% RPD	
6	MSD	S1008230027	S10V002314	0 0	O		N-Nitrosodipropylamine	SOLID	1999.5	1.2432E+03			58.085	ug/Kg	62.176	% Recovery	
															3.6351	% RPD	
6	MSD	S1008230027	S10V002314	0 0	O		Pyrene	SOLID	1999.5	1.5319E+03			62.884	ug/Kg	76.614	% Recovery	
															1.9413	% RPD	
Sample Sequence 7																	
7	SAMPLE	S10V002349		0 0	O		1,2,4-Trichlorobenzene	SOLID	N/A	<7.7011E+01			77.011	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		1,2-Dichlorobenzene	SOLID	N/A	<1.0019E+02			100.19	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		2,4-Dinitrotoluene	SOLID	N/A	<3.7909E+01			37.909	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		2,4,5-Trichlorophenol	SOLID	N/A	<4.3779E+01			43.779	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		2,4,6-Trichlorophenol	SOLID	N/A	<4.9251E+01			49.251	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		2-Methylphenol	SOLID	N/A	<5.7211E+01			57.211	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		2-Nitrophenol	SOLID	N/A	<5.3430E+01			53.43	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		3 & 4 Methylphenol Total	SOLID	N/A	<5.1142E+01			51.142	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		Acenaphthene	SOLID	N/A	<1.7512E+01			17.512	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		Benzo(a)anthracene	SOLID	N/A	<3.7610E+01			37.61	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		Benzo(b)fluoranthene	SOLID	N/A	<4.8654E+01			48.654	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		Benzo(a)pyrene	SOLID	N/A	<4.0993E+01			40.993	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		bis(2-Ethylhexyl)phthalate	SOLID	N/A	<5.8723E+02			587.23	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		Benzo(k)fluoranthene	SOLID	N/A	<3.8904E+01			38.904	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		Butylbenzylphthalate	SOLID	N/A	<4.9749E+01			49.749	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		4-Chloro-3-methylphenol	SOLID	N/A	<4.2983E+01			42.983	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		2-Chlorophenol	SOLID	N/A	<6.6166E+01			66.166	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		Chrysene	SOLID	N/A	<8.0991E+01			80.991	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		Dibenz(a,h)anthracene	SOLID	N/A	<5.0843E+01			50.843	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		Di-n-butylphthalate	SOLID	N/A	<5.5947E+02			559.47	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		Di-n-octylphthalate	SOLID	N/A	<4.7460E+01			47.46	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		N-Nitrosodipropylamine	SOLID	N/A	<5.7808E+01			57.808	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		Fluoranthene	SOLID	N/A	<3.5222E+01			35.222	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		Hexachlorobutadiene	SOLID	N/A	<6.9350E+01			69.35	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		Hexachloroethane	SOLID	N/A	<1.1124E+02			111.24	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		Indeno(1,2,3-cd)pyrene	SOLID	N/A	<5.0744E+01			50.744	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		Naphthalene	SOLID	N/A	<6.2285E+01			62.285	ug/Kg			U

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LABCORE Completed Batch Report for Batch# 00022129

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
7	SAMPLE	S10V002349		0 0	O		Nitrobenzene	SOLID	N/A	<6.4275E+01			64.275	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		Pyrene	SOLID	N/A	<6.2584E+01			62.584	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		Pyridine	SOLID	N/A	<6.4673E+01			64.673	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		Tri-n-butylphosphate	SOLID	N/A	<1.0726E+02			107.26	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		2,6 bis-4Methylphenol	SOLID	N/A	<2.3442E+02			234.42	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		2-Ethoxyethanol	SOLID	N/A	<1.8148E+02			181.48	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		Methylphenols, Total	SOLID	N/A	<1.0606E+02			106.06	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		Cyclohexanone	SOLID	N/A	<5.5530E+02			555.3	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		N-Nitrosomorpholine	SOLID	N/A	<1.9034E+02			190.34	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		Isobutanol	SOLID	N/A	<4.5799E+02			457.99	ug/Kg			U
7	SAMPLE	S10V002349		0 0	O		2-Fluorobiphenyl	SOLID	1989.95	1.3771E+03				ug/Kg	69.203	% Recovery	
7	SAMPLE	S10V002349		0 0	O		2-Fluorophenol	SOLID	3979.901	2.6232E+03				ug/Kg	65.911	% Recovery	
7	SAMPLE	S10V002349		0 0	O		Nitrobenzene-d5	SOLID	1989.95	1.2622E+03				ug/Kg	63.429	% Recovery	
7	SAMPLE	S10V002349		0 0	O		2,4,6-Tribromophenol	SOLID	3979.901	3.4692E+03				ug/Kg	87.168	% Recovery	
7	SAMPLE	S10V002349		0 0	O		Terphenyl-d14	SOLID	1989.95	2.0054E+03				ug/Kg	100.78	% Recovery	
7	SAMPLE	S10V002349		0 0	O		Phenol-d6	SOLID	3979.901	2.8888E+03				ug/Kg	72.6	% Recovery	
7	SAMPLE	S10V002349		0 0	O		1,2-Benzenedicarboxyli	SOLID		256.76902				ug/Kg			BJNT
Sample Sequence 8																	
8	SAMPLE	S10V002396		0 0	O		1,2,4-Trichlorobenzene	SOLID	N/A	<7.7392E+01			77.392	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		1,2-Dichlorobenzene	SOLID	N/A	<1.0069E+02			100.69	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		2,4-Dinitrotoluene	SOLID	N/A	<3.8096E+01			38.096	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		2,4,5-Trichlorophenol	SOLID	N/A	<4.3996E+01			43.996	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		2,4,6-Trichlorophenol	SOLID	N/A	<4.9495E+01			49.495	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		2-Methylphenol	SOLID	N/A	<5.7494E+01			57.494	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		2-Nitrophenol	SOLID	N/A	<5.3695E+01			53.695	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		3 & 4 Methylphenol Total	SOLID	N/A	<5.1395E+01			51.395	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		Acenaphthene	SOLID	N/A	<1.7598E+01			17.598	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		Benzo(a)anthracene	SOLID	N/A	<3.7796E+01			37.796	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		Benzo(b)fluoranthene	SOLID	N/A	<4.8895E+01			48.895	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		Benzo(a)pyrene	SOLID	N/A	<4.1196E+01			41.196	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		bis(2-Ethylhexyl)phthalate	SOLID	N/A	<5.9014E+02			590.14	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		Benzo(k)fluoranthene	SOLID	N/A	<3.9096E+01			39.096	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		Butylbenzylphthalate	SOLID	N/A	<4.9995E+01			49.995	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		4-Chloro-3-methylphenol	SOLID	N/A	<4.3196E+01			43.196	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		2-Chlorophenol	SOLID	N/A	<6.6493E+01			66.493	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		Chrysene	SOLID	N/A	<8.1392E+01			81.392	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		Dibenz(a,h)anthracene	SOLID	N/A	<5.1095E+01			51.095	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		Di-n-butylphthalate	SOLID	N/A	<5.6224E+02			562.24	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		Di-n-octylphthalate	SOLID	N/A	<4.7695E+01			47.695	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		N-Nitrosodipropylamine	SOLID	N/A	<5.8094E+01			58.094	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# 00022129

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
8	SAMPLE	S10V002396		0 0	O		Fluoranthene	SOLID	N/A	<3.5396E+01			35.396	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		Hexachlorobutadiene	SOLID	N/A	<6.9693E+01			69.693	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		Hexachloroethane	SOLID	N/A	<1.1179E+02			111.79	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		Indeno(1,2,3-cd)pyrene	SOLID	N/A	<5.0995E+01			50.995	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		Naphthalene	SOLID	N/A	<6.2594E+01			62.594	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		Nitrobenzene	SOLID	N/A	<6.4594E+01			64.594	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		Pyrene	SOLID	N/A	<6.2894E+01			62.894	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		Pyridine	SOLID	N/A	<6.4993E+01			64.993	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		Tri-n-butylphosphate	SOLID	N/A	<1.0779E+02			107.79	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		2,6 bis-4Methylphenol	SOLID	N/A	<2.3558E+02			235.58	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		2-Ethoxyethanol	SOLID	N/A	<1.8238E+02			182.38	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		Methylphenols, Total	SOLID	N/A	<1.0659E+02			106.59	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		Cyclohexanone	SOLID	N/A	<5.5804E+02			558.04	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		N-Nitrosomorpholine	SOLID	N/A	<1.9128E+02			191.28	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		Isobutanol	SOLID	N/A	<4.6025E+02			460.25	ug/Kg			U
8	SAMPLE	S10V002396		0 0	O		2-Fluorobiphenyl	SOLID	1999.8	1.3144E+03				ug/Kg	65.727	% Recovery	
8	SAMPLE	S10V002396		0 0	O		2-Fluorophenol	SOLID	3999.6	2.5314E+03				ug/Kg	63.291	% Recovery	
8	SAMPLE	S10V002396		0 0	O		Nitrobenzene-d5	SOLID	1999.8	1.1563E+03				ug/Kg	57.821	% Recovery	
8	SAMPLE	S10V002396		0 0	O		2,4,6-Tribromophenol	SOLID	3999.6	3.3003E+03				ug/Kg	82.516	% Recovery	
8	SAMPLE	S10V002396		0 0	O		Terphenyl-d14	SOLID	1999.8	1.9007E+03				ug/Kg	95.045	% Recovery	
8	SAMPLE	S10V002396		0 0	O		Phenol-d6	SOLID	3999.6	2.7669E+03				ug/Kg	69.2	% Recovery	
8	SAMPLE	S10V002396		0 0	O		1,2-Benzenedicarboxyli	SOLID		382.70266				ug/Kg			BJNT
8	SAMPLE	S10V002396		0 0	O		Unknown-1	SOLID		201.2591				ug/Kg			JT
8	SAMPLE	S10V002396		0 0	O		Unknown-2	SOLID		804.63608				ug/Kg			JT
8	SAMPLE	S10V002396		0 0	O		Unknown-3	SOLID		477.69252				ug/Kg			JT
8	SAMPLE	S10V002396		0 0	O		Unknown-4	SOLID		246.60813				ug/Kg			BJT

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00022129

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# 00022129

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1008230023	BLNK				
2	S1008230024	LCS				
3	S10V002285	SAMPLE		20100660	B26JL0	C Farm WMC 2010-2
4	S10V002314	SAMPLE		20100660	B26JL1	C Farm WMC 2010-2
5	S1008230026	MS	S10V002314			
6	S1008230027	MSD	S10V002314			
7	S10V002349	SAMPLE		20100660	B26C47	C Farm WMC 2010-2
8	S10V002396	SAMPLE		20100660	B26C51	C Farm WMC 2010-2

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

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

SVOA Batch # 22129

FORM 2
SOIL SEMIVOLATILE SURROGATE RECOVERY

Lab Name: Contract:

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

Level: (low/med) LOW

	CHG SAMPLE NO.	S1 (FBP)#	S2 (2FP)#	S3 (NBZ)#	S4 #	S5 (TBP)#	S6 (TPH)#	S7 #	S8 #	TOT OUT
01	BLANK	71	66	67	70	88	100			0
02	LCS	81	77	75	83	95	100			0
03	S10V002314	67	62	60	68	83	92			0
04	S10V002314MS	77	70	71	76	88	89			0
05	S10V002314MS	71	66	63	72	90	92			0
06	S10V002285	76	69	70	76	87	95			0
07	S10V002349	69	66	63	72	87	101			0
08	S10V002396	66	63	58	69	82	95			0
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

SVOA Batch # 22129

FORM 3
SOIL SEMIVOLATILE LAB CONTROL SAMPLE

Lab Name: Contract:

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

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		1314.9	66	2-128
2,4-Dinitrotoluene	2000.0		1797.9	90	55-111
Acenaphthene	2000.0		1499.4	75	36-114
4-Chloro-3-Methylphenol	4000.0		2786.0	70	42-103
2-Chlorophenol	4000.0		2926.4	73	28-111
N-Nitroso-di-n-prop.(1)	2000.0		1338.3	67	18-108
Pyrene	2000.0		1673.3	84	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: 21 June 2011
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: WMA C
Subject: Inorganics - Sample Data Group (SDG) 20100660

INTRODUCTION

This memorandum presents the results of data validation for SDG 20100660 prepared by 222-S Laboratory with ICP-MS 200.8 analysis subcontracted to WSCF. 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
B26C59	8/24/2010	Soil	C	See note 1
B26JL0	8/17/2010	Soil	C	See note 1

1 – 6010C (ICP-AES), 6020A (ICP-MS), 200.8 (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 exceptions. The Co and Th-230 laboratory blank results were > the MDLs. The Co result for sample B26C59 and the Th-230 result for sample B26JL0 were non-detects and should not be qualified. The Co result for sample B26JL0 was a detect >5X the laboratory blank result and should not be qualified. The Th-230 result for sample B26C59 was a detect <5X the laboratory blank result and should be qualified as a non-detect at the sample concentration (8.71E-05 ug/g) and flagged "U."

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 exception. The MS recovery for Zr was < the lower acceptance limit and the associated post spike recovery was acceptable. The Zr results for samples B26C59 and B26JL0 were detects and should be qualified as estimates and flagged "J."

Laboratory Control Samples (LCSs)

All LCS recoveries were acceptable with the following exception. The LCS recovery for Cd was > the upper acceptance limit. The Cd result for sample B26C59 was a non-detect and should not be qualified. The Cd result for sample B26JL0 was a detect and should be qualified as an estimate and flagged "J+."

- **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.

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 20100660 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

Several 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: 20100660	Reviewer: AQA	Project: WMA C	Page 1 of 1
Analyte(s)	**DV Flag**	**Samples Affected**	**Reason**
Th-230	8.71E-05U	B26C59	Lab blank contamination
Zr	J	B26C59, B26JL0	Low MS recovery
Cd	J+	B26JL0	High LCS recovery

Comments: None

Appendix 3

Annotated Laboratory Reports

Data Summary Report

Sample Group: 20100660
Core Number: C7682
Customer Sample ID: B26C59
Sample Depth: 88-90

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002467			%WATERA	%WATER-APD	%	n/a	n/a	4.150	n/a	n/a	n/a	n/a	0.01000	n/a	
S10V002467			57-12-5	Cyanide	ug/g	105	<0.0370	<2.58	n/a	n/a	n/a	n/a	2.58	n/a	U
S10V002467			7439-97-6	Mercury	ug/g	87.7	<1.00E-04	<9.63E-03	n/a	n/a	n/a	n/a	9.63E-03	n/a	U
S10V002467			PH	pH	unitless	n/a	n/a	8.59	n/a	n/a	n/a	n/a	0.0100	n/a	
S10V002467			12597-04-5	Sulfide	ug/g	96.1	<0.180	8.04	n/a	n/a	n/a	n/a	7.10	n/a	B
S10V002468			13966-00-2	Potassium-40	uCi/g	n/a	n/a	1.88E-05	1.76E-05	n/a	n/a	n/a	7.75E-06	28.59	
S10V002468			10198-40-0	Cobalt-60	uCi/g	98.2	<3.92E-07	<3.95E-07	<3.81E-07	n/a	n/a	n/a	3.95E-07	n/a	U
S10V002468			14234-35-6	Antimony-125	uCi/g	n/a	<1.02E-06	<1.05E-06	<1.02E-06	n/a	n/a	n/a	1.05E-06	n/a	U
S10V002468			10045-97-3	Cesium-137	uCi/g	100	<5.19E-07	<5.86E-07	<5.37E-07	n/a	n/a	n/a	5.86E-07	n/a	U
S10V002468			14683-23-9	Europium-152	uCi/g	n/a	<1.88E-06	<1.92E-06	<1.99E-06	n/a	n/a	n/a	1.92E-06	n/a	U
S10V002468			15585-10-1	Europium-154	uCi/g	n/a	<1.08E-06	<1.38E-06	<1.19E-06	n/a	n/a	n/a	1.38E-06	n/a	U
S10V002468			14391-16-3	Europium-155	uCi/g	n/a	<9.28E-07	<1.03E-06	<1.02E-06	n/a	n/a	n/a	1.03E-06	n/a	U
S10V002468			14274-82-9	Thorium-228	uCi/g	n/a	<2.19E-05	<2.43E-05	<2.43E-05	n/a	n/a	n/a	2.43E-05	n/a	U
S10V002468			15065-10-8	Thorium-234	uCi/g	n/a	<1.82E-05	<2.01E-05	<1.87E-05	n/a	n/a	n/a	2.01E-05	n/a	U
S10V002468			15046-84-1	Iodine-129	uCi/g	113	<1.93E-07	<1.65E-07	n/a	n/a	n/a	n/a	1.65E-07	n/a	U
S10V002469		WV	14133-76-7	Technetium-99	ug/g	110	<3.00E-06	<3.02E-06	n/a	n/a	n/a	n/a	3.02E-06	n/a	U
S10V002470		W	14762-75-5	Carbon-14	uCi/g	92.4	<1.33E-07	<1.31E-06	n/a	n/a	n/a	n/a	1.31E-06	n/a	U
S10V002470		W	10028-17-8	Tritium	uCi/g	94.7	<4.95E-06	2.68E-06	n/a	n/a	n/a	n/a	2.50E-06	164.945	
S10V002471		A	7440-36-0	Antimony	ug/g	99.9	<2.00E-04	0.170	n/a	n/a	n/a	n/a	9.84E-03	n/a	
S10V002472		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	60.8	<77.4	<76.5	n/a	n/a	n/a	n/a	76.5	n/a	U
S10V002472		O	95-50-1	1,2-Dichlorobenzene	ug/kg	n/a	<101	<99.5	n/a	n/a	n/a	n/a	99.5	n/a	U
S10V002472		O	121-14-2	2,4-Dinitrotoluene	ug/kg	80.2	<38.1	<37.7	n/a	n/a	n/a	n/a	37.7	n/a	U
S10V002472		O	95-95-4	2,4,5-Trichlorophenol	ug/kg	n/a	<44.0	<43.5	n/a	n/a	n/a	n/a	43.5	n/a	U
S10V002472		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
S10V002472		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
S10V002472		O	88-75-5	2-Nitrophenol	ug/kg	n/a	<53.7	<53.1	n/a	n/a	n/a	n/a	53.1	n/a	U
S10V002472		O	65794-96-9	3 &4 Methylphenol	ug/kg	n/a	<51.4	<50.8	n/a	n/a	n/a	n/a	50.8	n/a	U
S10V002472		O	83-32-9	Acenaphthene	ug/kg	68.8	<17.6	<17.4	n/a	n/a	n/a	n/a	17.4	n/a	U
S10V002472		O	56-55-3	Benzo(a)anthracene	ug/kg	n/a	<37.8	<37.4	n/a	n/a	n/a	n/a	37.4	n/a	U

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LS
6-21-2011
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Data Summary Report

Sample Group: 20100660
Core Number: C7682
Customer Sample ID: B26C59
Sample Depth: 88-90

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S10V002473~~		~~W~~	~~71-50-1~~	~~Acetate~~	~~ug/g~~	~~95.0~~	~~<6.04E-03~~	~~0.202~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.0602~~	~~n/a~~	~~B~~
S10V002473		W	FORMATE	Formate	ug/g	99.0	<4.67E-03	0.204	n/a	n/a	n/a	n/a	0.0465	n/a	B
S10V002473		W	16887-00-6	Chloride	ug/g	97.1	<9.98E-03	9.75	n/a	n/a	n/a	n/a	0.0994	n/a	
S10V002473		W	14797-65-0	Nitrite	ug/g	97.3	<0.0192	1.24	n/a	n/a	n/a	n/a	0.191	n/a	B
S10V002473		W	14808-79-8	Sulfate	ug/g	99.3	<0.0187	96.7	n/a	n/a	n/a	n/a	0.186	n/a	
S10V002473		W	338-70-5	Oxalate	ug/g	99.8	<0.0231	<0.230	n/a	n/a	n/a	n/a	0.230	n/a	U
S10V002473		W	24959-67-9	Bromide	ug/g	97.9	<0.0580	<0.578	n/a	n/a	n/a	n/a	0.578	n/a	U
S10V002473		W	14797-55-8	Nitrate	ug/g	98.3	<0.0208	19.2	n/a	n/a	n/a	n/a	0.207	n/a	
~~S10V002473~~		~~W~~	~~14265-44-2~~	~~Phosphate~~	~~ug/g~~	~~98.0~~	~~<0.0167~~	~~<0.166~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.166~~	~~n/a~~	~~U~~
S10V002474		A	7429-90-5	Aluminum	ug/g	94.0	<0.0300	6.36E+03	n/a	n/a	n/a	n/a	2.48	n/a	
S10V002474		A	7440-39-3	Barium	ug/g	102	<3.00E-03	64.3	n/a	n/a	n/a	n/a	0.248	n/a	
S10V002474		A	7440-41-7	Beryllium	ug/g	106	<1.00E-03	0.160	n/a	n/a	n/a	n/a	0.0825	n/a	B
S10V002474		A	7440-70-2	Calcium	ug/g	91.9	<0.0500	7.87E+03	n/a	n/a	n/a	n/a	4.13	n/a	
S10V002474		A	7440-45-1	Cerium	ug/g	101	<0.0300	13.3	n/a	n/a	n/a	n/a	2.48	n/a	B
S10V002474		A	7440-48-4	Cobalt	ug/g	98.4	0.0122	5.43	n/a	n/a	n/a	n/a	0.825	n/a	B
S10V002474		A	7440-47-3	Chromium	ug/g	97.7	<5.00E-03	24.6	n/a	n/a	n/a	n/a	0.413	n/a	
S10V002474		A	7440-50-8	Copper	ug/g	102	<5.00E-03	10.1	n/a	n/a	n/a	n/a	0.413	n/a	
S10V002474		A	7439-89-6	Iron	ug/g	98.2	5.24E-03	1.41E+04	n/a	n/a	n/a	n/a	0.413	n/a	
S10V002474		A	7440-09-7	Potassium	ug/g	89.7	<0.500	1.16E+03	n/a	n/a	n/a	n/a	41.3	n/a	
S10V002474		A	7439-91-0	Lanthanum	ug/g	102	<3.00E-03	6.39	n/a	n/a	n/a	n/a	0.248	n/a	
S10V002474		A	7439-93-2	Lithium	ug/g	108	<3.00E-03	9.71	n/a	n/a	n/a	n/a	0.248	n/a	
S10V002474		A	7439-95-4	Magnesium	ug/g	95.5	<0.0500	4.80E+03	n/a	n/a	n/a	n/a	4.13	n/a	
S10V002474		A	7439-96-5	Manganese	ug/g	97.0	<3.00E-03	283	n/a	n/a	n/a	n/a	0.248	n/a	
S10V002474		A	7439-98-7	Molybdenum	ug/g	108	<0.0200	<1.65	n/a	n/a	n/a	n/a	1.65	n/a	U
S10V002474		A	7440-23-5	Sodium	ug/g	107	<0.100	145	n/a	n/a	n/a	n/a	8.25	n/a	
S10V002474		A	7440-02-0	Nickel	ug/g	95.7	<0.0200	18.2	n/a	n/a	n/a	n/a	1.65	n/a	
S10V002474		A	7723-14-0	Phosphorus	ug/g	106	<0.0500	479	n/a	n/a	n/a	n/a	4.13	n/a	
S10V002474		A	7704-34-9	Sulfur	ug/g	106	<0.100	62.5	n/a	n/a	n/a	n/a	8.25	n/a	B
S10V002474		A	7440-21-3	Silicon	ug/g	89.3	<0.0300	58.7	n/a	n/a	n/a	n/a	2.48	n/a	

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LS
6-21-2011

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Data Summary Report

Sample Group: 20100660
Core Number: C7682
Customer Sample ID: B26C59
Sample Depth: 88-90

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002474	A	7440-24-6	Strontium	ug/g	102	<3.00E-03	34.0	n/a	n/a	n/a	n/a	0.248	n/a	
S10V002474	A	7440-32-6	Titanium	ug/g	107	<5.00E-03	561	n/a	n/a	n/a	n/a	0.413	n/a	
S10V002474	A	7440-62-2	Vanadium	ug/g	100	<5.00E-03	25.8	n/a	n/a	n/a	n/a	0.413	n/a	
S10V002474	A	7440-65-5	Yttrium	ug/g	93.7	<2.00E-03	4.91	n/a	n/a	n/a	n/a	0.165	n/a	
S10V002474	A	7440-66-6	Zinc	ug/g	96.7	<5.00E-03	33.0	n/a	n/a	n/a	n/a	0.413	n/a	
S10V002474	A	7440-67-7	Zirconium J	ug/g	105	<5.00E-03	5.24	n/a	n/a	n/a	n/a	0.413	n/a	N
S10V002474	A	14269-63-7	Thorium-230 8.71E-05U	ug/g	n/a	5.21E-06	8.71E-05	n/a	n/a	n/a	n/a	2.81E-05	n/a	B
S10V002474	A	TH-232	Thorium-232	ug/g	104	<2.00E-04	4.01	n/a	n/a	n/a	n/a	2.00E-03	n/a	
S10V002474	A	13968-55-3	Uranium-233	ug/g	n/a	<4.00E-06	2.11E-04	n/a	n/a	n/a	n/a	4.01E-05	n/a	
S10V002474	A	13966-29-5	Uranium-234	ug/g	n/a	<2.00E-06	3.77E-05	n/a	n/a	n/a	n/a	2.00E-05	n/a	
S10V002474	A	15117-96-1	Uranium-235	ug/g	94.8	<4.00E-06	3.41E-03	n/a	n/a	n/a	n/a	4.01E-05	n/a	
S10V002474	A	13982-70-2	Uranium-236	ug/g	n/a	<1.60E-06	2.19E-05	n/a	n/a	n/a	n/a	1.60E-05	n/a	B
S10V002474	A	13994-20-2	Neptunium-237	ug/g	102	<4.00E-05	<4.01E-04	n/a	n/a	n/a	n/a	4.01E-04	n/a	U
S10V002474	A	U-238	Uranium-238	ug/g	104	<2.00E-04	0.513	n/a	n/a	n/a	n/a	2.00E-03	n/a	
~~S10V002475~~	~~S~~	~~14798-03-9~~	~~Ammonium~~	~~ug/g~~	~~104~~	~~0.0279~~	~~1.60~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.477~~	~~n/a~~	~~CB~~
S10V002476	A	14133-76-7	Technetium-99	ug/g	109	<3.00E-05	<2.97E-04	n/a	n/a	n/a	n/a	2.97E-04	n/a	U
S10V002476	A	SN-117	Tin-117	ug/g	102	<1.00E-03	<9.90E-03	n/a	n/a	n/a	n/a	9.90E-03	n/a	U
S10V002476	A	15832-50-5	Tin-126	ug/g	n/a	<2.00E-05	4.55E-04	n/a	n/a	n/a	n/a	1.98E-04	n/a	B
~~S10V002477~~	~~E~~	~~CM-243/244~~	~~Curium-243/244~~	~~uCi/g~~	~~n/a~~	~~<2.19E-07~~	~~<2.43E-07~~	~~<1.67E-07~~	~~n/a~~	~~n/a~~	~~n/a~~	~~2.43E-07~~	~~n/a~~	~~U~~
S10V002477	E	14596-10-2	Americium-241	uCi/g	103	<5.46E-07	<6.09E-07	<4.16E-07	n/a	n/a	n/a	6.09E-07	n/a	U
S10V002477	E	15510-73-3	Curium-242	uCi/g	n/a	<2.19E-07	<2.43E-07	<1.67E-07	n/a	n/a	n/a	2.44E-07	n/a	U
S10V002477	E	PU-239/240	Plutonium-239/240	uCi/g	98.9	<5.46E-07	<4.67E-07	<2.98E-07	n/a	n/a	n/a	4.67E-07	n/a	U
S10V002477	E	13981-16-3	Plutonium-238	uCi/g	n/a	<5.46E-07	<4.67E-07	<2.98E-07	n/a	n/a	n/a	4.67E-07	n/a	U
S10V002478	E	SR-89/90	Strontium-89/90	uCi/g	101	<2.09E-07	<7.13E-07	<5.62E-07	n/a	n/a	n/a	7.13E-07	n/a	U
S10V002479	E	13981-37-8	Nickel-63	uCi/g	90.8	<3.89E-06	<5.10E-06	<4.89E-06	n/a	n/a	n/a	5.10E-06	n/a	U
~~S10V002479~~	~~E~~	~~15758-45-9~~	~~Selenium-79~~	~~uCi/g~~	~~n/a~~	~~<2.73E-06~~	~~<2.45E-06~~	~~<4.03E-06~~	~~n/a~~	~~n/a~~	~~n/a~~	~~2.45E-06~~	~~n/a~~	~~U~~

LS
6-21-2011

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Data Summary Report

Sample Group: 20100660
Core Number: C7682
Customer Sample ID: B26JL0
Sample Depth: Surface

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002280			%WATERA	%WATER-APD	%	n/a	n/a	4.880	n/a	n/a	n/a	n/a	0.01000	n/a	
S10V002280			57-12-5	Cyanide	ug/g	96.5	<0.0370	<2.66	<2.65	n/a	n/a	74.4	2.66	n/a	UN
S10V002280			7439-97-6	Mercury	ug/g	100	<1.00E-04	<9.16E-03	n/a	n/a	n/a	101	9.16E-03	n/a	U
S10V002280			PH	pH	unitless	n/a	n/a	9.37	n/a	n/a	n/a	n/a	0.0100	n/a	
S10V002280			12597-04-5	Sulfide	ug/g	95.5	<0.180	10.2	10.4	10.3	1.85	97.2	7.12	n/a	B
S10V002281			13966-00-2	Potassium-40	uCi/g	n/a	n/a	2.00E-05	n/a	n/a	n/a	n/a	7.73E-06	26.95	
S10V002281			10198-40-0	Cobalt-60	uCi/g	98.2	<3.92E-07	<4.11E-07	n/a	n/a	n/a	n/a	4.11E-07	n/a	U
S10V002281			14234-35-6	Antimony-125	uCi/g	n/a	<1.02E-06	<9.85E-07	n/a	n/a	n/a	n/a	9.85E-07	n/a	U
S10V002281			10045-97-3	Cesium-137	uCi/g	100	<5.19E-07	<5.66E-07	n/a	n/a	n/a	n/a	5.66E-07	n/a	U
S10V002281			14683-23-9	Europium-152	uCi/g	n/a	<1.88E-06	<1.90E-06	n/a	n/a	n/a	n/a	1.90E-06	n/a	U
S10V002281			15585-10-1	Europium-154	uCi/g	n/a	<1.08E-06	<1.22E-06	n/a	n/a	n/a	n/a	1.22E-06	n/a	U
S10V002281			14391-16-3	Europium-155	uCi/g	n/a	<9.28E-07	<1.03E-06	n/a	n/a	n/a	n/a	1.03E-06	n/a	U
S10V002281			14274-82-9	Thorium-228	uCi/g	n/a	<2.19E-05	<2.48E-05	n/a	n/a	n/a	n/a	2.48E-05	n/a	U
S10V002281			15065-10-8	Thorium-234	uCi/g	n/a	<1.82E-05	<1.97E-05	n/a	n/a	n/a	n/a	1.97E-05	n/a	U
S10V002281			15046-84-1	Iodine-129	uCi/g	111	<1.83E-07	<1.55E-07	n/a	n/a	n/a	n/a	1.55E-07	n/a	U
S10V002282		WV	14133-76-7	Technetium-99	ug/g	110	<3.00E-06	<2.95E-06	n/a	n/a	n/a	n/a	2.95E-06	n/a	U
S10V002283		W	14762-75-5	Carbon-14	uCi/g	92.4	<1.33E-07	<1.39E-06	n/a	n/a	n/a	n/a	1.39E-06	n/a	U
S10V002283		W	10028-17-8	Tritium	uCi/g	94.7	<4.95E-06	<4.62E-06	n/a	n/a	n/a	n/a	4.62E-06	n/a	U
S10V002284		A	7440-36-0	Antimony	ug/g	99.9	<2.00E-04	0.207	0.191	0.199	8.07	81.1	9.43E-03	n/a	
S10V002285		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	65.7	<77.4	<77.4	n/a	n/a	n/a	n/a	77.4	n/a	U
S10V002285		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
S10V002285		O	121-14-2	2,4-Dinitrotoluene	ug/kg	89.9	<38.1	<38.1	n/a	n/a	n/a	n/a	38.1	n/a	U
S10V002285		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
S10V002285		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
S10V002285		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
S10V002285		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
S10V002285		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
S10V002285		O	83-32-9	Acenaphthene	ug/kg	75.0	<17.6	<17.6	n/a	n/a	n/a	n/a	17.6	n/a	U
S10V002285		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

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LS
6-21-2011

Data Summary Report

Sample Group: 20100660
Core Number: C7682
Customer Sample ID: B26JL0
Sample Depth: Surface

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S10V002286~~		~~W~~	~~71-50-1~~	~~Acetate~~	~~ug/g~~	~~95.0~~	~~<6.04E-03~~	~~0.160~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.0603~~	~~n/a~~	~~B~~
S10V002286		W	FORMATE	Formate	ug/g	99.0	<4.67E-03	0.168	n/a	n/a	n/a	n/a	0.0466	n/a	B
S10V002286		W	16887-00-6	Chloride	ug/g	97.1	<9.98E-03	36.3	n/a	n/a	n/a	n/a	0.0996	n/a	
S10V002286		W	14797-65-0	Nitrite	ug/g	97.3	<0.0192	0.963	n/a	n/a	n/a	n/a	0.192	n/a	B
S10V002286		W	14808-79-8	Sulfate	ug/g	99.3	<0.0187	11.8	n/a	n/a	n/a	n/a	0.187	n/a	
S10V002286		W	338-70-5	Oxalate	ug/g	99.8	<0.0231	2.10	n/a	n/a	n/a	n/a	0.231	n/a	B
S10V002286		W	24959-67-9	Bromide	ug/g	97.9	<0.0580	<0.579	n/a	n/a	n/a	n/a	0.579	n/a	U
S10V002286		W	14797-55-8	Nitrate	ug/g	98.3	<0.0208	53.0	n/a	n/a	n/a	n/a	0.208	n/a	
~~S10V002286~~		~~W~~	~~14265-44-2~~	~~Phosphate~~	~~ug/g~~	~~98.0~~	~~<0.0167~~	~~5.60~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.167~~	~~n/a~~	
S10V002288		A	7429-90-5	Aluminum	ug/g	94.0	<0.0300	5.91E+03	5.99E+03	5.95E+03	1.33	1.31E+03	2.48	n/a	
S10V002288		A	7440-39-3	Barium	ug/g	102	<3.00E-03	76.6	75.9	76.3	0.930	95.1	0.248	n/a	
S10V002288		A	7440-41-7	Beryllium	ug/g	106	<1.00E-03	0.203	0.217	0.210	6.70	94.5	0.0825	n/a	B
S10V002288		A	7440-70-2	Calcium	ug/g	91.9	<0.0500	1.05E+04	1.18E+04	1.11E+04	12.0	2.06E+03	4.13	n/a	
S10V002288		A	7440-45-1	Cerium	ug/g	101	<0.0300	18.0	18.8	18.4	4.70	105	2.48	n/a	B
S10V002288		A	7440-48-4	Cobalt	ug/g	98.4	0.0122	7.11	6.84	6.98	3.89	96.7	0.825	n/a	B
S10V002288		A	7440-47-3	Chromium	ug/g	97.7	<5.00E-03	7.25	7.81	7.53	7.49	96.3	0.413	n/a	
S10V002288		A	7440-50-8	Copper	ug/g	102	<5.00E-03	10.8	11.4	11.1	4.85	98.7	0.413	n/a	
S10V002288		A	7439-89-6	Iron	ug/g	98.2	5.24E-03	1.57E+04	1.66E+04	1.61E+04	5.50	2.36E+03	0.413	n/a	
S10V002288		A	7440-09-7	Potassium	ug/g	89.7	<0.500	1.26E+03	1.34E+03	1.30E+03	5.87	216	41.3	n/a	
S10V002288		A	7439-91-0	Lanthanum	ug/g	102	<3.00E-03	8.16	7.99	8.08	2.06	94.1	0.248	n/a	
S10V002288		A	7439-93-2	Lithium	ug/g	108	<3.00E-03	7.56	7.86	7.71	3.87	102	0.248	n/a	
S10V002288		A	7439-95-4	Magnesium	ug/g	95.5	<0.0500	4.62E+03	4.83E+03	4.73E+03	4.37	666	4.13	n/a	
S10V002288		A	7439-96-5	Manganese	ug/g	97.0	<3.00E-03	317	317	317	0.262	83.8	0.248	n/a	
S10V002288		A	7439-98-7	Molybdenum	ug/g	108	<0.0200	<1.65	<1.66	n/a	n/a	86.2	1.65	n/a	U
S10V002288		A	7440-23-5	Sodium	ug/g	107	<0.100	625	642	633	2.71	234	8.25	n/a	
S10V002288		A	7440-02-0	Nickel	ug/g	95.7	<0.0200	8.33	8.32	8.33	0.0979	97.6	1.65	n/a	B
S10V002288		A	7723-14-0	Phosphorus	ug/g	106	<0.0500	775	781	778	0.782	6.75	4.13	n/a	
S10V002288		A	7704-34-9	Sulfur	ug/g	106	<0.100	71.5	75.6	73.6	5.59	95.3	8.25	n/a	B
S10V002288		A	7440-21-3	Silicon	ug/g	89.3	<0.0300	77.7	74.6	76.1	4.06	95.1	2.48	n/a	

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
J - Estimated

B - Blank Contamination
X - Comment

LS
6-21-2011

M - RPD Outside Range
C - Blank Contamination

B - Estimated
N - MS/MSD Outside Range

Data Summary Report

Sample Group: 20100660
Core Number: C7682
Customer Sample ID: B26JL0
Sample Depth: Surface

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002288	A	7440-24-6	Strontium	ug/g	102	<3.00E-03	25.4	27.2	26.3	6.53	98.6	0.248	n/a	
S10V002288	A	7440-32-6	Titanium	ug/g	107	<5.00E-03	635	653	644	2.67	397	0.413	n/a	
S10V002288	A	7440-62-2	Vanadium	ug/g	100	<5.00E-03	25.2	27.6	26.4	9.02	104	0.413	n/a	
S10V002288	A	7440-65-5	Yttrium	ug/g	93.7	<2.00E-03	8.09	8.00	8.04	1.14	96.5	0.165	n/a	
S10V002288	A	7440-66-6	Zinc	ug/g	96.7	<5.00E-03	34.4	36.5	35.5	5.90	99.6	0.413	n/a	
S10V002288	A	7440-67-7	Zirconium J	ug/g	105	<5.00E-03	9.31	8.86	9.08	4.98	50.4	0.413	n/a	N
S10V002288	A	14269-63-7	Thorium-230	ug/g	n/a	5.21E-06	<2.81E-05	n/a	n/a	n/a	n/a	2.81E-05	n/a	U
S10V002288	A	TH-232	Thorium-232	ug/g	104	<2.00E-04	3.43	n/a	n/a	n/a	n/a	2.01E-03	n/a	
S10V002288	A	13968-55-3	Uranium-233	ug/g	n/a	<4.00E-06	1.88E-04	n/a	n/a	n/a	n/a	4.01E-05	n/a	
S10V002288	A	13966-29-5	Uranium-234	ug/g	n/a	<2.00E-06	<2.01E-05	n/a	n/a	n/a	n/a	2.01E-05	n/a	U
S10V002288	A	15117-96-1	Uranium-235	ug/g	94.8	<4.00E-06	3.01E-03	n/a	n/a	n/a	n/a	4.01E-05	n/a	
S10V002288	A	13982-70-2	Uranium-236	ug/g	n/a	<1.60E-06	<1.60E-05	n/a	n/a	n/a	n/a	1.60E-05	n/a	U
S10V002288	A	13994-20-2	Neptunium-237	ug/g	102	<4.00E-05	<4.01E-04	n/a	n/a	n/a	n/a	4.01E-04	n/a	U
S10V002288	A	U-238	Uranium-238	ug/g	104	<2.00E-04	0.446	n/a	n/a	n/a	n/a	2.01E-03	n/a	
~~S10V002290~~	~~S~~	~~14798-03-9~~	~~Ammonium~~	~~ug/g~~	~~101~~	~~0.0486~~	~~10.5~~	~~13.1~~	~~11.8~~	~~21.9~~	~~98.6~~	~~0.477~~	~~n/a~~	
S10V002291	A	14133-76-7	Technetium-99	ug/g	109	<3.00E-05	<3.00E-04	n/a	n/a	n/a	n/a	3.00E-04	n/a	U
S10V002291	A	SN-117	Tin-117	ug/g	102	<1.00E-03	0.0110	n/a	n/a	n/a	n/a	0.0100	n/a	
S10V002291	A	15832-50-5	Tin-126	ug/g	n/a	<2.00E-05	4.11E-04	n/a	n/a	n/a	n/a	2.00E-04	n/a	B
~~S10V002294~~	~~E~~	~~CM-243/244~~	~~Curium-243/244~~	~~uCi/g~~	~~n/a~~	~~<2.19E-07~~	~~<1.70E-07~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~1.70E-07~~	~~n/a~~	~~U~~
S10V002294	E	14596-10-2	Americium-241	uCi/g	103	<5.46E-07	<4.24E-07	n/a	n/a	n/a	n/a	4.24E-07	n/a	U
S10V002294	E	15510-73-3	Curium-242	uCi/g	n/a	<2.19E-07	<1.70E-07	n/a	n/a	n/a	n/a	1.70E-07	n/a	U
S10V002294	E	PU-239/240	Plutonium-239/240	uCi/g	98.9	<5.46E-07	<2.98E-07	n/a	n/a	n/a	n/a	2.98E-07	n/a	U
S10V002294	E	13981-16-3	Plutonium-238	uCi/g	n/a	<5.46E-07	<2.98E-07	n/a	n/a	n/a	n/a	2.98E-07	n/a	U
S10V002301	E	SR-89/90	Strontium-89/90	uCi/g	101	<2.09E-07	<6.20E-07	n/a	n/a	n/a	n/a	6.20E-07	n/a	U
S10V002303	E	13981-37-8	Nickel-63	uCi/g	90.8	<3.89E-06	<4.65E-06	n/a	n/a	n/a	n/a	4.65E-06	n/a	U
~~S10V002303~~	~~E~~	~~15758-45-9~~	~~Selenium-79~~	~~uCi/g~~	~~n/a~~	~~<2.73E-06~~	~~<1.97E-06~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~1.97E-06~~	~~n/a~~	~~U~~

LS
6-21-2011

NA = Not Analyzed, ND = Not Detected

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

WSCF Analytical Results Report

Attention Melissa Garrard
Department Inorganic

Group # WSCF111100

Sample # 111100012
SAF#
Sample ID B26JL0

Matrix SOIL
Sampled 08/17/10
Received 01/11/11

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPMS Prep										**01/12/11**
ICP-MS										
Silver	7440-22-4	LA-505-412	U	<0.098		mg/kg	1	0.098	0.98	01/16/11
Cadmium	7440-43-9	LA-505-412	B	0.105 J+		mg/kg	1	0.098	0.98	01/16/11
Lead	7439-92-1	LA-505-412		6.38		mg/kg	1	0.098	0.98	01/16/11
Thallium	7440-28-0	LA-505-412	U	<0.098		mg/kg	1	0.098	0.49	01/16/11
Arsenic	7440-38-2	LA-505-412		5.64		mg/kg	1	0.39	3.9	01/16/11
Selenium	7782-49-2	LA-505-412	B	1.45		mg/kg	1	0.29	2.9	01/16/11

LS
6-21-2011

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution factor.
E - Analyte is an estimate, see comment section.
N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

WSCF Analytical Results Report

Attention Melissa Garrard
Department Inorganic

Group # WSCF111100

Sample # 111100014
SAF#
Sample ID B26C59

Matrix SOIL
Sampled 08/24/10
Received 01/11/11

Test Performed	CAS #	Method	RQ	Result	TP Err	Units	DF	MDL	PQL	Analyzed
ICPMS Prep										**01/12/11**
ICP-MS										
Silver	7440-22-4	LA-505-412	U	<0.099		mg/kg	1	0.099	0.99	01/16/11
Cadmium	7440-43-9	LA-505-412	U	<0.099		mg/kg	1	0.099	0.99	01/16/11
Lead	7439-92-1	LA-505-412		3.91		mg/kg	1	0.099	0.99	01/16/11
Thallium	7440-28-0	LA-505-412	U	<0.099		mg/kg	1	0.099	0.50	01/16/11
Arsenic	7440-38-2	LA-505-412		4.07		mg/kg	1	0.40	4.0	01/16/11
Selenium	7782-49-2	LA-505-412	B	1.05		mg/kg	1	0.30	3.0	01/16/11

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

B - Analyte < the PQL(or EQL)but >= the IDL/MDL(Inorganic)
C - Analyte was found in the Associated Blank. (Inorganic)
D - Analyte was reported at a secondary diltution factor.
E - Analyte is an estimate, see comment section.
N - MS and/or MSD recovery outside control limits.

U - Analyzed for but not detected above limiting criteria.
X,Y or Z - See comment detail and/or narrative.
PQL is equivalent to Estimated Quantitation Limit (EQL)

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 C7682 IN SUPPORT OF RCRA SOIL CHARACTERIZATION OF THE VADOSE ZONE

1.0 INTRODUCTION

This final report presents the results for the samples taken from Waste Management Area C between August 17, 2010 and August 25, 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 QC Results
Attachment 5	Tentatively Identified Compounds (TIC) for Organic Analyses
Attachment 6	Analytical Batch and Laboratory Sample Identification Number Index
Attachment 7	Geological Report
Attachment 8	Characterization Change Notices (CCN) and Correspondence
Attachment 9	Receipt Paperwork
Appendix A	Analytical Report for Analysis Performed at the Waste Sampling and Characterization Facility (WSCF) - Metals Analysis

2.0 SAMPLE RECEIPT AND BREAKDOWN

2.1 SAMPLE RECEIPT

A total of eight core intervals and two surface grab samples from core hole C7682 along with nine field blanks, six trip blanks, and one equipment blank were received by the 222-S Laboratory between August 17, 2010 and August 25, 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 8).

In order to facilitate shipping, the 222-S Laboratory personnel store the field blank sample containers designated for offsite laboratories in a small refrigerator in the sample receipt area, which is outside the laboratory's radiological contamination area. This refrigerator exceeded its lower temperature range, and one of the three 1-liter sample containers for polychlorinated biphenyl analysis and one of the two 1-liter sample containers for pesticides and the monobutyl and dibutyl phosphate analysis froze and cracked. This resulted in the monobutyl and dibutyl phosphate analysis not being performed for the equipment blank. The issue with the refrigerator freezing samples has been resolved.

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 7. 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 and was combined with interval I003 (see Attachment 2 and Attachment 9). The sample material recovered from I002 was used for the VOA sample liners, and shoe samples from interval I003 were used to make the composite sample.

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%.

"X" for comment on VOA, see Section 3.4.1, Batch 21533.

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, liner composite samples, and the equipment blank. 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 the current laboratory procedure (lachet micro-distillation) is reporting.

Batches 21785 and 21829: There were no notable quality control (QC) issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batches 22013 and 22014: The MS for these batches exceed the ±25% at 43% and 74%. These samples were batched with samples from a separate vadose project for which the MSs were within the required range. Since the MS for the C Farm sample failed twice, it is the laboratory's opinion that there is a matrix interference. All affected sample results have been flagged with an "N". For batch 22013 the LLS was recovered outside the ±30% limit at 28% recovery. This could indicate a low bias for results near the LLS level. All sample results in this batch were below the MDL.

3.2.2 Sulfide

Sulfide analysis by distillation and ion selective electrode was performed on the grab samples, liner composite samples, and the equipment blank. 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 solid 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, liner composite samples, and the equipment blank. 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 sample compositing was performed. The sampling to analysis time varied from 1 to 34 days for the solid samples (see Attachment 3) and 15 hours for the liquid sample. There was 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 holding 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, liner composite samples, and the equipment blank. 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, liner composite samples, and the equipment blank. 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.

Batch 21436: 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 21540: Ammonium was detected in the preparation blanks at a level below the quantitation limit and above the MDL. Ammonium was also detected in all but one of the samples below the quantitation limit and less than 5 times the level of the blank; therefore, these results have been flagged with a “C”. Ammonium was also detected in one sample above the quantitation limit but at more than 5 times the level of the blank; therefore, this result has not been flagged with a “C”.

Batch 21732: Ammonium was detected in the preparation blanks at a level below the quantitation limit and above the MDL. Ammonium was also detected the samples above the quantitation limit and less than 5 times the level of the blank; therefore, these results have been flagged with a “C”.

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 at a similar level; therefore, the result has been flagged with a “C”. The RPD was above the ±30% requirement. However, since the result was below the quantitation limit this criterion did not apply.

3.2.6 Ion Chromatography – Anions and Small Organic Acids

Ion chromatography analysis was performed on all grab samples, liner composite samples, and the equipment blank. 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.

Fluoride was detected in the equipment blank above the quantitation limit. Since fluoride is commonly found in drinking water, the laboratory believes the most likely source of the fluoride was probably the water used by field personnel to make the equipment blank.

Batch 21524: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batch 22189: The RPD for oxalate exceeded the ±30% requirement in the FSAP at 139%. The laboratory believes this is likely due to sample nonhomogeneity. Since the result for the duplicate was below the quantitation limit, reanalysis was not required and no flag has been applied. The high sample result for oxalate is anomalous for vadose soil.

Batch 22897: The RPD for sulfate exceeded the ±30% requirement in the FSAP at 34%. The laboratory believes this is likely due to sample nonhomogeneity. This was discussed with the client, and the laboratory was instructed to report the result with this narration (see Attachment 8). The RPDs for nitrite and oxalate exceeded the ±30% requirement in the FSAP. Since the results for both analytes were below the quantitation limit, this criteria does not apply. A low level of nitrite was detected in the preparation blank, and the result has been flagged with a "C". Since both blank and sample results were below the quantitation limit, reanalysis was not required.

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, liner composite samples, and the equipment blank. 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 22570: The interference check standard-A (ICSA) produced positive results for arsenic, cadmium, selenium, manganese, and nickel. Since the sample results for these elements were below the MDL and the interference check sample AB (ICSAB) recoveries were within the required limit, the data usability was not affected. The initial low level standard (LLS) recovery for potassium was above the ±30% limit at 150%. Since the sample result for potassium was below the MDL, the data usability was not affected.

Batch 24239: The ICSA produced positive results for manganese. However, in the ICSAB, manganese was recovered at 98%, and there appears to be no positive interference at this concentration. Since the sample concentration for manganese is near the ICSAB concentration, the data usability was not affected. 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. Cobalt was detected in the preparation blank at slightly above the MDL. One sample result for cobalt was less than 5 times the blank result and has been flagged with "C". Since both the blank and sample results were below the quantitation limit, reanalysis was not required. The remaining 8 sample results were more than 5 times the blank result. The MS recoveries for aluminum, calcium, iron, magnesium, potassium, sodium, 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.

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, liner composite samples, and the equipment blank. The ICP/MS ^{126}Sn and ^{99}Tc analysis was performed on the same basic 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 performed 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 solid sample results for ^{126}Sn were above the MDL and below the quantitation limit. 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. 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 24429: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batch 23853: There were no notable issues with this batch, and all QC requirements in the QAPP were met. However, the laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples from another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

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.

Batch 23162: There were no notable issues with this batch, and all QC requirements in the QAPP were met. However, the laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples from another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

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 24022: The closing low level standard (LLS) for ^{235}U and ^{238}U exceeded the ±30% limit at 17% and 35%. The sample results for these isotopes were below the MDL. This could indicate a low bias for results near the LLS. However, assuming a 90% low bias, the adjusted results would still be below the quantitation limit. The closing continuing calibration blank (CCB) result for ^{237}Np was slightly above the MDL. The sample result for this isotope was below the MDL.

Batch 23864: The preparation blank and CCB results for ^{230}Th and ^{236}U were slightly above the MDL. Some of the samples had similar results that should be considered equivalent to the blank. The affected results have been flagged with a "B". The laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples for another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

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. Due to an extended room outage at the 222-S

Laboratory, samples were sent to the WSCF Laboratory by WRPS for analysis. Table 2 lists the samples and analytes that were analyzed and reported by WSCF for C7682. The WSCF report is included in Appendix A of this report, and these results will be placed in the Hanford Environmental Information System. The WSCF report is included in its entirety, but not all results pertain to this report. 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. All samples were analyzed within the holding time.

Table 2. ICPMS Analysis Performed at the WSCF Laboratory

Client Sample No.	Sample Depth	ICP/MS Analysis Performed at WSCF
B26JL0	Surface	Arsenic, Cadmium, Lead, Selenium, Silver, Thallium
B26JL1	Surface Dup	Arsenic, Cadmium, Lead, Selenium, Silver, Thallium
B26C47	5-7ft	Selenium, Silver, Arsenic
B26C51	12-14ft	Selenium, Silver, Arsenic
B26C53	14-16ft	Selenium, Silver, Arsenic
B26C55	18-20ft	Selenium, Silver, Arsenic
B26C57	47-47ft	Selenium, Silver, Arsenic
B26C61	122-124ft	Selenium, Silver, Arsenic

Batch 22376: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met. This batch only reported antimony.

Batch 24036: The laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples for another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4. The serial dilution for lead exceeded the ±10% requirement at +24%. This would indicate a low bias.

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, liner composite samples, and the equipment blank. 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, liner composite samples, and the equipment blank. 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 these batches, 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, liner composite samples, and directly on the equipment blank. 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.

Batch 22818: The preparation blank demonstrated a positive result below the quantitation limit. This result had a very large counting uncertainty and was below the target detection limit. The sample result was below the MDA, and therefore, the data usability was not affected.

Batch 23378: There were no notable issues with the batch, and all QC requirements in the FSAP, SAP, and QAPP were met. However, the laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples for another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

3.3.4 Selenium-79

The ^{79}Se analysis by LSC was performed on the grab samples, liner composite samples, and the equipment blank. 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 23910: The carrier recovery for one sample was below the 30% level at 26%; however, even with the reduced sensitivity, the sample MDA was below the target detection. The sample result was below the MDA, and therefore, reanalysis was not performed.

3.3.5 Carbon-14

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

Batch 22686: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met. However, the laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples for another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

3.3.6 Nickel-63

The ^{63}Ni analysis by LSC was performed on the grab samples, liner composite samples, and the equipment blank. 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 these batches, 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 all grab samples, liner composite samples, and the equipment blank. 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, liner composite samples, and the equipment blank. 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, liner composite samples, and the equipment blank. 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, six trip blanks, and one equipment blank 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 except for one met the required holding time. The equipment blank sample, B26PF, was analyzed 4 days past the holding time, due to an oversight in holding time tracking. 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 8). Isobutanol, another poor purger, was reported as a semivolatile organic compound.

Seven 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 source of chloroform may be the water used by sampling personnel to make the various field blanks.

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.

Batch 21533: The method blank results for toluene and styrene were above the MDL but below the quantitation limit. All of the samples contained toluene and most contained styrene, and all of which have been flagged with at "B". Since the blank results were below the quantitation limit, reanalysis was not required. Carbon disulfide was detected in the method blank below the quantitation limit but was not detected in the samples. The continuing calibration verification standard (CCV) demonstrated a % difference (%D) for chloro-methane of -26%, which exceeds the ±20% limit. This could indicate a slight low bias for this compound; however, the raw response for this compound's monitor ions was well below the MDL. The %D for 1-butanol in the CCV exceeded the ±20% limit at +29%. Since 1-butanol was not detected in the samples, the usability of the data was not affected.

The internal standards for one sample, B26JM1 (S10V002306), were recovered extremely low, ranging from -89% to -90%. This was not discovered until November 7, 2010, well after the holding time had expired. Therefore, no reanalysis was performed and the results have been flagged with an "X". Examination of the raw response numbers indicated that approximately 5 to 6 times less sample was transferred to the column for this sample than others in the batch. This effectively raises the MDLs for this sample's results by a factor of 5. Since the quantitation limit is 10 times the MDL, it is unlikely that any results above the quantitation limit were missed. Additionally, the surrogate recoveries were within the required ranges, indicating that enough internal standard was recovered to make meaningful adjustments to the raw instrument responses.

Batch 21601: The method blank result for toluene was above the MDL but below the quantitation limit. Since all toluene sample results in the batch were below the MDL, the data usability was not affected.

Batch 21716: The method blank result for toluene was above the MDL but below the quantitation limit. Since all toluene results in the batch were below the MDL, the data usability was not affected. The internal standards for MSD for sample B26CY5 (S10V002245) were recovered extremely low, ranging from -94% to -95%. The spike and surrogate compound recoveries were within the required ranges, indicating that enough internal standard was recovered to make meaningful adjustments to the raw instrument responses for the surrogate and spike compounds. Since the MSD is only used to verify the RPD between the MS and MSD, which it did, reanalysis was not required.

Batch 21718: The method blank result for toluene was above the MDL but below the quantitation limit. One of the samples in this batch contained toluene at a similar level and has been flagged with at "B".

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

Batch 23317: The method blank result for toluene was above the MDL but below the quantitation limit. Since the toluene result for the sample was below the MDL, the data usability was not affected. The %D for 1-butanol in the CCV exceeded the ±20% limit at +29%. Since 1-butanol was not detected in the sample, the usability of the data was not affected.

3.4.2 Semivolatile Organic Analysis

The semivolatile organic analysis (SVOA) by GC/MS was performed on methylene chloride extractions of all grab samples, liner composite samples, and the equipment blank. 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. There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

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 3 lists the analytical procedures used for analysis of the Area C samples.

Table 3. Analytical Procedures

Analysis	Preparation Method	Analysis Procedure
Inorganic Analyses		
Cyanide (soil)	LA-695-103, Rev. J-0 (SW-846 9010C)	LA-695-103, Rev. J-0 (SW-846 9014)
Cyanide (water)	LA-695-102, Rev. L-0 (SW-846 9010C)	LA-695-102, Rev. L-0 (SW-846 9014)

Analysis	Preparation Method	Analysis Procedure
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)
pH (water)	LA-212-106, Rev. H-0-A (SW-846 9040C)	LA-212-106, Rev. H-0-A (SW-846 9040C)
Mercury – Cold Vapor Atomic Absorption	LA-325-110, Rev. A-0 (SW-846 7471A) (solid)	LA-325-110, Rev. A-0 (SW-846 7471A) (solid)
	LA-325-106, Rev. G-0 (SW-846 7470A) (liquid)	LA-325-106, Rev. G-0 (SW-846 7470A) (liquid)
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-506-102, Rev. F-1
Metals – ICP/MS	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-506-102, Rev. F-1 (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
^{90}Sr – Separation/Beta counting (liquid)		LA-220-104, Rev. I-0
^{3}H – LSC	LA-504-101, Rev. M-0 (solid)	LA-218-111, Rev. G-0
^{14}C – LSC	LA-504-101, Rev. M-0 (solid)	LA-348-104, Rev. I-0
^{79}Se – Separation/LSC	LA-544-101, Rev. F-0 (solid)	LA-365-132, Rev. I-0
^{63}Ni – Separation/LSC	LA-544-101, Rev. F-0 (solid)	LA-285-102, Rev. E-0
^{129}I – Separation/GEA (soil)	LA-378-105, Rev. D-0	LA-378-105, Rev. D-0
^{129}I – Separation/GEA (water)	LA-378-103, Rev. D-0	LA-378-103, Rev. K-0
^{241}Am, $^{243/244,\ 242}$Cm – Separation/AEA	LA-544-101, Rev. F-0 (solid)	LA-953-104, Rev. H-1
$^{239/240,\ 238}$Pu – Separation/AEA	LA-544-101, Rev. F-0 (solid)	LA-953-104, Rev. H-1
Organic Analyses		
VOC – GC/MS	Direct	LA-523-118, Rev. H-O (SW-846 8260B)

Analysis	Preparation Method	Analysis Procedure
SVOC – GC/MS	LA-523-138, Rev. G-0 (SW-846 3540C) (solid) LA-523-115, Rev. H-0 (SW-846 3520C) (liquid)	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			V10-003-171	PAGE 1 OF 2
COLLECTOR Dan Harris	**COMPANY CONTACT** TEMPLETON, AM	**TELEPHONE NO.** 373-5589	**PROJECT COORDINATOR** BERLIN, PC	**PRICE CODE** 8P	**DATA TURNAROUND**
SAMPLING LOCATION C7682 I007	**PROJECT DESIGNATION** WMA C Sampling for CMS		**SAF NO.** V10-003	**AIR QUALITY** ☐	75 Days / 75 Days
ICE CHEST NO. TFVS-09-003	**FIELD LOGBOOK NO.** TFVZ-10-000004	**ACTUAL SAMPLE DEPTH** 88' - 90'	**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	
B26C59	SOIL	8-24-10	1030	—

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Dan Harris Dan Harris	8-24-10 1130	RtSteele RtSteele	8.24.10 1130
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ov 6/pk

GRP # 20100660
SAM # 510U00 2464
2465
2466

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			V10-003-171	PAGE 2 OF 2
COLLECTOR Dan 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 C7682 I007	**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** 88'-90'	**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	V10-003-259	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8P	DATA TURNAROUND
Ekstrom / Campbell	TEMPLETON, AM	373-5589	BERLIN, PC	AIR QUALITY ☐	75 Days / 75 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**		
C7682 Surface	WMA C Sampling for CMS		V10-003		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
TFVS-09-003	TFV2-10-000004	Surface	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~4C
HOLDING TIME	14/40 Days
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B26JL0	SOIL	8/17/10	0930	✓

S10V002280

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
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			V10-003-259	PAGE 2 OF 2
COLLECTOR Ekstrom / Campbell	COMPANY CONTACT TEMPLETON, AM	TELEPHONE NO. 373-5589	PROJECT COORDINATOR BERLIN, PC	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C7682 Surface	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V10-003	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO. TFVS-09-003	FIELD LOGBOOK NO. TFVZ-10-000004	ACTUAL SAMPLE DEPTH Surface	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);

Attachment 2
Narrative
WSCF111100

Introduction

Twenty (20) soil samples were received at the WSCF Laboratory on January 11, 2011. The samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Field Sampling and Analysis Plan for Waste Management Area C, RPP-PLAN-40564, Rev 2.*

The narrative (Attachment 2) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 3) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information as applicable. Copies of the chain of custody and sample receipt documentation are included as Attachment 4.

The following generic data qualifiers (i.e., B, D, U and J) may be applicable to this report, as appropriate

- **B** – Sample results with a concentration greater than the MDL but less than the PQL are B flagged (applies to inorganic and wet chemical analyses), as appropriate.
- **D** – Sample results are D flagged if dilution(s) were required, as appropriate.
- **J** – Sample results with a concentration greater than the MDL but less than the PQL are J flagged (applies to organic analyses), as appropriate.
- **U** – Analyzed for but not detected above limiting criteria. Relative Percent Difference (RPD) values associated with an analyte qualified with a "U" are not applicable.

Analytical Methodology for Requested Analyses

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

Inorganic Comments

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

- All QC controls are within the established limits.

We certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this data package has been authorized by the Analytical Laboratory Manager (or designee) and the Client Services representative as verified by electronic signatures shown on the WSCF ANALYTICAL RESULTS REPORT.

Chain of Custody

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. No. 20100660

Page 1 of 1

Assembler: N/A		
Collector: Ekstrom/Campbell/Harris	Contact/Requestor: Jo Marie Johnson/Steve Atkinson	Telephone No.: 372-9474 MSIN: FAX
SAF No.: N/A	Sample Origin: C Farm 2010-2-Madison	Purchase Order/Charge Code: Contract 36612 Release 9
Project Title: C Farm CMR 2010-2	Logbook/ Work Package No.: N/A	Ice Chest No.: 6005-183 Temp.
Shipped To (Lab): WSCF	Method of Shipment: SAMPLE PKG P	Bill of Lading/Air Bill No.
Protocol: N/A	Data Turnaround: per EMAIL-Marisol Avila-1/5/21	Parts and Return No.

Sample No.	Lab ID	*	Date	Time	No./Type Container	Sample Analysis	Preservative
B26JL0	012		8/17/10	9:30	1/glass 125	ICP-MS (Silver,Cadmium,Selenium,Arsenic,Thallium,Lead) RPP-PLAN-40564,Rev.2	
B26JL1	013		8/17/10	9:30	1/glass 125	ICP-MS (Silver,Cadmium,Selenium,Arsenic,Thallium,Lead) RPP-PLAN-40564,Rev.2	
B26C59	014		8/24/10	10:30	1/glass 125	ICP-MS (Silver,Cadmium,Selenium,Arsenic,Thallium,Lead) RPP-PLAN-40564,Rev.2	
B26C47	015		8/18/10	9:00	1/glass 125	ICP-MS (Silver,Selenium,Arsenic) RPP-PLAN-40564,Rev.2	
B26C51	016		8/18/10	11:30	1/glass 125	ICP-MS (Silver,Selenium,Arsenic) RPP-PLAN-40564,Rev.2	
B26C53	017		8/19/10	9:10	1/glass 125	ICP-MS (Silver,Selenium,Arsenic) RPP-PLAN-40564,Rev.2	
B26C55	018		8/19/10	10:30	1/glass 125	ICP-MS (Silver,Selenium,Arsenic) RPP-PLAN-40564,Rev.2	
B26C57	019		8/23/10	10:00	1/glass 125	ICP-MS (Silver,Selenium,Arsenic) RPP-PLAN-40564,Rev.2	
B26C61	020		8/25/10	10:05	1/glass 125	ICP-MS (Silver,Selenium,Arsenic) RPP-PLAN-40564,Rev.2	

POSSIBLE SAMPLE HAZARDS/REMARKS (List all known wastes) MSDS ○ Yes ◉ No

REMARKS: Sample No. = OmniLIMS No.
B26JL0 = S11V0040143
B26JL1 = S11V0040156
B26C59 = S11V0040164
B26C47 = S11V0040175
B26C51 = S11V0040185
B26C53 = S11V0040215
B26C55 = S11V0040225
Sample No. = OmniLIMS No.
B26C57 = S11V0040235
B26C61 = S11V0040245

SPECIAL INSTRUCTIONS

NOTE: 6 MONTH HOLD APPROACHING. SEE SAMPLE DATE.

Send results to Jo Marie Johnson (Jo_M_Johnson@rl.gov) and Melissa Garrard (see SOW for e-mail address) Contract 36612, rel. 9

Hold Time

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
RTSteele	RTSteele	1-11-11	0917	L.D.WALL	L.D.Wall		1/11/11 0917
L.D WALL	L.D. Wall		1/11/11 0945	Victor Singh			1/11/11 0945

Matrix*

S	= Soil	DL	= Drum Liquids
SE	= Sediment	T	= Tissue
SO	= Solid	WI	= Wipe
SL	= Sludge	L	= Liquid
W	= Water	V	= Vegetation
O	= Oil	VA	= Vapor
A	= Air	X	= Other
DS	= Drum Solids		

FINAL SAMPLE DISPOSITION: Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

All samples containing hazardous materials shall be picked up by requestor and returned to parent container or site of origin.

A-6003-962 (03/05)

Appendix 5

Data Validation Supporting Documentation

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: WMA C			DATA PACKAGE: VSR11-047		
VALIDATOR: Carl Schloesslin		LAB: 222-S Lab, WSCF		DATE: 6-21-2011	
			SDG: 20100660		
ANALYSES PERFORMED					
SW-846/ICP X	SW-846/GFAA	SW-846/Hg X		EPA 200.8 X	
SAMPLES/MATRIX Soil samples B26C59 and B26JL0					

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 Hit: Co 1.01 ug/g

ICP-MS Actinides MB Hit: Th-230 5.21E-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: Zr MS/PS %Rs = 50%/OK

200.8: Cd LCS %R = 123%

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

Duplicate RPD values acceptable?..... Yes No N/A

Duplicate results acceptable?..... Yes No N/A

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

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

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

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

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

Comments:

None

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 10X > 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
20100660	S10V002280	SOLID	SW-846 7471A	SW-846 7471A	08/17/10 09:30	08/17/10 11:00	08/26/10 15:00	N
20100660	S10V002309	SOLID	SW-846 7471A	SW-846 7471A	08/17/10 09:30	08/17/10 11:00	08/26/10 15:00	N
20100660	S10V002338	SOLID	SW-846 7471A	SW-846 7471A	08/18/10 09:00	08/18/10 12:00	08/26/10 15:00	N
20100660	S10V002391	SOLID	SW-846 7471A	SW-846 7471A	08/18/10 11:30	08/18/10 12:00	08/26/10 15:00	N
20100660	S10V002410	SOLID	SW-846 7471A	SW-846 7471A	08/19/10 09:10	08/19/10 11:40	08/26/10 15:00	N
20100660	S10V002429	SOLID	SW-846 7471A	SW-846 7471A	08/19/10 10:30	08/19/10 11:40	08/26/10 15:00	N
20100660	S10V002448	SOLID	SW-846 7471A	SW-846 7471A	08/23/10 10:00	08/23/10 11:15	08/26/10 15:00	N
20100660	S10V002467	SOLID	SW-846 7471A	SW-846 7471A	08/24/10 10:30	08/24/10 11:30	09/14/10 20:20	N
20100660	S10V002486	SOLID	SW-846 7471A	SW-846 7471A	08/25/10 10:05	08/25/10 11:05	09/14/10 20:20	N
20100676	S10V002647	LIQUID	SW-846 7470A	SW-846 7470A	08/23/10 00:45	08/23/10 11:10	09/17/10 22:30	N

Holding Time Report: Metals

Sample Group	Sample	Matrix	Method	Prep Method	Sample Date	Received Date	Prep Date	Analysis Date	Missed Holding Time
20100660	S10V002288	SOLID	SW-846 6010C	SW-846 3050B	08/17/10 09:30	08/17/10 11:00	11/05/10 16:16	11/18/10 10:34	N
20100660	S10V002316	SOLID	SW-846 6010C	SW-846 3050B	08/17/10 09:30	08/17/10 11:00	11/05/10 16:16	11/18/10 13:20	N
20100660	S10V002352	SOLID	SW-846 6010C	SW-846 3050B	08/18/10 09:00	08/18/10 12:00	11/05/10 16:16	11/18/10 13:23	N
20100660	S10V002398	SOLID	SW-846 6010C	SW-846 3050B	08/18/10 11:30	08/18/10 12:00	11/05/10 16:16	11/18/10 13:25	N
20100660	S10V002417	SOLID	SW-846 6010C	SW-846 3050B	08/19/10 09:10	08/19/10 11:40	11/05/10 16:16	11/18/10 13:28	N
20100660	S10V002436	SOLID	SW-846 6010C	SW-846 3050B	08/19/10 10:30	08/19/10 11:40	11/05/10 16:16	11/18/10 13:30	N
20100660	S10V002455	SOLID	SW-846 6010C	SW-846 3050B	08/23/10 10:00	08/23/10 11:15	11/05/10 16:16	11/18/10 13:33	N
20100660	S10V002474	SOLID	SW-846 6010C	SW-846 3050B	08/24/10 10:30	08/24/10 11:30	11/05/10 16:16	11/18/10 13:35	N
20100660	S10V002493	SOLID	SW-846 6010C	SW-846 3050B	08/25/10 10:05	08/25/10 11:05	11/05/10 16:16	11/18/10 14:00	N
20100676	S10V002647	LIQUID	SW-846 6010C	N/A	08/23/10 00:45	08/23/10 11:10	N/A	09/24/10 13:50	N
20100676	S10V002647	LIQUID	SW-846 6010C	N/A	08/23/10 00:45	08/23/10 11:10	N/A	09/24/10 14:03	N
20100660	S10V002284	SOLID	SW-846 6020A	SW-846 3050B	08/17/10 09:30	08/17/10 11:00	09/01/10 10:00	09/16/10 14:24	N
20100660	S10V002313	SOLID	SW-846 6020A	SW-846 3050B	08/17/10 09:30	08/17/10 11:00	09/01/10 10:00	09/16/10 14:46	N
20100660	S10V002347	SOLID	SW-846 6020A	SW-846 3050B	08/18/10 09:00	08/18/10 12:00	09/01/10 10:00	09/16/10 14:54	N
20100660	S10V002395	SOLID	SW-846 6020A	SW-846 3050B	08/18/10 11:30	08/18/10 12:00	09/01/10 10:00	09/16/10 15:01	N
20100660	S10V002414	SOLID	SW-846 6020A	SW-846 3050B	08/19/10 09:10	08/19/10 11:40	09/01/10 10:00	09/16/10 16:00	N
20100660	S10V002433	SOLID	SW-846 6020A	SW-846 3050B	08/19/10 10:30	08/19/10 11:40	09/01/10 10:00	09/16/10 16:08	N
20100660	S10V002452	SOLID	SW-846 6020A	SW-846 3050B	08/23/10 10:00	08/23/10 11:15	09/01/10 10:00	09/16/10 16:15	N
20100660	S10V002471	SOLID	SW-846 6020A	SW-846 3050B	08/24/10 10:30	08/24/10 11:30	09/01/10 10:00	09/16/10 16:23	N
20100660	S10V002490	SOLID	SW-846 6020A	SW-846 3050B	08/25/10 10:05	08/25/10 11:05	09/01/10 10:00	09/16/10 16:30	N
20100660	S10V002352	SOLID	SW-846 6020A	SW-846 3050B	08/18/10 09:00	08/18/10 12:00	09/17/10 17:00	11/04/10 19:32	N
20100660	S10V002352	SOLID	SW-846 6020A	SW-846 3050B	08/18/10 09:00	08/18/10 12:00	09/17/10 17:00	11/04/10 19:40	N
20100660	S10V002398	SOLID	SW-846 6020A	SW-846 3050B	08/18/10 11:30	08/18/10 12:00	09/17/10 17:00	11/04/10 19:26	N
20100660	S10V002398	SOLID	SW-846 6020A	SW-846 3050B	08/18/10 11:30	08/18/10 12:00	09/17/10 17:00	11/04/10 20:07	N
20100660	S10V002417	SOLID	SW-846 6020A	SW-846 3050B	08/19/10 09:10	08/19/10 11:40	09/17/10 17:00	11/04/10 20:00	N
20100660	S10V002417	SOLID	SW-846 6020A	SW-846 3050B	08/19/10 09:10	08/19/10 11:40	09/17/10 17:00	11/04/10 20:13	N
20100660	S10V002436	SOLID	SW-846 6020A	SW-846 3050B	08/19/10 10:30	08/19/10 11:40	09/17/10 17:00	11/04/10 20:05	N

Holding Time Report: Metals

Sample Group	Sample	Matrix	Method	Prep Method	Sample Date	Received Date	Prep Date	Analysis Date	Missed Holding Time
20100660	S10V002436	SOLID	SW-846 6020A	SW-846 3050B	08/19/10 10:30	08/19/10 11:40	09/17/10 17:00	11/04/10 20:18	N
20100660	S10V002455	SOLID	SW-846 6020A	SW-846 3050B	08/23/10 10:00	08/23/10 11:15	09/17/10 17:00	11/04/10 20:11	N
20100660	S10V002455	SOLID	SW-846 6020A	SW-846 3050B	08/23/10 10:00	08/23/10 11:15	09/17/10 17:00	11/04/10 20:24	N
20100660	S10V002493	SOLID	SW-846 6020A	SW-846 3050B	08/25/10 10:05	08/25/10 11:05	09/17/10 17:00	11/04/10 20:23	N
20100660	S10V002493	SOLID	SW-846 6020A	SW-846 3050B	08/25/10 10:05	08/25/10 11:05	09/17/10 17:00	11/04/10 20:39	N

Holding Time Report: ICP/MS Radio-Isotopic

Sample Group	Sample	Matrix	Method	Prep Method	Sample Date	Received Date	Prep Date	Analysis Date	Missed Holding Time
20100660	S10V002288	SOLID	ICP/MS Actinides	SW-846 3050B	08/17/10 09:30	08/17/10 11:00	09/17/10 17:00	11/03/10 19:23	N
20100660	S10V002316	SOLID	ICP/MS Actinides	SW-846 3050B	08/17/10 09:30	08/17/10 11:00	09/17/10 17:00	11/03/10 19:30	N
20100660	S10V002352	SOLID	ICP/MS Actinides	SW-846 3050B	08/18/10 09:00	08/18/10 12:00	09/17/10 17:00	11/03/10 19:36	N
20100660	S10V002398	SOLID	ICP/MS Actinides	SW-846 3050B	08/18/10 11:30	08/18/10 12:00	09/17/10 17:00	11/03/10 20:25	N
20100660	S10V002417	SOLID	ICP/MS Actinides	SW-846 3050B	08/19/10 09:10	08/19/10 11:40	09/17/10 17:00	11/03/10 20:31	N
20100660	S10V002436	SOLID	ICP/MS Actinides	SW-846 3050B	08/19/10 10:30	08/19/10 11:40	09/17/10 17:00	11/03/10 20:38	N
20100660	S10V002455	SOLID	ICP/MS Actinides	SW-846 3050B	08/23/10 10:00	08/23/10 11:15	09/17/10 17:00	11/03/10 20:44	N
20100660	S10V002474	SOLID	ICP/MS Actinides	SW-846 3050B	08/24/10 10:30	08/24/10 11:30	09/17/10 17:00	11/03/10 20:50	N
20100660	S10V002493	SOLID	ICP/MS Actinides	SW-846 3050B	08/25/10 10:05	08/25/10 11:05	09/17/10 17:00	11/03/10 20:57	N
20100676	S10V002647	LIQUID	ICP/MS Actinides	N/A	08/23/10 00:45	08/23/10 11:10	N/A	11/11/10 20:16	N
20100660	S10V002291	SOLID	ICP/MS Tc-99, Sb-126	SW-846 3050B	08/17/10 09:30	08/17/10 11:00	09/23/10 11:50	11/03/10 13:12	N
20100660	S10V002318	SOLID	ICP/MS Tc-99, Sb-126	SW-846 3050B	08/17/10 09:30	08/17/10 11:00	09/23/10 11:50	11/03/10 13:19	N
20100660	S10V002354	SOLID	ICP/MS Tc-99, Sb-126	SW-846 3050B	08/18/10 09:00	08/18/10 12:00	09/23/10 11:50	11/03/10 13:26	N
20100660	S10V002400	SOLID	ICP/MS Tc-99, Sb-126	SW-846 3050B	08/18/10 11:30	08/18/10 12:00	09/23/10 11:50	11/03/10 13:33	N
20100660	S10V002419	SOLID	ICP/MS Tc-99, Sb-126	SW-846 3050B	08/19/10 09:10	08/19/10 11:40	09/23/10 11:50	11/03/10 13:39	N
20100660	S10V002438	SOLID	ICP/MS Tc-99, Sb-126	SW-846 3050B	08/19/10 10:30	08/19/10 11:40	09/23/10 11:50	11/03/10 13:46	N
20100660	S10V002457	SOLID	ICP/MS Tc-99, Sb-126	SW-846 3050B	08/23/10 10:00	08/23/10 11:15	09/23/10 11:50	11/03/10 13:53	N
20100660	S10V002476	SOLID	ICP/MS Tc-99, Sb-126	SW-846 3050B	08/24/10 10:30	08/24/10 11:30	09/23/10 11:50	11/03/10 14:00	N
20100660	S10V002495	SOLID	ICP/MS Tc-99, Sb-126	SW-846 3050B	08/25/10 10:05	08/25/10 11:05	09/23/10 11:50	11/03/10 14:06	N
20100676	S10V002647	LIQUID	ICP/MS Tc-99, Sb-126	N/A	08/23/10 00:45	08/23/10 11:10	N/A	11/12/10 21:09	N
20100660	S10V002282	SOLID	ICP/MS Tc-99	Water Digest	08/17/10 09:30	08/17/10 11:00	09/22/10 10:00	09/24/10 18:55	N
20100660	S10V002311	SOLID	ICP/MS Tc-99	Water Digest	08/17/10 09:30	08/17/10 11:00	09/22/10 10:00	09/24/10 19:00	N
20100660	S10V002343	SOLID	ICP/MS Tc-99	Water Digest	08/18/10 09:00	08/18/10 12:00	09/22/10 10:00	09/24/10 19:06	N
20100660	S10V002393	SOLID	ICP/MS Tc-99	Water Digest	08/18/10 11:30	08/18/10 12:00	09/22/10 10:00	09/24/10 19:11	N
20100660	S10V002412	SOLID	ICP/MS Tc-99	Water Digest	08/19/10 09:10	08/19/10 11:40	09/22/10 10:00	09/24/10 19:16	N
20100660	S10V002431	SOLID	ICP/MS Tc-99	Water Digest	08/19/10 10:30	08/19/10 11:40	09/22/10 10:00	09/24/10 19:21	N
20100660	S10V002450	SOLID	ICP/MS Tc-99	Water Digest	08/23/10 10:00	08/23/10 11:15	09/22/10 10:00	09/24/10 19:41	N
20100660	S10V002469	SOLID	ICP/MS Tc-99	Water Digest	08/24/10 10:30	08/24/10 11:30	09/22/10 10:00	09/24/10 19:46	N
20100660	S10V002488	SOLID	ICP/MS Tc-99	Water Digest	08/25/10 10:05	08/25/10 11:05	09/22/10 10:00	09/24/10 19:51	N

LABCORE Completed Batch Report for Batch# 00024239

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: 00023873

Batch Comment:

ICP TJA on C-Farm WMC 2010-2. RJB

Book#: 1015919, 1015924, 1015934, 1015947, 1016014, 1016021, 1016028, A-124-100708-2, A-124-100708-3, A-124-100712-1, A-126-100825-2, xxxxxxxx

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	S1011190001		0 0			Silver	LIQUID	1	1.0101E+00			5.00E-03	ug/mL	101.01	% Recovery	
1	ICV	S1011190001		0 0			Aluminum	LIQUID	5	5.1347E+00			0.03	ug/mL	102.69	% Recovery	
1	ICV	S1011190001		0 0			Arsenic	LIQUID	5	5.2297E+00			0.05	ug/mL	104.59	% Recovery	
1	ICV	S1011190001		0 0			Boron	LIQUID	5	5.2397E+00			0.03	ug/mL	104.79	% Recovery	
1	ICV	S1011190001		0 0			Barium	LIQUID	5	5.2973E+00			3.00E-03	ug/mL	105.95	% Recovery	
1	ICV	S1011190001		0 0			Beryllium	LIQUID	5	5.2309E+00			1.00E-03	ug/mL	104.62	% Recovery	
1	ICV	S1011190001		0 0			Bismuth	LIQUID	5	5.1880E+00			0.1	ug/mL	103.76	% Recovery	
1	ICV	S1011190001		0 0			Calcium	LIQUID	5	5.2044E+00			0.05	ug/mL	104.09	% Recovery	
1	ICV	S1011190001		0 0			Cadmium	LIQUID	5	5.3106E+00			5.00E-03	ug/mL	106.21	% Recovery	
3	ICV	S1011190001		0 2			Cerium	LIQUID	5	5.3922E+00			0.03	ug/mL	107.84	% Recovery	
1	ICV	S1011190001		0 0			Cobalt	LIQUID	5	5.3839E+00			0.01	ug/mL	107.68	% Recovery	
1	ICV	S1011190001		0 0			Chromium	LIQUID	5	5.3166E+00			5.00E-03	ug/mL	106.33	% Recovery	
1	ICV	S1011190001		0 0			Copper	LIQUID	5	5.2791E+00			5.00E-03	ug/mL	105.58	% Recovery	
3	ICV	S1011190001		0 2			Europium	LIQUID	5	5.0756E+00			5.00E-03	ug/mL	101.51	% Recovery	
1	ICV	S1011190001		0 0			Iron	LIQUID	5	5.3123E+00			5.00E-03	ug/mL	106.25	% Recovery	
1	ICV	S1011190001		0 0			Potassium	LIQUID	5	4.7440E+00			0.5	ug/mL	94.88	% Recovery	
1	ICV	S1011190001		0 0			Lanthanum	LIQUID	5	5.2407E+00			3.00E-03	ug/mL	104.81	% Recovery	
1	ICV	S1011190001		0 0			Lithium	LIQUID	5	5.4328E+00			3.00E-03	ug/mL	108.66	% Recovery	
1	ICV	S1011190001		0 0			Magnesium	LIQUID	5	5.3440E+00			0.05	ug/mL	106.88	% Recovery	
1	ICV	S1011190001		0 0			Manganese	LIQUID	5	5.2750E+00			3.00E-03	ug/mL	105.5	% Recovery	
1	ICV	S1011190001		0 0			Molybdenum	LIQUID	5	5.2928E+00			0.02	ug/mL	105.86	% Recovery	
2	ICV	S1011190001		0 1			Sodium	LIQUID	5	5.3742E+00			0.1	ug/mL	107.48	% Recovery	
3	ICV	S1011190001		0 2			Neodymium	LIQUID	5	5.0479E+00			0.01	ug/mL	100.96	% Recovery	
1	ICV	S1011190001		0 0			Nickel	LIQUID	5	5.2932E+00			0.02	ug/mL	105.86	% Recovery	
4	ICV	S1011190001		0 3			Niobium	LIQUID	5	5.1076E+00			0.03	ug/mL	102.15	% Recovery	
1	ICV	S1011190001		0 0			Phosphorus	LIQUID	5	5.1984E+00			0.05	ug/mL	103.97	% Recovery	
1	ICV	S1011190001		0 0			Lead	LIQUID	5	5.3880E+00			0.05	ug/mL	107.76	% Recovery	
3	ICV	S1011190001		0 2			Palladium	LIQUID	5	4.9644E+00			0.1	ug/mL	99.288	% Recovery	
3	ICV	S1011190001		0 2			Praseodymium	LIQUID	5	5.2460E+00			0.01	ug/mL	104.92	% Recovery	
3	ICV	S1011190001		0 2			Rubidium	LIQUID	5	4.8262E+00			1	ug/mL	96.524	% 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# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
3	ICV	S1011190001		0 2			Rhodium	LIQUID	5	5.0296E+00			0.05	ug/mL	100.59	% Recovery	
3	ICV	S1011190001		0 2			Ruthenium	LIQUID	5	5.2329E+00			0.03	ug/mL	104.66	% Recovery	
1	ICV	S1011190001		0 0			Sulfur	LIQUID	5	5.2260E+00			0.1	ug/mL	104.52	% Recovery	
1	ICV	S1011190001		0 0			Antimony	LIQUID	5	5.1711E+00			0.05	ug/mL	103.42	% Recovery	
2	ICV	S1011190001		0 1			Selenium	LIQUID	5	5.4064E+00			0.1	ug/mL	108.13	% Recovery	
1	ICV	S1011190001		0 0			Silicon	LIQUID	5	4.9306E+00			0.03	ug/mL	98.612	% Recovery	
3	ICV	S1011190001		0 2			Samarium	LIQUID	5	5.2462E+00			0.02	ug/mL	104.92	% Recovery	
4	ICV	S1011190001		0 3			Tin	LIQUID	5	5.1727E+00			0.03	ug/mL	103.45	% Recovery	
1	ICV	S1011190001		0 0			Strontium	LIQUID	5	5.2730E+00			3.00E-03	ug/mL	105.46	% Recovery	
4	ICV	S1011190001		0 3			Tantalum	LIQUID	5	5.0139E+00			0.05	ug/mL	100.28	% Recovery	
4	ICV	S1011190001		0 3			Tellurium	LIQUID	5	5.1030E+00			0.1	ug/mL	102.06	% Recovery	
3	ICV	S1011190001		0 2			Thorium	LIQUID	5	5.2146E+00			0.05	ug/mL	104.29	% Recovery	
1	ICV	S1011190001		0 0			Titanium	LIQUID	5	5.1935E+00			5.00E-03	ug/mL	103.87	% Recovery	
3	ICV	S1011190001		0 2			Thallium	LIQUID	5	5.4926E+00			0.1	ug/mL	109.85	% Recovery	
3	ICV	S1011190001		0 2			Uranium	LIQUID	5	5.1585E+00			0.1	ug/mL	103.17	% Recovery	
1	ICV	S1011190001		0 0			Vanadium	LIQUID	5	5.3766E+00			5.00E-03	ug/mL	107.53	% Recovery	
4	ICV	S1011190001		0 3			Tungsten	LIQUID	5	5.1280E+00			0.2	ug/mL	102.56	% Recovery	
3	ICV	S1011190001		0 2			Yttrium	LIQUID	5	5.1413E+00			2.00E-03	ug/mL	102.83	% Recovery	
1	ICV	S1011190001		0 0			Zinc	LIQUID	5	5.2622E+00			5.00E-03	ug/mL	105.24	% Recovery	
1	ICV	S1011190001		0 0			Zirconium	LIQUID	5	5.0834E+00			5.00E-03	ug/mL	101.67	% Recovery	
Sample Sequence 5																	
5	LLS	S1011190003		0 0			Silver	LIQUID	.02	1.8970E-02			5.00E-03	ug/mL	94.85	% Recovery	
6	LLS	S1011190003		0 1			Aluminum	LIQUID	.1	1.0871E-01			0.03	ug/mL	108.71	% Recovery	
6	LLS	S1011190003		0 1			Arsenic	LIQUID	.2	1.7865E-01			0.05	ug/mL	89.325	% Recovery	
7	LLS	S1011190003		0 2			Boron	LIQUID	.1	1.0357E-01			0.03	ug/mL	103.57	% Recovery	
6	LLS	S1011190003		0 1			Barium	LIQUID	.01	9.8700E-03			3.00E-03	ug/mL	98.7	% Recovery	
5	LLS	S1011190003		0 0			Beryllium	LIQUID	.001	8.5000E-04			1.00E-04	ug/mL	85	% Recovery	
6	LLS	S1011190003		0 1			Bismuth	LIQUID	.2	2.0870E-01			0.1	ug/mL	104.35	% Recovery	
5	LLS	S1011190003		0 0			Calcium	LIQUID	.2	1.8656E-01			0.05	ug/mL	93.28	% Recovery	
6	LLS	S1011190003		0 1			Cadmium	LIQUID	.01	9.4300E-03			5.00E-03	ug/mL	94.3	% Recovery	
6	LLS	S1011190003		0 1			Cerium	LIQUID	.2	1.9624E-01			0.03	ug/mL	98.12	% Recovery	
7	LLS	S1011190003		0 2			Cobalt	LIQUID	.04	4.3210E-02			0.01	ug/mL	108.02	% Recovery	
5	LLS	S1011190003		0 0			Chromium	LIQUID	.02	2.2780E-02			5.00E-03	ug/mL	113.9	% Recovery	
7	LLS	S1011190003		0 2			Copper	LIQUID	.02	2.1620E-02			5.00E-03	ug/mL	108.1	% Recovery	
8	LLS	S1011190003		0 3			Europium	LIQUID	.1	9.8990E-02			5.00E-03	ug/mL	98.99	% Recovery	
5	LLS	S1011190003		0 0			Iron	LIQUID	.05	4.7240E-02			5.00E-03	ug/mL	94.48	% Recovery	
6	LLS	S1011190003		0 1			Potassium	LIQUID	.5	3.9482E-01			0.1	ug/mL	78.964	% Recovery	
6	LLS	S1011190003		0 1			Lanthanum	LIQUID	.01	9.8500E-03			3.00E-03	ug/mL	98.5	% Recovery	
5	LLS	S1011190003		0 0			Lithium	LIQUID	.02	2.1280E-02			3.00E-03	ug/mL	106.4	% Recovery	
5	LLS	S1011190003		0 0			Magnesium	LIQUID	.2	2.0598E-01			0.05	ug/mL	102.99	% Recovery	
6	LLS	S1011190003		0 1			Manganese	LIQUID	.02	1.9830E-02			3.00E-03	ug/mL	99.15	% Recovery	

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
7	LLS	S1011190003		0 2			Molybdenum	LIQUID	.1	1.0571E-01			0.02	ug/mL	105.71	% Recovery	
5	LLS	S1011190003		0 0			Sodium	LIQUID	.2	2.0772E-01			0.1	ug/mL	103.86	% Recovery	
5	LLS	S1011190003		0 0			Neodymium	LIQUID	.1	1.0165E-01			0.01	ug/mL	101.65	% Recovery	
5	LLS	S1011190003		0 0			Nickel	LIQUID	.04	3.6040E-02			0.02	ug/mL	90.1	% Recovery	
10	LLS	S1011190003		0 5			Niobium	LIQUID	.1	1.0904E-01			0.03	ug/mL	109.04	% Recovery	
7	LLS	S1011190003		0 2			Phosphorus	LIQUID	.4	3.6821E-01			0.05	ug/mL	92.052	% Recovery	
5	LLS	S1011190003		0 0			Lead	LIQUID	.2	2.0184E-01			0.05	ug/mL	100.92	% Recovery	
9	LLS	S1011190003		0 4			Palladium	LIQUID	1	1.0848E+00			0.1	ug/mL	108.48	% Recovery	
8	LLS	S1011190003		0 3			Praseodymium	LIQUID	.1	1.2010E-01			0.01	ug/mL	120.1	% Recovery	
9	LLS	S1011190003		0 4			Rhodium	LIQUID	.1	8.9560E-02			0.05	ug/mL	89.56	% Recovery	
9	LLS	S1011190003		0 4			Ruthenium	LIQUID	.1	1.0610E-01			0.03	ug/mL	106.1	% Recovery	
7	LLS	S1011190003		0 2			Sulfur	LIQUID	.2	1.9156E-01			0.1	ug/mL	95.78	% Recovery	
7	LLS	S1011190003		0 2			Antimony	LIQUID	.1	1.0146E-01			0.05	ug/mL	101.46	% Recovery	
5	LLS	S1011190003		0 0			Selenium	LIQUID	.2	2.3583E-01			0.1	ug/mL	117.92	% Recovery	
7	LLS	S1011190003		0 2			Silicon	LIQUID	.1	9.3180E-02			0.03	ug/mL	93.18	% Recovery	
5	LLS	S1011190003		0 0			Samarium	LIQUID	.1	9.8070E-02			0.02	ug/mL	98.07	% Recovery	
10	LLS	S1011190003		0 5			Tin	LIQUID	.1	9.8090E-02			0.03	ug/mL	98.09	% Recovery	
5	LLS	S1011190003		0 0			Strontium	LIQUID	.02	2.0250E-02			3.00E-03	ug/mL	101.25	% Recovery	
10	LLS	S1011190003		0 5			Tantalum	LIQUID	1	9.7770E-01			0.05	ug/mL	97.77	% Recovery	
10	LLS	S1011190003		0 5			Tellurium	LIQUID	1	1.0364E+00			0.1	ug/mL	103.64	% Recovery	
8	LLS	S1011190003		0 3			Thorium	LIQUID	.1	1.0891E-01			0.05	ug/mL	108.91	% Recovery	
7	LLS	S1011190003		0 2			Titanium	LIQUID	.02	2.0990E-02			5.00E-03	ug/mL	104.95	% Recovery	
5	LLS	S1011190003		0 0			Thallium	LIQUID	.4	4.0837E-01			0.1	ug/mL	102.09	% Recovery	
7	LLS	S1011190003		0 2			Uranium	LIQUID	.5	4.8875E-01			0.1	ug/mL	97.75	% Recovery	
7	LLS	S1011190003		0 2			Vanadium	LIQUID	.05	5.2210E-02			5.00E-03	ug/mL	104.42	% Recovery	
10	LLS	S1011190003		0 5			Tungsten	LIQUID	1	1.0026E+00			0.2	ug/mL	100.26	% Recovery	
8	LLS	S1011190003		0 3			Yttrium	LIQUID	.1	1.0252E-01			2.00E-03	ug/mL	102.52	% Recovery	
7	LLS	S1011190003		0 2			Zinc	LIQUID	.02	1.9080E-02			5.00E-03	ug/mL	95.4	% Recovery	
7	LLS	S1011190003		0 2			Zirconium	LIQUID	.02	1.8580E-02			5.00E-03	ug/mL	92.9	% Recovery	
Sample Sequence 11																	
11	ICB	S1011190002		0 0			Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
11	ICB	S1011190002		0 0			Aluminum	LIQUID		<3.0000E-02			0.03	ug/mL			
11	ICB	S1011190002		0 0			Arsenic	LIQUID		<5.0000E-02			0.05	ug/mL			
11	ICB	S1011190002		0 0			Boron	LIQUID		<3.0000E-02			0.03	ug/mL			
11	ICB	S1011190002		0 0			Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
11	ICB	S1011190002		0 0			Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL			
11	ICB	S1011190002		0 0			Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL			
11	ICB	S1011190002		0 0			Calcium	LIQUID		<5.0000E-02			0.05	ug/mL			
11	ICB	S1011190002		0 0			Cadmium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
11	ICB	S1011190002		0 0			Cerium	LIQUID		<3.0000E-02			0.03	ug/mL			
11	ICB	S1011190002		0 0			Cobalt	LIQUID		<1.0000E-02			0.01	ug/mL			

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

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

LABCORE Completed Batch Report for Batch# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
11	ICB	S1011190002		0 0			Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
11	ICB	S1011190002		0 0			Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
11	ICB	S1011190002		0 0			Europium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
11	ICB	S1011190002		0 0			Iron	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
11	ICB	S1011190002		0 0			Potassium	LIQUID		<5.0000E-01			0.5	ug/mL			
11	ICB	S1011190002		0 0			Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
11	ICB	S1011190002		0 0			Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
11	ICB	S1011190002		0 0			Magnesium	LIQUID		<5.0000E-02			0.05	ug/mL			
11	ICB	S1011190002		0 0			Manganese	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
11	ICB	S1011190002		0 0			Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL			
11	ICB	S1011190002		0 0			Sodium	LIQUID		<1.0000E-01			0.1	ug/mL			
11	ICB	S1011190002		0 0			Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
11	ICB	S1011190002		0 0			Nickel	LIQUID		<2.0000E-02			0.02	ug/mL			
11	ICB	S1011190002		0 0			Niobium	LIQUID		<3.0000E-02			0.03	ug/mL			
11	ICB	S1011190002		0 0			Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL			
11	ICB	S1011190002		0 0			Lead	LIQUID		<5.0000E-02			0.05	ug/mL			
11	ICB	S1011190002		0 0			Palladium	LIQUID		<1.0000E-01			0.1	ug/mL			
11	ICB	S1011190002		0 0			Rubidium	LIQUID		<1.0000E+00			1	ug/mL			
11	ICB	S1011190002		0 0			Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL			
11	ICB	S1011190002		0 0			Ruthenium	LIQUID		<3.0000E-02			0.03	ug/mL			
11	ICB	S1011190002		0 0			Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL			
11	ICB	S1011190002		0 0			Antimony	LIQUID		<5.0000E-02			0.05	ug/mL			
11	ICB	S1011190002		0 0			Selenium	LIQUID		<1.0000E-01			0.1	ug/mL			
11	ICB	S1011190002		0 0			Silicon	LIQUID		<3.0000E-02			0.03	ug/mL			
11	ICB	S1011190002		0 0			Samarium	LIQUID		<2.0000E-02			0.02	ug/mL			
11	ICB	S1011190002		0 0			Tin	LIQUID		<3.0000E-02			0.03	ug/mL			
11	ICB	S1011190002		0 0			Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
11	ICB	S1011190002		0 0			Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL			
11	ICB	S1011190002		0 0			Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL			
11	ICB	S1011190002		0 0			Thorium	LIQUID		<5.0000E-02			0.05	ug/mL			
11	ICB	S1011190002		0 0			Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
11	ICB	S1011190002		0 0			Thallium	LIQUID		<1.0000E-01			0.1	ug/mL			
11	ICB	S1011190002		0 0			Uranium	LIQUID		<1.0000E-01			0.1	ug/mL			
11	ICB	S1011190002		0 0			Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
11	ICB	S1011190002		0 0			Tungsten	LIQUID		<2.0000E-01			0.2	ug/mL			
11	ICB	S1011190002		0 0			Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL			
11	ICB	S1011190002		0 0			Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
11	ICB	S1011190002		0 0			Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
Sample Sequence 12																	
12	ICSA	S1011190004		0 0			Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Aluminum	LIQUID	200	1.9786E+02			0.03	ug/mL	98.93	% Recovery	

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LABCORE Completed Batch Report for Batch# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
12	ICSA	S1011190004		0 0			Boron	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Calcium	LIQUID	200	2.0499E+02			0.05	ug/mL	102.5	% Recovery	
12	ICSA	S1011190004		0 0			Cerium	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Cobalt	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Iron	LIQUID	200	1.9075E+02			5.00E-03	ug/mL	95.377	% Recovery	
12	ICSA	S1011190004		0 0			Potassium	LIQUID		<5.0000E-01			0.5	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Magnesium	LIQUID	200	2.0013E+02			0.05	ug/mL	100.07	% Recovery	
12	ICSA	S1011190004		0 0			Manganese	LIQUID		5.2020E-02			3.00E-03	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Sodium	LIQUID	200	1.9146E+02			0.1	ug/mL	95.729	% Recovery	
12	ICSA	S1011190004		0 0			Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Nickel	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Lead	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Rubidium	LIQUID		<1.0000E+00			1	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Antimony	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Selenium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Silicon	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Samarium	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Thorium	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Thallium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Uranium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
12	ICSA	S1011190004		0 0			Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		

Sample Sequence 13

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LABCORE Completed Batch Report for Batch# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
13	ICSAB	S1011190005		0 0			Silver	LIQUID	1	1.0122E+00			5.00E-03	ug/mL	101.22	% Recovery	
13	ICSAB	S1011190005		0 0			Aluminum	LIQUID	200	1.9812E+02			0.03	ug/mL	99.059	% Recovery	
13	ICSAB	S1011190005		0 0			Arsenic	LIQUID	5	5.3561E+00			0.05	ug/mL	107.12	% Recovery	
13	ICSAB	S1011190005		0 0			Boron	LIQUID	1	1.0012E+00			0.03	ug/mL	100.12	% Recovery	
13	ICSAB	S1011190005		0 0			Barium	LIQUID	1	9.4970E-01			3.00E-03	ug/mL	94.97	% Recovery	
13	ICSAB	S1011190005		0 0			Beryllium	LIQUID	.1	9.0660E-02			1.00E-03	ug/mL	90.66	% Recovery	
13	ICSAB	S1011190005		0 0			Bismuth	LIQUID	5	4.7010E+00			0.1	ug/mL	94.02	% Recovery	
13	ICSAB	S1011190005		0 0			Calcium	LIQUID	200	2.0236E+02			0.05	ug/mL	101.18	% Recovery	
13	ICSAB	S1011190005		0 0			Cadmium	LIQUID	.2	2.1373E-01			5.00E-03	ug/mL	106.86	% Recovery	
13	ICSAB	S1011190005		0 0			Cerium	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
13	ICSAB	S1011190005		0 0			Cobalt	LIQUID	5	4.8931E+00			0.01	ug/mL	97.863	% Recovery	
13	ICSAB	S1011190005		0 0			Chromium	LIQUID	5	4.8473E+00			5.00E-03	ug/mL	96.947	% Recovery	
13	ICSAB	S1011190005		0 0			Copper	LIQUID	5	5.1886E+00			5.00E-03	ug/mL	103.77	% Recovery	
13	ICSAB	S1011190005		0 0			Iron	LIQUID	200	1.9060E+02			5.00E-03	ug/mL	95.299	% Recovery	
13	ICSAB	S1011190005		0 0			Potassium	LIQUID		<5.0000E-01			0.5	ug/mL	N/A		
13	ICSAB	S1011190005		0 0			Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
13	ICSAB	S1011190005		0 0			Lithium	LIQUID	1	1.0060E+00			3.00E-03	ug/mL	100.6	% Recovery	
13	ICSAB	S1011190005		0 0			Magnesium	LIQUID	200	1.9811E+02			0.05	ug/mL	99.054	% Recovery	
13	ICSAB	S1011190005		0 0			Manganese	LIQUID	5	4.8769E+00			3.00E-03	ug/mL	97.539	% Recovery	
13	ICSAB	S1011190005		0 0			Molybdenum	LIQUID	5	4.7960E+00			0.02	ug/mL	95.919	% Recovery	
13	ICSAB	S1011190005		0 0			Sodium	LIQUID	200	1.8829E+02			0.1	ug/mL	94.146	% Recovery	
13	ICSAB	S1011190005		0 0			Neodymium	LIQUID		4.9670E-02			0.01	ug/mL	N/A		
13	ICSAB	S1011190005		0 0			Nickel	LIQUID	5	4.8758E+00			0.02	ug/mL	97.516	% Recovery	
13	ICSAB	S1011190005		0 0			Niobium	LIQUID	5	4.8400E+00			0.03	ug/mL	96.799	% Recovery	
13	ICSAB	S1011190005		0 0			Phosphorus	LIQUID	1	1.0109E+00			0.05	ug/mL	101.09	% Recovery	
13	ICSAB	S1011190005		0 0			Lead	LIQUID	1	1.1797E+00			0.05	ug/mL	117.97	% Recovery	
13	ICSAB	S1011190005		0 0			Palladium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
13	ICSAB	S1011190005		0 0			Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
13	ICSAB	S1011190005		0 0			Rubidium	LIQUID		<1.0000E+00			1	ug/mL	N/A		
13	ICSAB	S1011190005		0 0			Rhodium	LIQUID	1	9.8862E-01			0.05	ug/mL	98.862	% Recovery	
13	ICSAB	S1011190005		0 0			Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
13	ICSAB	S1011190005		0 0			Antimony	LIQUID	5	5.0650E+00			0.05	ug/mL	101.3	% Recovery	
13	ICSAB	S1011190005		0 0			Selenium	LIQUID	5	5.1996E+00			0.1	ug/mL	103.99	% Recovery	
13	ICSAB	S1011190005		0 0			Silicon	LIQUID	5	4.8128E+00			0.03	ug/mL	96.256	% Recovery	
13	ICSAB	S1011190005		0 0			Samarium	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
13	ICSAB	S1011190005		0 0			Tin	LIQUID	1	1.0690E+00			0.03	ug/mL	106.9	% Recovery	
13	ICSAB	S1011190005		0 0			Strontium	LIQUID	1	9.6606E-01			3.00E-03	ug/mL	96.606	% Recovery	
13	ICSAB	S1011190005		0 0			Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
13	ICSAB	S1011190005		0 0			Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
13	ICSAB	S1011190005		0 0			Thorium	LIQUID	5	4.6279E+00			0.05	ug/mL	92.558	% Recovery	
13	ICSAB	S1011190005		0 0			Titanium	LIQUID	50	4.8561E+01			5.00E-03	ug/mL	97.123	% Recovery	

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LABCORE Completed Batch Report for Batch# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
13	ICSAB	S1011190005		0 0			Thallium	LIQUID	5	4.6188E+00			0.1	ug/mL	92.375	% Recovery	
13	ICSAB	S1011190005		0 0			Uranium	LIQUID	5	4.6573E+00			0.1	ug/mL	93.145	% Recovery	
13	ICSAB	S1011190005		0 0			Vanadium	LIQUID	1	9.8976E-01			5.00E-03	ug/mL	98.976	% Recovery	
13	ICSAB	S1011190005		0 0			Tungsten	LIQUID	5	4.9391E+00			0.2	ug/mL	98.782	% Recovery	
13	ICSAB	S1011190005		0 0			Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL	N/A		
13	ICSAB	S1011190005		0 0			Zinc	LIQUID	5	4.9506E+00			5.00E-03	ug/mL	99.012	% Recovery	
13	ICSAB	S1011190005		0 0			Zirconium	LIQUID	5	4.6313E+00			5.00E-03	ug/mL	92.627	% Recovery	
Sample Sequence 14																	
14	BLNK-PREP	S1011050124		0 0	A		Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Aluminum	LIQUID		<3.0000E-02			0.03	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Arsenic	LIQUID		<5.0000E-02			0.05	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Boron	LIQUID		<3.0000E-02			0.03	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Calcium	LIQUID		<5.0000E-02			0.05	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Cadmium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Cerium	LIQUID		<3.0000E-02			0.03	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Cobalt	LIQUID		1.2230E-02			0.01	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Europium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Iron	LIQUID		5.2400E-03			5.00E-03	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Potassium	LIQUID		<5.0000E-01			0.5	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Magnesium	LIQUID		<5.0000E-02			0.05	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Manganese	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Sodium	LIQUID		<1.0000E-01			0.1	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Nickel	LIQUID		<2.0000E-02			0.02	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Niobium	LIQUID		<3.0000E-02			0.03	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Lead	LIQUID		<5.0000E-02			0.05	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Palladium	LIQUID		<1.0000E-01			0.1	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Rubidium	LIQUID		<1.0000E+00			1	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Ruthenium	LIQUID		<3.0000E-02			0.03	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL			

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

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
14	BLNK-PREP	S1011050124		0 0	A		Antimony	LIQUID		<5.0000E-02			0.05	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Selenium	LIQUID		<1.0000E-01			0.1	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Silicon	LIQUID		<3.0000E-02			0.03	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Samarium	LIQUID		<2.0000E-02			0.02	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Tin	LIQUID		<3.0000E-02			0.03	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Thorium	LIQUID		<5.0000E-02			0.05	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Thallium	LIQUID		<1.0000E-01			0.1	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Uranium	LIQUID		<1.0000E-01			0.1	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Tungsten	LIQUID		<2.0000E-01			0.2	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
14	BLNK-PREP	S1011050124		0 0	A		Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
Sample Sequence 15																	
15	STD-PREP	S1011090072		0 0	A		Silver	LIQUID	1	8.7812E-01			5.00E-03	ug/mL	87.812	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Aluminum	LIQUID	5	4.6982E+00			0.03	ug/mL	93.963	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Arsenic	LIQUID	5	4.8346E+00			0.05	ug/mL	96.691	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Boron	LIQUID	5	5.2177E+00			0.03	ug/mL	104.35	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Barium	LIQUID	5	5.1050E+00			3.00E-03	ug/mL	102.1	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Beryllium	LIQUID	5	5.2918E+00			1.00E-03	ug/mL	105.84	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Bismuth	LIQUID	5	4.8321E+00			0.1	ug/mL	96.642	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Calcium	LIQUID	5	4.5942E+00			0.05	ug/mL	91.884	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Cadmium	LIQUID	5	4.8509E+00			5.00E-03	ug/mL	97.017	% Recovery	
16	STD-PREP	S1011090072		0 1	A		Cerium	LIQUID	5	5.0325E+00			0.03	ug/mL	100.65	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Cobalt	LIQUID	5	4.9199E+00			0.01	ug/mL	98.398	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Chromium	LIQUID	5	4.8864E+00			5.00E-03	ug/mL	97.727	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Copper	LIQUID	5	5.0851E+00			5.00E-03	ug/mL	101.7	% Recovery	
16	STD-PREP	S1011090072		0 1	A		Europium	LIQUID	5	4.7411E+00			5.00E-03	ug/mL	94.822	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Iron	LIQUID	5	4.9105E+00			5.00E-03	ug/mL	98.21	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Potassium	LIQUID	5	4.4835E+00			0.5	ug/mL	89.669	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Lanthanum	LIQUID	5	5.0830E+00			3.00E-03	ug/mL	101.66	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Lithium	LIQUID	5	5.4114E+00			3.00E-03	ug/mL	108.23	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Magnesium	LIQUID	5	4.7747E+00			0.05	ug/mL	95.495	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Manganese	LIQUID	5	4.8490E+00			3.00E-03	ug/mL	96.979	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Molybdenum	LIQUID	5	5.4120E+00			0.02	ug/mL	108.24	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Sodium	LIQUID	5	5.3330E+00			0.1	ug/mL	106.66	% Recovery	
16	STD-PREP	S1011090072		0 1	A		Neodymium	LIQUID	5	4.8536E+00			0.01	ug/mL	97.072	% Recovery	

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LABCORE Completed Batch Report for Batch# 00024239

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	S1011090072		0 0	A		Nickel	LIQUID	5	4.7867E+00			0.02	ug/mL	95.734	% Recovery	
16	STD-PREP	S1011090072		0 1	A		Niobium	LIQUID	5	4.7129E+00			0.03	ug/mL	94.258	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Phosphorus	LIQUID	5	5.2853E+00			0.05	ug/mL	105.71	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Lead	LIQUID	5	4.8117E+00			0.05	ug/mL	96.234	% Recovery	
16	STD-PREP	S1011090072		0 1	A		Palladium	LIQUID	5	4.4671E+00			0.1	ug/mL	89.342	% Recovery	
16	STD-PREP	S1011090072		0 1	A		Praseodymium	LIQUID	5	4.9784E+00			0.01	ug/mL	99.568	% Recovery	
16	STD-PREP	S1011090072		0 1	A		Rhodium	LIQUID	5	4.7331E+00			0.05	ug/mL	94.662	% Recovery	
16	STD-PREP	S1011090072		0 1	A		Ruthenium	LIQUID	5	4.5860E+00			0.03	ug/mL	91.72	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Sulfur	LIQUID	5	5.2817E+00			0.1	ug/mL	105.63	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Antimony	LIQUID	5	5.1879E+00			0.05	ug/mL	103.76	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Selenium	LIQUID	5	5.0684E+00			0.1	ug/mL	101.37	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Silicon	LIQUID	5	4.4658E+00			0.03	ug/mL	89.317	% Recovery	
16	STD-PREP	S1011090072		0 1	A		Samarium	LIQUID	5	5.0074E+00			0.02	ug/mL	100.15	% Recovery	
16	STD-PREP	S1011090072		0 1	A		Tin	LIQUID	5	4.4613E+00			0.03	ug/mL	89.226	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Strontium	LIQUID	5	5.0867E+00			3.00E-03	ug/mL	101.73	% Recovery	
16	STD-PREP	S1011090072		0 1	A		Tantalum	LIQUID	5	4.5284E+00			0.05	ug/mL	90.569	% Recovery	
16	STD-PREP	S1011090072		0 1	A		Tellurium	LIQUID	5	4.6049E+00			0.1	ug/mL	92.098	% Recovery	
16	STD-PREP	S1011090072		0 1	A		Thorium	LIQUID	5	4.6282E+00			0.05	ug/mL	92.563	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Titanium	LIQUID	5	5.3514E+00			5.00E-03	ug/mL	107.03	% Recovery	
16	STD-PREP	S1011090072		0 1	A		Thallium	LIQUID	5	4.6343E+00			0.1	ug/mL	92.685	% Recovery	
16	STD-PREP	S1011090072		0 1	A		Uranium	LIQUID	5	5.1697E+00			0.1	ug/mL	103.39	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Vanadium	LIQUID	5	5.0153E+00			5.00E-03	ug/mL	100.31	% Recovery	
16	STD-PREP	S1011090072		0 1	A		Tungsten	LIQUID	5	4.6113E+00			0.2	ug/mL	92.225	% Recovery	
16	STD-PREP	S1011090072		0 1	A		Yttrium	LIQUID	5	4.6854E+00			2.00E-03	ug/mL	93.708	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Zinc	LIQUID	5	4.8354E+00			5.00E-03	ug/mL	96.708	% Recovery	
15	STD-PREP	S1011090072		0 0	A		Zirconium	LIQUID	5	5.2612E+00			5.00E-03	ug/mL	105.22	% Recovery	
Sample Sequence 17																	
17	SERDIL	S1011190006	S10V002288	0 0			Aluminum	SOLID		6.0510E+03			12.377	ug/g	2.3384	% Diff	
17	SERDIL	S1011190006	S10V002288	0 0			Barium	SOLID		7.9809E+01			1.2377	ug/g	4.1672	% Diff	
17	SERDIL	S1011190006	S10V002288	0 0			Beryllium	SOLID		<4.1258E-01			0.41258	ug/g	N/A		
17	SERDIL	S1011190006	S10V002288	0 0			Calcium	SOLID		1.0666E+04			20.629	ug/g	1.8897	% Diff	
17	SERDIL	S1011190006	S10V002288	0 0			Cerium	SOLID		<1.2377E+01			12.377	ug/g	N/A		
17	SERDIL	S1011190006	S10V002288	0 0			Cobalt	SOLID		6.1711E+00			4.1258	ug/g	13.237	% Diff	
17	SERDIL	S1011190006	S10V002288	0 0			Chromium	SOLID		6.0399E+00			2.0629	ug/g	16.655	% Diff	
17	SERDIL	S1011190006	S10V002288	0 0			Copper	SOLID		9.9511E+00			2.0629	ug/g	8.0733	% Diff	
17	SERDIL	S1011190006	S10V002288	0 0			Iron	SOLID		1.6507E+04			2.0629	ug/g	5.2486	% Diff	
17	SERDIL	S1011190006	S10V002288	0 0			Potassium	SOLID		1.3004E+03			206.29	ug/g	3.0976	% Diff	
17	SERDIL	S1011190006	S10V002288	0 0			Lanthanum	SOLID		9.3119E+00			1.2377	ug/g	14.114	% Diff	
17	SERDIL	S1011190006	S10V002288	0 0			Lithium	SOLID		8.2338E+00			1.2377	ug/g	8.8442	% Diff	
17	SERDIL	S1011190006	S10V002288	0 0			Magnesium	SOLID		4.8234E+03			20.629	ug/g	4.3007	% Diff	
17	SERDIL	S1011190006	S10V002288	0 0			Manganese	SOLID		3.2928E+02			1.2377	ug/g	4.0122	% Diff	

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LABCORE Completed Batch Report for Batch# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
17	SERDIL	S1011190006	S10V002288	0 0			Molybdenum	SOLID		<8.2515E+00			8.2515	ug/g	N/A		
17	SERDIL	S1011190006	S10V002288	0 0			Sodium	SOLID		6.6178E+02			41.258	ug/g	5.9458	% Diff	
17	SERDIL	S1011190006	S10V002288	0 0			Neodymium	SOLID		9.5703E+00			4.1258	ug/g	8.1196	% Diff	
17	SERDIL	S1011190006	S10V002288	0 0			Nickel	SOLID		1.0680E+01			8.2515	ug/g	28.172	% Diff	
17	SERDIL	S1011190006	S10V002288	0 0			Phosphorus	SOLID		7.9075E+02			20.629	ug/g	2.0608	% Diff	
17	SERDIL	S1011190006	S10V002288	0 0			Sulfur	SOLID		6.5525E+01			41.258	ug/g	8.3665	% Diff	
17	SERDIL	S1011190006	S10V002288	0 0			Silicon	SOLID		9.0585E+01			12.377	ug/g	16.625	% Diff	
17	SERDIL	S1011190006	S10V002288	0 0			Strontium	SOLID		2.6468E+01			1.2377	ug/g	4.046	% Diff	
17	SERDIL	S1011190006	S10V002288	0 0			Titanium	SOLID		6.5958E+02			2.0629	ug/g	3.8065	% Diff	
17	SERDIL	S1011190006	S10V002288	0 0			Vanadium	SOLID		2.5095E+01			2.0629	ug/g	.32183	% Diff	
17	SERDIL	S1011190006	S10V002288	0 0			Yttrium	SOLID		8.7086E+00			0.82515	ug/g	7.6845	% Diff	
17	SERDIL	S1011190006	S10V002288	0 0			Zinc	SOLID		3.7533E+01			2.0629	ug/g	9.0875	% Diff	
17	SERDIL	S1011190006	S10V002288	0 0			Zirconium	SOLID		9.5450E+00			2.0629	ug/g	2.5221	% Diff	
Sample Sequence 18																	
18	SAMPLE	S10V002288		0 1	A		Aluminum	SOLID	N/A	5.9127E+03			2.4755	ug/g			
18	SAMPLE	S10V002288		0 1	A		Barium	SOLID	N/A	7.6616E+01			0.24755	ug/g			
18	SAMPLE	S10V002288		0 1	A		Beryllium	SOLID	N/A	2.0257E-01			0.082515	ug/g			J
18	SAMPLE	S10V002288		0 1	A		Calcium	SOLID	N/A	1.0468E+04			4.1258	ug/g			
18	SAMPLE	S10V002288		0 1	A		Cerium	SOLID	N/A	1.7976E+01			2.4755	ug/g			J
18	SAMPLE	S10V002288		0 1	A		Cobalt	SOLID	N/A	7.1126E+00			0.82515	ug/g			J
18	SAMPLE	S10V002288		0 1	A		Chromium	SOLID	N/A	7.2469E+00			0.41258	ug/g			
18	SAMPLE	S10V002288		0 1	A		Copper	SOLID	N/A	1.0825E+01			0.41258	ug/g			
18	SAMPLE	S10V002288		0 1	A		Iron	SOLID	N/A	1.5684E+04			0.41258	ug/g			
18	SAMPLE	S10V002288		0 1	A		Potassium	SOLID	N/A	1.2613E+03			41.258	ug/g			
18	SAMPLE	S10V002288		0 1	A		Lanthanum	SOLID	N/A	8.1602E+00			0.24755	ug/g			
18	SAMPLE	S10V002288		0 1	A		Lithium	SOLID	N/A	7.5648E+00			0.24755	ug/g			
18	SAMPLE	S10V002288		0 1	A		Magnesium	SOLID	N/A	4.6245E+03			4.1258	ug/g			
18	SAMPLE	S10V002288		0 1	A		Manganese	SOLID	N/A	3.1658E+02			0.24755	ug/g			
18	SAMPLE	S10V002288		0 1	A		Molybdenum	SOLID	N/A	<1.6503E+00			1.6503	ug/g			U
18	SAMPLE	S10V002288		0 1	A		Sodium	SOLID	N/A	6.2464E+02			8.2515	ug/g			
18	SAMPLE	S10V002288		0 1	A		Nickel	SOLID	N/A	8.3325E+00			1.6503	ug/g			J
18	SAMPLE	S10V002288		0 1	A		Phosphorus	SOLID	N/A	7.7478E+02			4.1258	ug/g			
18	SAMPLE	S10V002288		0 1	A		Sulfur	SOLID	N/A	7.1508E+01			8.2515	ug/g			J
18	SAMPLE	S10V002288		0 1	A		Silicon	SOLID	N/A	7.7672E+01			2.4755	ug/g			
18	SAMPLE	S10V002288		0 1	A		Strontium	SOLID	N/A	2.5439E+01			0.24755	ug/g			
18	SAMPLE	S10V002288		0 1	A		Titanium	SOLID	N/A	6.3539E+02			0.41258	ug/g			
18	SAMPLE	S10V002288		0 1	A		Vanadium	SOLID	N/A	2.5176E+01			0.41258	ug/g			
18	SAMPLE	S10V002288		0 1	A		Yttrium	SOLID	N/A	8.0871E+00			0.16503	ug/g			
18	SAMPLE	S10V002288		0 1	A		Zinc	SOLID	N/A	3.4406E+01			0.41258	ug/g			
18	SAMPLE	S10V002288		0 1	A		Zirconium	SOLID	N/A	9.3102E+00			0.41258	ug/g			b
Sample Sequence 19																	
19	DUP	S1011050126	S10V002288	0 0	A		Aluminum	SOLID	5.9127E+03	5.9921E+03			2.4966	ug/g	1.3334	% RPD	

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LABCORE Completed Batch Report for Batch# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
19	DUP	S1011050126	S10V002288	0 0	A		Barium	SOLID	7.6616E+01	7.5907E+01			0.24966	ug/g	0.92966	% RPD	
19	DUP	S1011050126	S10V002288	0 0	A		Beryllium	SOLID	2.0257E-01	2.1662E-01			0.083221	ug/g	6.7012	% RPD	
19	DUP	S1011050126	S10V002288	0 0	A		Calcium	SOLID	1.0468E+04	1.1808E+04			4.161	ug/g	12.033	% RPD	
19	DUP	S1011050126	S10V002288	0 0	A		Cerium	SOLID	1.7976E+01	1.8842E+01			2.4966	ug/g	4.7038	% RPD	
19	DUP	S1011050126	S10V002288	0 0	A		Cobalt	SOLID	7.1126E+00	6.8411E+00			0.83221	ug/g	3.8919	% RPD	
19	DUP	S1011050126	S10V002288	0 0	A		Chromium	SOLID	7.2469E+00	7.8106E+00			0.4161	ug/g	7.4875	% RPD	
19	DUP	S1011050126	S10V002288	0 0	A		Copper	SOLID	1.0825E+01	1.1363E+01			0.4161	ug/g	4.8519	% RPD	
19	DUP	S1011050126	S10V002288	0 0	A		Iron	SOLID	1.5684E+04	1.6570E+04			0.4161	ug/g	5.4960	% RPD	
19	DUP	S1011050126	S10V002288	0 0	A		Potassium	SOLID	1.2613E+03	1.3376E+03			41.61	ug/g	5.8698	% RPD	
19	DUP	S1011050126	S10V002288	0 0	A		Lanthanum	SOLID	8.1602E+00	7.9936E+00			0.24966	ug/g	2.0622	% RPD	
19	DUP	S1011050126	S10V002288	0 0	A		Lithium	SOLID	7.5648E+00	7.8631E+00			0.24966	ug/g	3.8668	% RPD	
19	DUP	S1011050126	S10V002288	0 0	A		Magnesium	SOLID	4.6245E+03	4.8311E+03			4.161	ug/g	4.3699	% RPD	
19	DUP	S1011050126	S10V002288	0 0	A		Manganese	SOLID	3.1658E+02	3.1741E+02			0.24966	ug/g	0.26163	% RPD	
19	DUP	S1011050126	S10V002288	0 0	A		Molybdenum	SOLID	<1.6503E+00	<1.6644E+00			1.6644	ug/g			
19	DUP	S1011050126	S10V002288	0 0	A		Sodium	SOLID	6.2464E+02	6.4179E+02			8.3221	ug/g	2.7077	% RPD	
19	DUP	S1011050126	S10V002288	0 0	A		Neodymium	SOLID		1.0506E+01			0.83221	ug/g			
19	DUP	S1011050126	S10V002288	0 0	A		Nickel	SOLID	8.3325E+00	8.3243E+00			1.6644	ug/g	0.097896	% RPD	
19	DUP	S1011050126	S10V002288	0 0	A		Phosphorus	SOLID	7.7478E+02	7.8086E+02			4.161	ug/g	0.78172	% RPD	
19	DUP	S1011050126	S10V002288	0 0	A		Sulfur	SOLID	7.1508E+01	7.5618E+01			8.3221	ug/g	5.5872	% RPD	
19	DUP	S1011050126	S10V002288	0 0	A		Silicon	SOLID	7.7672E+01	7.4578E+01			2.4966	ug/g	4.0646	% RPD	
19	DUP	S1011050126	S10V002288	0 0	A		Strontium	SOLID	2.5439E+01	2.7156E+01			0.24966	ug/g	6.5289	% RPD	
19	DUP	S1011050126	S10V002288	0 0	A		Titanium	SOLID	6.3539E+02	6.5259E+02			0.4161	ug/g	2.6713	% RPD	
19	DUP	S1011050126	S10V002288	0 0	A		Vanadium	SOLID	2.5176E+01	2.7553E+01			0.4161	ug/g	9.0172	% RPD	
19	DUP	S1011050126	S10V002288	0 0	A		Yttrium	SOLID	8.0871E+00	7.9950E+00			0.16644	ug/g	1.1448	% RPD	
19	DUP	S1011050126	S10V002288	0 0	A		Zinc	SOLID	3.4406E+01	3.6498E+01			0.4161	ug/g	5.8996	% RPD	
19	DUP	S1011050126	S10V002288	0 0	A		Zirconium	SOLID	9.3102E+00	8.8580E+00			0.4161	ug/g	4.9777	% RPD	
Sample Sequence 20																	
20	SPK-PREDIG	S1011090071	S10V002288	0 0	A		Aluminum	SOLID	41.50273088	6.4561E+03			2.4907	ug/g	1309.4	% Recovery	
20	SPK-PREDIG	S1011090071	S10V002288	0 0	A		Barium	SOLID	41.50273088	1.1608E+02			0.24907	ug/g	95.091	% Recovery	
20	SPK-PREDIG	S1011090071	S10V002288	0 0	A		Beryllium	SOLID	41.50273088	3.9442E+01			0.083023	ug/g	94.546	% Recovery	
20	SPK-PREDIG	S1011090071	S10V002288	0 0	A		Calcium	SOLID	41.50273088	1.1323E+04			4.1512	ug/g	2061.1	% Recovery	
20	SPK-PREDIG	S1011090071	S10V002288	0 0	A		Cobalt	SOLID	41.50273088	4.7228E+01			0.83023	ug/g	96.657	% Recovery	
20	SPK-PREDIG	S1011090071	S10V002288	0 0	A		Chromium	SOLID	41.50273088	4.7204E+01			0.41512	ug/g	96.275	% Recovery	
20	SPK-PREDIG	S1011090071	S10V002288	0 0	A		Copper	SOLID	41.50273088	5.1804E+01			0.41512	ug/g	98.737	% Recovery	
20	SPK-PREDIG	S1011090071	S10V002288	0 0	A		Iron	SOLID	41.50273088	1.6662E+04			0.41512	ug/g	2355.4	% Recovery	
20	SPK-PREDIG	S1011090071	S10V002288	0 0	A		Potassium	SOLID	41.50273088	1.3509E+03			41.512	ug/g	215.96	% Recovery	
20	SPK-PREDIG	S1011090071	S10V002288	0 0	A		Lanthanum	SOLID	41.50273088	4.7229E+01			0.24907	ug/g	94.136	% Recovery	
20	SPK-PREDIG	S1011090071	S10V002288	0 0	A		Lithium	SOLID	41.50273088	4.9804E+01			0.24907	ug/g	101.78	% Recovery	
20	SPK-PREDIG	S1011090071	S10V002288	0 0	A		Magnesium	SOLID	41.50273088	4.9011E+03			4.1512	ug/g	666.46	% Recovery	
20	SPK-PREDIG	S1011090071	S10V002288	0 0	A		Manganese	SOLID	41.50273088	3.5135E+02			0.24907	ug/g	83.781	% Recovery	
20	SPK-PREDIG	S1011090071	S10V002288	0 0	A		Molybdenum	SOLID	41.50273088	3.5770E+01			1.6605	ug/g	86.188	% Recovery	

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

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LABCORE Completed Batch Report for Batch# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
20	SPK-PREDIG	S1011090071	S10V002288	0 0	A		Sodium	SOLID	41.50273088	7.2156E+02			8.3023	ug/g	233.53	% Recovery	
20	SPK-PREDIG	S1011090071	S10V002288	0 0	A		Nickel	SOLID	41.50273088	4.8843E+01			1.6605	ug/g	97.61	% Recovery	
20	SPK-PREDIG	S1011090071	S10V002288	0 0	A		Phosphorus	SOLID	41.50273088	7.7758E+02			4.1512	ug/g	6.7498	% Recovery	
20	SPK-PREDIG	S1011090071	S10V002288	0 0	A		Sulfur	SOLID	41.50273088	1.1105E+02			8.3023	ug/g	95.266	% Recovery	
20	SPK-PREDIG	S1011090071	S10V002288	0 0	A		Silicon	SOLID	41.50273088	1.1714E+02			2.4907	ug/g	95.096	% Recovery	
20	SPK-PREDIG	S1011090071	S10V002288	0 0	A		Strontium	SOLID	41.50273088	6.6343E+01			0.24907	ug/g	98.557	% Recovery	
20	SPK-PREDIG	S1011090071	S10V002288	0 0	A		Titanium	SOLID	41.50273088	8.0015E+02			0.41512	ug/g	396.98	% Recovery	
20	SPK-PREDIG	S1011090071	S10V002288	0 0	A		Vanadium	SOLID	41.50273088	6.8526E+01			0.41512	ug/g	104.45	% Recovery	
20	SPK-PREDIG	S1011090071	S10V002288	0 0	A		Zinc	SOLID	41.50273088	7.5728E+01			0.41512	ug/g	99.565	% Recovery	
20	SPK-PREDIG	S1011090071	S10V002288	0 0	A		Zirconium	SOLID	41.50273088	3.0237E+01			0.41512	ug/g	50.423	% Recovery	
Sample Sequence 21																	
21	SPK-PREDIG	S1011050127	S10V002288	0 0	A		Cerium	SOLID	41.51168969	6.1369E+01			2.4902	ug/g	104.53	% Recovery	
21	SPK-PREDIG	S1011050127	S10V002288	0 0	A		Neodymium	SOLID	41.51168969	5.0437E+01			0.83005	ug/g	96.409	% Recovery	
21	SPK-PREDIG	S1011050127	S10V002288	0 0	A		Yttrium	SOLID	41.51168969	4.8131E+01			0.16601	ug/g	96.464	% Recovery	
Sample Sequence 22																	
23	CCV	S1011190024		0 1			Silver	LIQUID	1	1.0080E+00			5.00E-03	ug/mL	100.8	% Recovery	
22	CCV	S1011190024		0 0			Aluminum	LIQUID	5	5.0969E+00			0.03	ug/mL	101.94	% Recovery	
22	CCV	S1011190024		0 0			Arsenic	LIQUID	5	5.2464E+00			0.05	ug/mL	104.93	% Recovery	
22	CCV	S1011190024		0 0			Boron	LIQUID	5	5.2534E+00			0.03	ug/mL	105.07	% Recovery	
22	CCV	S1011190024		0 0			Barium	LIQUID	5	5.3486E+00			3.00E-03	ug/mL	106.97	% Recovery	
22	CCV	S1011190024		0 0			Beryllium	LIQUID	5	5.2810E+00			1.00E-03	ug/mL	105.62	% Recovery	
22	CCV	S1011190024		0 0			Bismuth	LIQUID	5	5.2658E+00			0.1	ug/mL	105.32	% Recovery	
22	CCV	S1011190024		0 0			Calcium	LIQUID	5	5.2920E+00			0.05	ug/mL	105.84	% Recovery	
22	CCV	S1011190024		0 0			Cadmium	LIQUID	5	5.3876E+00			5.00E-03	ug/mL	107.75	% Recovery	
24	CCV	S1011190024		0 2			Cerium	LIQUID	5	5.3624E+00			0.03	ug/mL	107.25	% Recovery	
22	CCV	S1011190024		0 0			Cobalt	LIQUID	5	5.4610E+00			0.01	ug/mL	109.22	% Recovery	
22	CCV	S1011190024		0 0			Chromium	LIQUID	5	5.4166E+00			5.00E-03	ug/mL	108.33	% Recovery	
22	CCV	S1011190024		0 0			Copper	LIQUID	5	5.2747E+00			5.00E-03	ug/mL	105.49	% Recovery	
24	CCV	S1011190024		0 2			Europium	LIQUID	5	5.0902E+00			5.00E-03	ug/mL	101.8	% Recovery	
22	CCV	S1011190024		0 0			Iron	LIQUID	5	5.3365E+00			5.00E-03	ug/mL	106.73	% Recovery	
23	CCV	S1011190024		0 1			Potassium	LIQUID	5	4.6446E+00			0.5	ug/mL	92.891	% Recovery	
22	CCV	S1011190024		0 0			Lanthanum	LIQUID	5	5.2661E+00			3.00E-03	ug/mL	105.32	% Recovery	
22	CCV	S1011190024		0 0			Lithium	LIQUID	5	5.0638E+00			3.00E-03	ug/mL	101.28	% Recovery	
22	CCV	S1011190024		0 0			Magnesium	LIQUID	5	5.3229E+00			0.05	ug/mL	106.46	% Recovery	
22	CCV	S1011190024		0 0			Manganese	LIQUID	5	5.3709E+00			3.00E-03	ug/mL	107.42	% Recovery	
22	CCV	S1011190024		0 0			Molybdenum	LIQUID	5	5.3684E+00			0.02	ug/mL	107.37	% Recovery	
22	CCV	S1011190024		0 0			Sodium	LIQUID	5	5.1352E+00			0.1	ug/mL	102.7	% Recovery	
24	CCV	S1011190024		0 2			Neodymium	LIQUID	5	5.0527E+00			0.01	ug/mL	101.05	% Recovery	
22	CCV	S1011190024		0 0			Nickel	LIQUID	5	5.3672E+00			0.02	ug/mL	107.34	% Recovery	
25	CCV	S1011190024		0 3			Niobium	LIQUID	5	5.1003E+00			0.03	ug/mL	102.01	% Recovery	
22	CCV	S1011190024		0 0			Phosphorus	LIQUID	5	5.2486E+00			0.05	ug/mL	104.97	% Recovery	
22	CCV	S1011190024		0 0			Lead	LIQUID	5	5.4519E+00			0.05	ug/mL	109.04	% Recovery	

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LABCORE Completed Batch Report for Batch# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
24	CCV	S1011190024		0 2			Palladium	LIQUID	5	4.9556E+00			0.1	ug/mL	99.112	% Recovery	
24	CCV	S1011190024		0 2			Praseodymium	LIQUID	5	5.2652E+00			0.01	ug/mL	105.3	% Recovery	
24	CCV	S1011190024		0 2			Rubidium	LIQUID	5	5.1048E+00			1	ug/mL	102.1	% Recovery	
24	CCV	S1011190024		0 2			Rhodium	LIQUID	5	5.0612E+00			0.05	ug/mL	101.22	% Recovery	
24	CCV	S1011190024		0 2			Ruthenium	LIQUID	5	5.1686E+00			0.03	ug/mL	103.37	% Recovery	
22	CCV	S1011190024		0 0			Sulfur	LIQUID	5	5.2507E+00			0.1	ug/mL	105.01	% Recovery	
22	CCV	S1011190024		0 0			Antimony	LIQUID	5	5.2137E+00			0.05	ug/mL	104.27	% Recovery	
23	CCV	S1011190024		0 1			Selenium	LIQUID	5	5.4595E+00			0.1	ug/mL	109.19	% Recovery	
22	CCV	S1011190024		0 0			Silicon	LIQUID	5	4.9563E+00			0.03	ug/mL	99.126	% Recovery	
24	CCV	S1011190024		0 2			Samarium	LIQUID	5	5.2666E+00			0.02	ug/mL	105.33	% Recovery	
25	CCV	S1011190024		0 3			Tin	LIQUID	5	5.1787E+00			0.03	ug/mL	103.57	% Recovery	
22	CCV	S1011190024		0 0			Strontium	LIQUID	5	5.2906E+00			3.00E-03	ug/mL	105.81	% Recovery	
25	CCV	S1011190024		0 3			Tantalum	LIQUID	5	5.0767E+00			0.05	ug/mL	101.53	% Recovery	
25	CCV	S1011190024		0 3			Tellurium	LIQUID	5	5.0432E+00			0.1	ug/mL	100.86	% Recovery	
24	CCV	S1011190024		0 2			Thorium	LIQUID	5	5.1762E+00			0.05	ug/mL	103.52	% Recovery	
22	CCV	S1011190024		0 0			Titanium	LIQUID	5	5.2234E+00			5.00E-03	ug/mL	104.47	% Recovery	
24	CCV	S1011190024		0 2			Thallium	LIQUID	5	5.4526E+00			0.1	ug/mL	109.05	% Recovery	
24	CCV	S1011190024		0 2			Uranium	LIQUID	5	5.1087E+00			0.1	ug/mL	102.17	% Recovery	
22	CCV	S1011190024		0 0			Vanadium	LIQUID	5	5.4652E+00			5.00E-03	ug/mL	109.3	% Recovery	
25	CCV	S1011190024		0 3			Tungsten	LIQUID	5	4.8922E+00			0.2	ug/mL	97.844	% Recovery	
24	CCV	S1011190024		0 2			Yttrium	LIQUID	5	5.1105E+00			2.00E-03	ug/mL	102.21	% Recovery	
22	CCV	S1011190024		0 0			Zinc	LIQUID	5	5.3058E+00			5.00E-03	ug/mL	106.12	% Recovery	
22	CCV	S1011190024		0 0			Zirconium	LIQUID	5	5.1418E+00			5.00E-03	ug/mL	102.84	% Recovery	
Sample Sequence 26																	
26	CCB	S1011190023		0 0			Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
26	CCB	S1011190023		0 0			Aluminum	LIQUID		<3.0000E-02			0.03	ug/mL			
26	CCB	S1011190023		0 0			Arsenic	LIQUID		<5.0000E-02			0.05	ug/mL			
26	CCB	S1011190023		0 0			Boron	LIQUID		<3.0000E-02			0.03	ug/mL			
26	CCB	S1011190023		0 0			Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
26	CCB	S1011190023		0 0			Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL			
26	CCB	S1011190023		0 0			Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL			
26	CCB	S1011190023		0 0			Calcium	LIQUID		<5.0000E-02			0.05	ug/mL			
26	CCB	S1011190023		0 0			Cadmium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
26	CCB	S1011190023		0 0			Cerium	LIQUID		<3.0000E-02			0.03	ug/mL			
26	CCB	S1011190023		0 0			Cobalt	LIQUID		<1.0000E-02			0.01	ug/mL			
26	CCB	S1011190023		0 0			Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
26	CCB	S1011190023		0 0			Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
26	CCB	S1011190023		0 0			Europium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
26	CCB	S1011190023		0 0			Iron	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
26	CCB	S1011190023		0 0			Potassium	LIQUID		<5.0000E-01			0.5	ug/mL			
26	CCB	S1011190023		0 0			Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL			

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LABCORE Completed Batch Report for Batch# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
26	CCB	S1011190023		0 0			Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
26	CCB	S1011190023		0 0			Magnesium	LIQUID		<5.0000E-02			0.05	ug/mL			
26	CCB	S1011190023		0 0			Manganese	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
26	CCB	S1011190023		0 0			Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL			
27	CCB	S1011190023		0 1			Sodium	LIQUID		<1.0000E-01			0.1	ug/mL			
27	CCB	S1011190023		0 1			Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
26	CCB	S1011190023		0 0			Nickel	LIQUID		<2.0000E-02			0.02	ug/mL			
27	CCB	S1011190023		0 1			Niobium	LIQUID		<3.0000E-02			0.03	ug/mL			
26	CCB	S1011190023		0 0			Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL			
27	CCB	S1011190023		0 1			Lead	LIQUID		<5.0000E-02			0.05	ug/mL			
27	CCB	S1011190023		0 1			Palladium	LIQUID		<1.0000E-01			0.1	ug/mL			
26	CCB	S1011190023		0 0			Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
27	CCB	S1011190023		0 1			Rubidium	LIQUID		<1.0000E+00			1	ug/mL			
27	CCB	S1011190023		0 1			Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL			
27	CCB	S1011190023		0 1			Ruthenium	LIQUID		<3.0000E-02			0.03	ug/mL			
26	CCB	S1011190023		0 0			Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL			
26	CCB	S1011190023		0 0			Antimony	LIQUID		<5.0000E-02			0.05	ug/mL			
26	CCB	S1011190023		0 0			Selenium	LIQUID		<1.0000E-01			0.1	ug/mL			
27	CCB	S1011190023		0 1			Silicon	LIQUID		<3.0000E-02			0.03	ug/mL			
27	CCB	S1011190023		0 1			Samarium	LIQUID		<2.0000E-02			0.02	ug/mL			
26	CCB	S1011190023		0 0			Tin	LIQUID		<3.0000E-02			0.03	ug/mL			
26	CCB	S1011190023		0 0			Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
27	CCB	S1011190023		0 1			Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL			
26	CCB	S1011190023		0 0			Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL			
27	CCB	S1011190023		0 1			Thorium	LIQUID		<5.0000E-02			0.05	ug/mL			
27	CCB	S1011190023		0 1			Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
27	CCB	S1011190023		0 1			Thallium	LIQUID		<1.0000E-01			0.1	ug/mL			
27	CCB	S1011190023		0 1			Uranium	LIQUID		<1.0000E-01			0.1	ug/mL			
27	CCB	S1011190023		0 1			Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
26	CCB	S1011190023		0 0			Tungsten	LIQUID		<2.0000E-01			0.2	ug/mL			
26	CCB	S1011190023		0 0			Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL			
26	CCB	S1011190023		0 0			Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
26	CCB	S1011190023		0 0			Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
Sample Sequence 28																	
30	SPK-POST	S1011190007	S10V002288	0 2			Aluminum	SOLID	1000	1.6965E+03			0.03	ug/g	97.993	% Recovery	
28	SPK-POST	S1011190007	S10V002288	0 0			Barium	SOLID	100	1.0609E+02			3.00E-03	ug/g	96.802	% Recovery	
28	SPK-POST	S1011190007	S10V002288	0 0			Beryllium	SOLID	100	9.1605E+01			1.00E-03	ug/g	91.581	% Recovery	
30	SPK-POST	S1011190007	S10V002288	0 2			Calcium	SOLID	1000	2.2613E+03			0.05	ug/g	99.277	% Recovery	
28	SPK-POST	S1011190007	S10V002288	0 0			Cerium	SOLID	100	9.7232E+01			0.03	ug/g	95.053	% Recovery	
28	SPK-POST	S1011190007	S10V002288	0 0			Cobalt	SOLID	100	9.4708E+01			0.01	ug/g	93.846	% Recovery	
28	SPK-POST	S1011190007	S10V002288	0 0			Chromium	SOLID	100	9.4131E+01			5.00E-03	ug/g	93.253	% 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# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
28	SPK-POST	S1011190007	S10V002288	0 0			Copper	SOLID	100	1.0099E+02			5.00E-03	ug/g	99.676	% Recovery	
30	SPK-POST	S1011190007	S10V002288	0 2			Iron	SOLID	1000	2.7896E+03			5.00E-03	ug/g	88.891	% Recovery	
28	SPK-POST	S1011190007	S10V002288	0 0			Potassium	SOLID	100	2.2437E+02			0.5	ug/g	71.513	% Recovery	
28	SPK-POST	S1011190007	S10V002288	0 0			Lanthanum	SOLID	100	9.3976E+01			3.00E-03	ug/g	92.987	% Recovery	
28	SPK-POST	S1011190007	S10V002288	0 0			Lithium	SOLID	100	9.5980E+01			3.00E-03	ug/g	95.063	% Recovery	
30	SPK-POST	S1011190007	S10V002288	0 2			Magnesium	SOLID	1000	1.5298E+03			0.05	ug/g	96.938	% Recovery	
28	SPK-POST	S1011190007	S10V002288	0 0			Manganese	SOLID	100	1.3188E+02			3.00E-03	ug/g	93.509	% Recovery	
28	SPK-POST	S1011190007	S10V002288	0 0			Molybdenum	SOLID	100	9.2976E+01			0.02	ug/g	92.976	% Recovery	
28	SPK-POST	S1011190007	S10V002288	0 0			Sodium	SOLID	100	1.6621E+02			0.1	ug/g	90.504	% Recovery	
28	SPK-POST	S1011190007	S10V002288	0 0			Neodymium	SOLID	100	9.2656E+01			0.01	ug/g	91.394	% Recovery	
28	SPK-POST	S1011190007	S10V002288	0 0			Nickel	SOLID	100	9.4563E+01			0.02	ug/g	93.553	% Recovery	
28	SPK-POST	S1011190007	S10V002288	0 0			Phosphorus	SOLID	100	1.8690E+02			0.05	ug/g	93.009	% Recovery	
28	SPK-POST	S1011190007	S10V002288	0 0			Sulfur	SOLID	100	1.0499E+02			0.1	ug/g	96.322	% Recovery	
28	SPK-POST	S1011190007	S10V002288	0 0			Silicon	SOLID	100	9.7642E+01			0.03	ug/g	88.229	% Recovery	
28	SPK-POST	S1011190007	S10V002288	0 0			Strontium	SOLID	100	9.7548E+01			3.00E-03	ug/g	94.465	% Recovery	
28	SPK-POST	S1011190007	S10V002288	0 0			Titanium	SOLID	100	1.6741E+02			5.00E-03	ug/g	90.404	% Recovery	
28	SPK-POST	S1011190007	S10V002288	0 0			Vanadium	SOLID	100	9.7705E+01			5.00E-03	ug/g	94.654	% Recovery	
29	SPK-POST	S1011190007	S10V002288	0 1			Yttrium	SOLID	100	9.4190E+01			2.00E-03	ug/g	93.21	% Recovery	
28	SPK-POST	S1011190007	S10V002288	0 0			Zinc	SOLID	100	9.8652E+01			5.00E-03	ug/g	94.483	% Recovery	
28	SPK-POST	S1011190007	S10V002288	0 0			Zirconium	SOLID	100	9.4158E+01			5.00E-03	ug/g	93.03	% Recovery	
Sample Sequence 31																	
31	SAMPLE	S10V002316		0 1	A		Aluminum	SOLID	N/A	6.1039E+03			2.469	ug/g			
31	SAMPLE	S10V002316		0 1	A		Barium	SOLID	N/A	8.2182E+01			0.2469	ug/g			
31	SAMPLE	S10V002316		0 1	A		Beryllium	SOLID	N/A	2.1217E-01			0.082299	ug/g			J
31	SAMPLE	S10V002316		0 1	A		Calcium	SOLID	N/A	1.5024E+04			4.115	ug/g			
31	SAMPLE	S10V002316		0 1	A		Cerium	SOLID	N/A	1.9615E+01			2.469	ug/g			J
31	SAMPLE	S10V002316		0 1	A		Cobalt	SOLID	N/A	7.8474E+00			0.82299	ug/g			J
31	SAMPLE	S10V002316		0 1	A		Chromium	SOLID	N/A	7.5505E+00			0.4115	ug/g			
31	SAMPLE	S10V002316		0 1	A		Copper	SOLID	N/A	1.1768E+01			0.4115	ug/g			
31	SAMPLE	S10V002316		0 1	A		Iron	SOLID	N/A	1.6268E+04			0.4115	ug/g			
31	SAMPLE	S10V002316		0 1	A		Potassium	SOLID	N/A	1.2908E+03			41.15	ug/g			
31	SAMPLE	S10V002316		0 1	A		Lanthanum	SOLID	N/A	8.3187E+00			0.2469	ug/g			
31	SAMPLE	S10V002316		0 1	A		Lithium	SOLID	N/A	8.0134E+00			0.2469	ug/g			
31	SAMPLE	S10V002316		0 1	A		Magnesium	SOLID	N/A	5.0957E+03			4.115	ug/g			
31	SAMPLE	S10V002316		0 1	A		Manganese	SOLID	N/A	3.3197E+02			0.2469	ug/g			
31	SAMPLE	S10V002316		0 1	A		Molybdenum	SOLID	N/A	<1.6460E+00			1.646	ug/g			U
31	SAMPLE	S10V002316		0 1	A		Sodium	SOLID	N/A	6.0184E+02			8.2299	ug/g			
31	SAMPLE	S10V002316		0 1	A		Nickel	SOLID	N/A	9.6131E+00			1.646	ug/g			J
31	SAMPLE	S10V002316		0 1	A		Phosphorus	SOLID	N/A	7.8124E+02			4.115	ug/g			
31	SAMPLE	S10V002316		0 1	A		Sulfur	SOLID	N/A	8.4405E+01			8.2299	ug/g			
31	SAMPLE	S10V002316		0 1	A		Silicon	SOLID	N/A	7.3874E+01			2.469	ug/g			

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LABCORE Completed Batch Report for Batch# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
31	SAMPLE	S10V002316		0 1	A		Strontium	SOLID	N/A	3.0494E+01			0.2469	ug/g			
31	SAMPLE	S10V002316		0 1	A		Titanium	SOLID	N/A	6.8486E+02			0.4115	ug/g			
31	SAMPLE	S10V002316		0 1	A		Vanadium	SOLID	N/A	2.7028E+01			0.4115	ug/g			
31	SAMPLE	S10V002316		0 1	A		Yttrium	SOLID	N/A	8.3394E+00			0.1646	ug/g			
31	SAMPLE	S10V002316		0 1	A		Zinc	SOLID	N/A	3.6448E+01			0.4115	ug/g			
31	SAMPLE	S10V002316		0 1	A		Zirconium	SOLID	N/A	7.9530E+00			0.4115	ug/g			b
Sample Sequence 32																	
32	SAMPLE	S10V002352		0 1	A		Aluminum	SOLID	N/A	5.6416E+03			2.4937	ug/g			
32	SAMPLE	S10V002352		0 1	A		Barium	SOLID	N/A	7.1029E+01			0.24937	ug/g			
32	SAMPLE	S10V002352		0 1	A		Beryllium	SOLID	N/A	2.0449E-01			0.083124	ug/g			J
32	SAMPLE	S10V002352		0 1	A		Bismuth	SOLID	N/A	<8.3124E+00			8.3124	ug/g			U
32	SAMPLE	S10V002352		0 1	A		Calcium	SOLID	N/A	4.0515E+03			4.1562	ug/g			
32	SAMPLE	S10V002352		0 1	A		Cerium	SOLID	N/A	1.8248E+01			2.4937	ug/g			J
32	SAMPLE	S10V002352		0 1	A		Cobalt	SOLID	N/A	6.6846E+00			0.83124	ug/g			J
32	SAMPLE	S10V002352		0 1	A		Chromium	SOLID	N/A	7.7064E+00			0.41562	ug/g			
32	SAMPLE	S10V002352		0 1	A		Copper	SOLID	N/A	1.1852E+01			0.41562	ug/g			
32	SAMPLE	S10V002352		0 1	A		Iron	SOLID	N/A	1.4337E+04			0.41562	ug/g			
32	SAMPLE	S10V002352		0 1	A		Potassium	SOLID	N/A	9.8147E+02			41.562	ug/g			
32	SAMPLE	S10V002352		0 1	A		Lanthanum	SOLID	N/A	7.9292E+00			0.24937	ug/g			
32	SAMPLE	S10V002352		0 1	A		Lithium	SOLID	N/A	6.5709E+00			0.24937	ug/g			
32	SAMPLE	S10V002352		0 1	A		Magnesium	SOLID	N/A	3.9209E+03			4.1562	ug/g			
32	SAMPLE	S10V002352		0 1	A		Manganese	SOLID	N/A	2.6982E+02			0.24937	ug/g			
32	SAMPLE	S10V002352		0 1	A		Molybdenum	SOLID	N/A	<1.6625E+00			1.6625	ug/g			U
32	SAMPLE	S10V002352		0 1	A		Sodium	SOLID	N/A	2.8256E+02			8.3124	ug/g			
32	SAMPLE	S10V002352		0 1	A		Nickel	SOLID	N/A	8.9260E+00			1.6625	ug/g			J
32	SAMPLE	S10V002352		0 1	A		Phosphorus	SOLID	N/A	7.0585E+02			4.1562	ug/g			
32	SAMPLE	S10V002352		0 1	A		Sulfur	SOLID	N/A	4.8923E+01			8.3124	ug/g			J
32	SAMPLE	S10V002352		0 1	A		Silicon	SOLID	N/A	6.3553E+01			2.4937	ug/g			
32	SAMPLE	S10V002352		0 1	A		Strontium	SOLID	N/A	2.1543E+01			0.24937	ug/g			
32	SAMPLE	S10V002352		0 1	A		Titanium	SOLID	N/A	5.3745E+02			0.41562	ug/g			
32	SAMPLE	S10V002352		0 1	A		Vanadium	SOLID	N/A	2.4501E+01			0.41562	ug/g			
32	SAMPLE	S10V002352		0 1	A		Yttrium	SOLID	N/A	7.2310E+00			0.16625	ug/g			
32	SAMPLE	S10V002352		0 1	A		Zinc	SOLID	N/A	2.9496E+01			0.41562	ug/g			
32	SAMPLE	S10V002352		0 1	A		Zirconium	SOLID	N/A	8.8153E+00			0.41562	ug/g			b
Sample Sequence 33																	
33	SAMPLE	S10V002398		0 1	A		Aluminum	SOLID	N/A	6.0265E+03			2.4696	ug/g			
33	SAMPLE	S10V002398		0 1	A		Barium	SOLID	N/A	8.9564E+01			0.24696	ug/g			
33	SAMPLE	S10V002398		0 1	A		Beryllium	SOLID	N/A	1.5896E-01			0.082321	ug/g			J
33	SAMPLE	S10V002398		0 1	A		Calcium	SOLID	N/A	8.5769E+03			4.116	ug/g			
33	SAMPLE	S10V002398		0 1	A		Cerium	SOLID	N/A	1.8621E+01			2.4696	ug/g			J
33	SAMPLE	S10V002398		0 1	A		Cobalt	SOLID	N/A	9.8432E+00			0.82321	ug/g			
33	SAMPLE	S10V002398		0 1	A		Chromium	SOLID	N/A	1.0072E+01			0.4116	ug/g			

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LABCORE Completed Batch Report for Batch# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
33	SAMPLE	S10V002398		0 1	A		Copper	SOLID	N/A	1.1348E+01			0.4116	ug/g			
33	SAMPLE	S10V002398		0 1	A		Iron	SOLID	N/A	2.2812E+04			0.4116	ug/g			
33	SAMPLE	S10V002398		0 1	A		Potassium	SOLID	N/A	7.3517E+02			41.16	ug/g			
33	SAMPLE	S10V002398		0 1	A		Lanthanum	SOLID	N/A	9.0540E+00			0.24696	ug/g			
33	SAMPLE	S10V002398		0 1	A		Lithium	SOLID	N/A	5.9875E+00			0.24696	ug/g			
33	SAMPLE	S10V002398		0 1	A		Magnesium	SOLID	N/A	4.0985E+03			4.116	ug/g			
33	SAMPLE	S10V002398		0 1	A		Manganese	SOLID	N/A	3.8272E+02			0.24696	ug/g			
33	SAMPLE	S10V002398		0 1	A		Molybdenum	SOLID	N/A	1.9759E+00			1.6464	ug/g			J
33	SAMPLE	S10V002398		0 1	A		Sodium	SOLID	N/A	4.5476E+02			8.2321	ug/g			
33	SAMPLE	S10V002398		0 1	A		Nickel	SOLID	N/A	1.0408E+01			1.6464	ug/g			J
33	SAMPLE	S10V002398		0 1	A		Phosphorus	SOLID	N/A	7.6231E+02			4.116	ug/g			
33	SAMPLE	S10V002398		0 1	A		Sulfur	SOLID	N/A	7.9580E+01			8.2321	ug/g			J
33	SAMPLE	S10V002398		0 1	A		Silicon	SOLID	N/A	1.0018E+02			2.4696	ug/g			
33	SAMPLE	S10V002398		0 1	A		Strontium	SOLID	N/A	3.1091E+01			0.24696	ug/g			
33	SAMPLE	S10V002398		0 1	A		Titanium	SOLID	N/A	1.2515E+03			0.4116	ug/g			
33	SAMPLE	S10V002398		0 1	A		Vanadium	SOLID	N/A	5.2311E+01			0.4116	ug/g			
33	SAMPLE	S10V002398		0 1	A		Yttrium	SOLID	N/A	9.8923E+00			0.16464	ug/g			
33	SAMPLE	S10V002398		0 1	A		Zinc	SOLID	N/A	3.6149E+01			0.4116	ug/g			
33	SAMPLE	S10V002398		0 1	A		Zirconium	SOLID	N/A	5.7895E+00			0.4116	ug/g			b
Sample Sequence 34																	
34	SAMPLE	S10V002417		0 1	A		Aluminum	SOLID	N/A	6.3752E+03			2.4803	ug/g			
34	SAMPLE	S10V002417		0 1	A		Barium	SOLID	N/A	1.0256E+02			0.24803	ug/g			
34	SAMPLE	S10V002417		0 1	A		Beryllium	SOLID	N/A	1.9024E-01			0.082676	ug/g			J
34	SAMPLE	S10V002417		0 1	A		Calcium	SOLID	N/A	1.0581E+04			4.1338	ug/g			
34	SAMPLE	S10V002417		0 1	A		Cerium	SOLID	N/A	1.9122E+01			2.4803	ug/g			J
34	SAMPLE	S10V002417		0 1	A		Cobalt	SOLID	N/A	1.0593E+01			0.82676	ug/g			
34	SAMPLE	S10V002417		0 1	A		Chromium	SOLID	N/A	1.4866E+01			0.41338	ug/g			
34	SAMPLE	S10V002417		0 1	A		Copper	SOLID	N/A	1.1279E+01			0.41338	ug/g			
34	SAMPLE	S10V002417		0 1	A		Iron	SOLID	N/A	2.3984E+04			0.41338	ug/g			
34	SAMPLE	S10V002417		0 1	A		Potassium	SOLID	N/A	7.9360E+02			41.338	ug/g			
34	SAMPLE	S10V002417		0 1	A		Lanthanum	SOLID	N/A	8.0227E+00			0.24803	ug/g			
34	SAMPLE	S10V002417		0 1	A		Lithium	SOLID	N/A	7.0447E+00			0.24803	ug/g			
34	SAMPLE	S10V002417		0 1	A		Magnesium	SOLID	N/A	4.4630E+03			4.1338	ug/g			
34	SAMPLE	S10V002417		0 1	A		Manganese	SOLID	N/A	4.6453E+02			0.24803	ug/g			
34	SAMPLE	S10V002417		0 1	A		Molybdenum	SOLID	N/A	2.0005E+00			1.6535	ug/g			J
34	SAMPLE	S10V002417		0 1	A		Sodium	SOLID	N/A	3.9743E+02			8.2676	ug/g			
34	SAMPLE	S10V002417		0 1	A		Nickel	SOLID	N/A	1.2253E+01			1.6535	ug/g			J
34	SAMPLE	S10V002417		0 1	A		Phosphorus	SOLID	N/A	7.0226E+02			4.1338	ug/g			
34	SAMPLE	S10V002417		0 1	A		Sulfur	SOLID	N/A	6.7891E+01			8.2676	ug/g			J
34	SAMPLE	S10V002417		0 1	A		Silicon	SOLID	N/A	1.1835E+02			2.4803	ug/g			
34	SAMPLE	S10V002417		0 1	A		Strontium	SOLID	N/A	3.7734E+01			0.24803	ug/g			

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LABCORE Completed Batch Report for Batch# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
34	SAMPLE	S10V002417		0 1	A		Thorium	SOLID	N/A	<4.1338E+00			4.1338	ug/g			U
34	SAMPLE	S10V002417		0 1	A		Titanium	SOLID	N/A	1.2756E+03			0.41338	ug/g			
34	SAMPLE	S10V002417		0 1	A		Vanadium	SOLID	N/A	5.3839E+01			0.41338	ug/g			
34	SAMPLE	S10V002417		0 1	A		Yttrium	SOLID	N/A	9.3388E+00			0.16535	ug/g			
34	SAMPLE	S10V002417		0 1	A		Zinc	SOLID	N/A	3.8126E+01			0.41338	ug/g			
34	SAMPLE	S10V002417		0 1	A		Zirconium	SOLID	N/A	1.1874E+01			0.41338	ug/g			b
Sample Sequence 35																	
35	SAMPLE	S10V002436		0 1	A		Aluminum	SOLID	N/A	6.2378E+03			2.4982	ug/g			
35	SAMPLE	S10V002436		0 1	A		Barium	SOLID	N/A	7.8638E+01			0.24982	ug/g			
35	SAMPLE	S10V002436		0 1	A		Beryllium	SOLID	N/A	1.9044E-01			0.083272	ug/g			J
35	SAMPLE	S10V002436		0 1	A		Calcium	SOLID	N/A	8.7574E+03			4.1636	ug/g			
35	SAMPLE	S10V002436		0 1	A		Cerium	SOLID	N/A	1.7342E+01			2.4982	ug/g			J
35	SAMPLE	S10V002436		0 1	A		Cobalt	SOLID	N/A	8.5773E+00			0.83272	ug/g			
35	SAMPLE	S10V002436		0 1	A		Chromium	SOLID	N/A	1.2038E+01			0.41636	ug/g			
35	SAMPLE	S10V002436		0 1	A		Copper	SOLID	N/A	1.0776E+01			0.41636	ug/g			
35	SAMPLE	S10V002436		0 1	A		Iron	SOLID	N/A	1.6806E+04			0.41636	ug/g			
35	SAMPLE	S10V002436		0 1	A		Potassium	SOLID	N/A	9.1020E+02			41.636	ug/g			
35	SAMPLE	S10V002436		0 1	A		Lanthanum	SOLID	N/A	7.6631E+00			0.24982	ug/g			
35	SAMPLE	S10V002436		0 1	A		Lithium	SOLID	N/A	7.1798E+00			0.24982	ug/g			
35	SAMPLE	S10V002436		0 1	A		Magnesium	SOLID	N/A	4.1612E+03			4.1636	ug/g			
35	SAMPLE	S10V002436		0 1	A		Manganese	SOLID	N/A	3.5405E+02			0.24982	ug/g			
35	SAMPLE	S10V002436		0 1	A		Molybdenum	SOLID	N/A	<1.6654E+00			1.6654	ug/g			U
35	SAMPLE	S10V002436		0 1	A		Sodium	SOLID	N/A	3.1162E+02			8.3272	ug/g			
35	SAMPLE	S10V002436		0 1	A		Nickel	SOLID	N/A	1.3715E+01			1.6654	ug/g			J
35	SAMPLE	S10V002436		0 1	A		Phosphorus	SOLID	N/A	5.9340E+02			4.1636	ug/g			
35	SAMPLE	S10V002436		0 1	A		Sulfur	SOLID	N/A	6.8396E+01			8.3272	ug/g			J
35	SAMPLE	S10V002436		0 1	A		Silicon	SOLID	N/A	1.0071E+02			2.4982	ug/g			
35	SAMPLE	S10V002436		0 1	A		Strontium	SOLID	N/A	3.1934E+01			0.24982	ug/g			
35	SAMPLE	S10V002436		0 1	A		Thorium	SOLID	N/A	<4.1636E+00			4.1636	ug/g			U
35	SAMPLE	S10V002436		0 1	A		Titanium	SOLID	N/A	7.5321E+02			0.41636	ug/g			
35	SAMPLE	S10V002436		0 1	A		Vanadium	SOLID	N/A	3.4409E+01			0.41636	ug/g			
35	SAMPLE	S10V002436		0 1	A		Yttrium	SOLID	N/A	7.3386E+00			0.16654	ug/g			
35	SAMPLE	S10V002436		0 1	A		Zinc	SOLID	N/A	3.2175E+01			0.41636	ug/g			
35	SAMPLE	S10V002436		0 1	A		Zirconium	SOLID	N/A	1.0698E+01			0.41636	ug/g			b
Sample Sequence 36																	
36	SAMPLE	S10V002455		0 1	A		Aluminum	SOLID	N/A	6.9567E+03			2.4738	ug/g			
36	SAMPLE	S10V002455		0 1	A		Barium	SOLID	N/A	7.2816E+01			0.24738	ug/g			
36	SAMPLE	S10V002455		0 1	A		Beryllium	SOLID	N/A	1.9312E-01			0.082461	ug/g			J
36	SAMPLE	S10V002455		0 1	A		Calcium	SOLID	N/A	7.2124E+03			4.123	ug/g			
36	SAMPLE	S10V002455		0 1	A		Cerium	SOLID	N/A	1.4943E+01			2.4738	ug/g			J
36	SAMPLE	S10V002455		0 1	A		Cobalt	SOLID	N/A	7.3353E+00			0.82461	ug/g			J
36	SAMPLE	S10V002455		0 1	A		Chromium	SOLID	N/A	1.7596E+01			0.4123	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# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
36	SAMPLE	S10V002455		0 1	A		Copper	SOLID	N/A	1.1899E+01			0.4123	ug/g			
36	SAMPLE	S10V002455		0 1	A		Iron	SOLID	N/A	1.5886E+04			0.4123	ug/g			
36	SAMPLE	S10V002455		0 1	A		Potassium	SOLID	N/A	1.0893E+03			41.23	ug/g			
36	SAMPLE	S10V002455		0 1	A		Lanthanum	SOLID	N/A	6.7755E+00			0.24738	ug/g			
36	SAMPLE	S10V002455		0 1	A		Lithium	SOLID	N/A	8.7169E+00			0.24738	ug/g			
36	SAMPLE	S10V002455		0 1	A		Magnesium	SOLID	N/A	4.6172E+03			4.123	ug/g			
36	SAMPLE	S10V002455		0 1	A		Manganese	SOLID	N/A	3.1991E+02			0.24738	ug/g			
36	SAMPLE	S10V002455		0 1	A		Molybdenum	SOLID	N/A	<1.6492E+00			1.6492	ug/g			U
36	SAMPLE	S10V002455		0 1	A		Sodium	SOLID	N/A	1.5130E+02			8.2461	ug/g			
36	SAMPLE	S10V002455		0 1	A		Nickel	SOLID	N/A	1.6388E+01			1.6492	ug/g			J
36	SAMPLE	S10V002455		0 1	A		Phosphorus	SOLID	N/A	5.7787E+02			4.123	ug/g			
36	SAMPLE	S10V002455		0 1	A		Ruthenium	SOLID	N/A	1.8203E+01			2.4738	ug/g			J
36	SAMPLE	S10V002455		0 1	A		Sulfur	SOLID	N/A	8.4040E+01			8.2461	ug/g			
36	SAMPLE	S10V002455		0 1	A		Silicon	SOLID	N/A	1.4429E+02			2.4738	ug/g			
36	SAMPLE	S10V002455		0 1	A		Strontium	SOLID	N/A	3.4480E+01			0.24738	ug/g			
36	SAMPLE	S10V002455		0 1	A		Titanium	SOLID	N/A	6.5320E+02			0.4123	ug/g			
36	SAMPLE	S10V002455		0 1	A		Vanadium	SOLID	N/A	3.1020E+01			0.4123	ug/g			
36	SAMPLE	S10V002455		0 1	A		Yttrium	SOLID	N/A	6.2554E+00			0.16492	ug/g			
36	SAMPLE	S10V002455		0 1	A		Zinc	SOLID	N/A	3.3339E+01			0.4123	ug/g			
36	SAMPLE	S10V002455		0 1	A		Zirconium	SOLID	N/A	9.2575E+00			0.4123	ug/g			b
Sample Sequence 37																	
37	SAMPLE	S10V002474		0 1	A		Aluminum	SOLID	N/A	6.3550E+03			2.4753	ug/g			
37	SAMPLE	S10V002474		0 1	A		Barium	SOLID	N/A	6.4291E+01			0.24753	ug/g			
37	SAMPLE	S10V002474		0 1	A		Beryllium	SOLID	N/A	1.5974E-01			0.08251	ug/g			J
37	SAMPLE	S10V002474		0 1	A		Calcium	SOLID	N/A	7.8701E+03			4.1255	ug/g			
37	SAMPLE	S10V002474		0 1	A		Cerium	SOLID	N/A	1.3337E+01			2.4753	ug/g			J
37	SAMPLE	S10V002474		0 1	A		Cobalt	SOLID	N/A	5.4328E+00			0.8251	ug/g			J
37	SAMPLE	S10V002474		0 1	A		Chromium	SOLID	N/A	2.4596E+01			0.41255	ug/g			
37	SAMPLE	S10V002474		0 1	A		Copper	SOLID	N/A	1.0072E+01			0.41255	ug/g			
37	SAMPLE	S10V002474		0 1	A		Iron	SOLID	N/A	1.4056E+04			0.41255	ug/g			
37	SAMPLE	S10V002474		0 1	A		Potassium	SOLID	N/A	1.1595E+03			41.255	ug/g			
37	SAMPLE	S10V002474		0 1	A		Lanthanum	SOLID	N/A	6.3856E+00			0.24753	ug/g			
37	SAMPLE	S10V002474		0 1	A		Lithium	SOLID	N/A	9.7127E+00			0.24753	ug/g			
37	SAMPLE	S10V002474		0 1	A		Magnesium	SOLID	N/A	4.7983E+03			4.1255	ug/g			
37	SAMPLE	S10V002474		0 1	A		Manganese	SOLID	N/A	2.8328E+02			0.24753	ug/g			
37	SAMPLE	S10V002474		0 1	A		Molybdenum	SOLID	N/A	<1.6502E+00			1.6502	ug/g			U
37	SAMPLE	S10V002474		0 1	A		Sodium	SOLID	N/A	1.4500E+02			8.251	ug/g			
37	SAMPLE	S10V002474		0 1	A		Nickel	SOLID	N/A	1.8160E+01			1.6502	ug/g			
37	SAMPLE	S10V002474		0 1	A		Phosphorus	SOLID	N/A	4.7893E+02			4.1255	ug/g			
37	SAMPLE	S10V002474		0 1	A		Sulfur	SOLID	N/A	6.2501E+01			8.251	ug/g			J
37	SAMPLE	S10V002474		0 1	A		Silicon	SOLID	N/A	5.8679E+01			2.4753	ug/g			

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LABCORE Completed Batch Report for Batch# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
37	SAMPLE	S10V002474		0 1	A		Strontium	SOLID	N/A	3.3958E+01			0.24753	ug/g			
37	SAMPLE	S10V002474		0 1	A		Titanium	SOLID	N/A	5.6141E+02			0.41255	ug/g			
37	SAMPLE	S10V002474		0 1	A		Vanadium	SOLID	N/A	2.5766E+01			0.41255	ug/g			
37	SAMPLE	S10V002474		0 1	A		Yttrium	SOLID	N/A	4.9051E+00			0.16502	ug/g			
37	SAMPLE	S10V002474		0 1	A		Zinc	SOLID	N/A	3.3003E+01			0.41255	ug/g			
37	SAMPLE	S10V002474		0 1	A		Zirconium	SOLID	N/A	5.2383E+00			0.41255	ug/g			b
Sample Sequence 38																	
38	CCV	S1011190008		0 0			Silver	LIQUID	1	1.0014E+00			5.00E-03	ug/mL	100.14	% Recovery	
38	CCV	S1011190008		0 0			Aluminum	LIQUID	5	5.0800E+00			0.03	ug/mL	101.6	% Recovery	
38	CCV	S1011190008		0 0			Arsenic	LIQUID	5	5.1900E+00			0.05	ug/mL	103.8	% Recovery	
38	CCV	S1011190008		0 0			Boron	LIQUID	5	5.1736E+00			0.03	ug/mL	103.47	% Recovery	
38	CCV	S1011190008		0 0			Barium	LIQUID	5	5.2601E+00			3.00E-03	ug/mL	105.2	% Recovery	
38	CCV	S1011190008		0 0			Beryllium	LIQUID	5	5.1757E+00			1.00E-03	ug/mL	103.51	% Recovery	
38	CCV	S1011190008		0 0			Bismuth	LIQUID	5	5.0341E+00			0.1	ug/mL	100.68	% Recovery	
38	CCV	S1011190008		0 0			Calcium	LIQUID	5	5.1631E+00			0.05	ug/mL	103.26	% Recovery	
38	CCV	S1011190008		0 0			Cadmium	LIQUID	5	5.2488E+00			5.00E-03	ug/mL	104.98	% Recovery	
41	CCV	S1011190008		0 3			Cerium	LIQUID	5	5.4678E+00			0.03	ug/mL	109.36	% Recovery	
38	CCV	S1011190008		0 0			Cobalt	LIQUID	5	5.3250E+00			0.01	ug/mL	106.5	% Recovery	
38	CCV	S1011190008		0 0			Chromium	LIQUID	5	5.2836E+00			5.00E-03	ug/mL	105.67	% Recovery	
38	CCV	S1011190008		0 0			Copper	LIQUID	5	5.2360E+00			5.00E-03	ug/mL	104.72	% Recovery	
41	CCV	S1011190008		0 3			Europium	LIQUID	5	5.1469E+00			5.00E-03	ug/mL	102.94	% Recovery	
38	CCV	S1011190008		0 0			Iron	LIQUID	5	5.1913E+00			5.00E-03	ug/mL	103.83	% Recovery	
38	CCV	S1011190008		0 0			Potassium	LIQUID	5	4.6492E+00			0.5	ug/mL	92.983	% Recovery	
38	CCV	S1011190008		0 0			Lanthanum	LIQUID	5	5.1853E+00			3.00E-03	ug/mL	103.71	% Recovery	
38	CCV	S1011190008		0 0			Lithium	LIQUID	5	5.4286E+00			3.00E-03	ug/mL	108.57	% Recovery	
38	CCV	S1011190008		0 0			Magnesium	LIQUID	5	5.2727E+00			0.05	ug/mL	105.45	% Recovery	
38	CCV	S1011190008		0 0			Manganese	LIQUID	5	5.2240E+00			3.00E-03	ug/mL	104.48	% Recovery	
38	CCV	S1011190008		0 0			Molybdenum	LIQUID	5	5.2436E+00			0.02	ug/mL	104.87	% Recovery	
39	CCV	S1011190008		0 1			Sodium	LIQUID	5	5.3330E+00			0.1	ug/mL	106.66	% Recovery	
41	CCV	S1011190008		0 3			Neodymium	LIQUID	5	5.1081E+00			0.01	ug/mL	102.16	% Recovery	
38	CCV	S1011190008		0 0			Nickel	LIQUID	5	5.2153E+00			0.02	ug/mL	104.31	% Recovery	
42	CCV	S1011190008		0 4			Niobium	LIQUID	5	5.2383E+00			0.03	ug/mL	104.77	% Recovery	
38	CCV	S1011190008		0 0			Phosphorus	LIQUID	5	5.1656E+00			0.05	ug/mL	103.31	% Recovery	
38	CCV	S1011190008		0 0			Lead	LIQUID	5	5.3705E+00			0.05	ug/mL	107.41	% Recovery	
41	CCV	S1011190008		0 3			Palladium	LIQUID	5	5.0934E+00			0.1	ug/mL	101.87	% Recovery	
41	CCV	S1011190008		0 3			Praseodymium	LIQUID	5	5.3496E+00			0.01	ug/mL	106.99	% Recovery	
41	CCV	S1011190008		0 3			Rubidium	LIQUID	5	4.7374E+00			1	ug/mL	94.747	% Recovery	
41	CCV	S1011190008		0 3			Rhodium	LIQUID	5	5.1533E+00			0.05	ug/mL	103.07	% Recovery	
41	CCV	S1011190008		0 3			Ruthenium	LIQUID	5	5.3250E+00			0.03	ug/mL	106.5	% Recovery	
38	CCV	S1011190008		0 0			Sulfur	LIQUID	5	5.2412E+00			0.1	ug/mL	104.82	% Recovery	
38	CCV	S1011190008		0 0			Antimony	LIQUID	5	5.1409E+00			0.05	ug/mL	102.82	% Recovery	

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LABCORE Completed Batch Report for Batch# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
38	CCV	S1011190008		0 0			Selenium	LIQUID	5	5.3576E+00			0.1	ug/mL	107.15	% Recovery	
38	CCV	S1011190008		0 0			Silicon	LIQUID	5	4.9006E+00			0.03	ug/mL	98.011	% Recovery	
41	CCV	S1011190008		0 3			Samarium	LIQUID	5	5.3537E+00			0.02	ug/mL	107.07	% Recovery	
42	CCV	S1011190008		0 4			Tin	LIQUID	5	5.3752E+00			0.03	ug/mL	107.5	% Recovery	
38	CCV	S1011190008		0 0			Strontium	LIQUID	5	5.2182E+00			3.00E-03	ug/mL	104.36	% Recovery	
42	CCV	S1011190008		0 4			Tantalum	LIQUID	5	5.2618E+00			0.05	ug/mL	105.24	% Recovery	
42	CCV	S1011190008		0 4			Tellurium	LIQUID	5	5.1996E+00			0.1	ug/mL	103.99	% Recovery	
41	CCV	S1011190008		0 3			Thorium	LIQUID	5	5.2764E+00			0.05	ug/mL	105.53	% Recovery	
38	CCV	S1011190008		0 0			Titanium	LIQUID	5	5.1165E+00			5.00E-03	ug/mL	102.33	% Recovery	
41	CCV	S1011190008		0 3			Thallium	LIQUID	5	5.6400E+00			0.1	ug/mL	112.8	% Recovery	
41	CCV	S1011190008		0 3			Uranium	LIQUID	5	5.2602E+00			0.1	ug/mL	105.2	% Recovery	
38	CCV	S1011190008		0 0			Vanadium	LIQUID	5	5.3453E+00			5.00E-03	ug/mL	106.91	% Recovery	
42	CCV	S1011190008		0 4			Tungsten	LIQUID	5	5.1801E+00			0.2	ug/mL	103.6	% Recovery	
41	CCV	S1011190008		0 3			Yttrium	LIQUID	5	5.1791E+00			2.00E-03	ug/mL	103.58	% Recovery	
38	CCV	S1011190008		0 0			Zinc	LIQUID	5	5.2214E+00			5.00E-03	ug/mL	104.43	% Recovery	
38	CCV	S1011190008		0 0			Zirconium	LIQUID	5	5.0203E+00			5.00E-03	ug/mL	100.41	% Recovery	
Sample Sequence 43																	
43	CCB	S1011190009		0 0			Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
43	CCB	S1011190009		0 0			Aluminum	LIQUID		<3.0000E-02			0.03	ug/mL			
43	CCB	S1011190009		0 0			Arsenic	LIQUID		<5.0000E-02			0.05	ug/mL			
43	CCB	S1011190009		0 0			Boron	LIQUID		<3.0000E-02			0.03	ug/mL			
43	CCB	S1011190009		0 0			Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
43	CCB	S1011190009		0 0			Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL			
43	CCB	S1011190009		0 0			Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL			
43	CCB	S1011190009		0 0			Calcium	LIQUID		<5.0000E-02			0.05	ug/mL			
43	CCB	S1011190009		0 0			Cadmium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
43	CCB	S1011190009		0 0			Cerium	LIQUID		<3.0000E-02			0.03	ug/mL			
43	CCB	S1011190009		0 0			Cobalt	LIQUID		<1.0000E-02			0.01	ug/mL			
43	CCB	S1011190009		0 0			Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
43	CCB	S1011190009		0 0			Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
43	CCB	S1011190009		0 0			Europium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
43	CCB	S1011190009		0 0			Iron	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
43	CCB	S1011190009		0 0			Potassium	LIQUID		<5.0000E-01			0.5	ug/mL			
43	CCB	S1011190009		0 0			Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
43	CCB	S1011190009		0 0			Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
43	CCB	S1011190009		0 0			Magnesium	LIQUID		<5.0000E-02			0.05	ug/mL			
43	CCB	S1011190009		0 0			Manganese	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
43	CCB	S1011190009		0 0			Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL			
43	CCB	S1011190009		0 0			Sodium	LIQUID		<1.0000E-01			0.1	ug/mL			
43	CCB	S1011190009		0 0			Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
43	CCB	S1011190009		0 0			Nickel	LIQUID		<2.0000E-02			0.02	ug/mL			

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LABCORE Completed Batch Report for Batch# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
43	CCB	S1011190009		0 0			Niobium	LIQUID		<3.0000E-02			0.03	ug/mL			
43	CCB	S1011190009		0 0			Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL			
43	CCB	S1011190009		0 0			Lead	LIQUID		<5.0000E-02			0.05	ug/mL			
43	CCB	S1011190009		0 0			Palladium	LIQUID		<1.0000E-01			0.1	ug/mL			
43	CCB	S1011190009		0 0			Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
43	CCB	S1011190009		0 0			Rubidium	LIQUID		<1.0000E+00			1	ug/mL			
43	CCB	S1011190009		0 0			Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL			
43	CCB	S1011190009		0 0			Ruthenium	LIQUID		<3.0000E-02			0.03	ug/mL			
43	CCB	S1011190009		0 0			Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL			
43	CCB	S1011190009		0 0			Antimony	LIQUID		<5.0000E-02			0.05	ug/mL			
43	CCB	S1011190009		0 0			Selenium	LIQUID		<1.0000E-01			0.1	ug/mL			
43	CCB	S1011190009		0 0			Silicon	LIQUID		3.5500E-02			0.03	ug/mL			
43	CCB	S1011190009		0 0			Samarium	LIQUID		<2.0000E-02			0.02	ug/mL			
43	CCB	S1011190009		0 0			Tin	LIQUID		<3.0000E-02			0.03	ug/mL			
43	CCB	S1011190009		0 0			Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
43	CCB	S1011190009		0 0			Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL			
43	CCB	S1011190009		0 0			Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL			
43	CCB	S1011190009		0 0			Thorium	LIQUID		<5.0000E-02			0.05	ug/mL			
43	CCB	S1011190009		0 0			Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
43	CCB	S1011190009		0 0			Thallium	LIQUID		<1.0000E-01			0.1	ug/mL			
43	CCB	S1011190009		0 0			Uranium	LIQUID		<1.0000E-01			0.1	ug/mL			
43	CCB	S1011190009		0 0			Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
43	CCB	S1011190009		0 0			Tungsten	LIQUID		<2.0000E-01			0.2	ug/mL			
43	CCB	S1011190009		0 0			Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL			
43	CCB	S1011190009		0 0			Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
43	CCB	S1011190009		0 0			Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
Sample Sequence 44																	
44	SAMPLE	S10V002493		0 1	A		Aluminum	SOLID	N/A	5.5525E+03			2.4723	ug/g			
44	SAMPLE	S10V002493		0 1	A		Barium	SOLID	N/A	6.1140E+01			0.24723	ug/g			
44	SAMPLE	S10V002493		0 1	A		Beryllium	SOLID	N/A	1.4792E-01			0.082409	ug/g			J
44	SAMPLE	S10V002493		0 1	A		Calcium	SOLID	N/A	8.5697E+03			4.1204	ug/g			
44	SAMPLE	S10V002493		0 1	A		Cerium	SOLID	N/A	1.2818E+01			2.4723	ug/g			J
44	SAMPLE	S10V002493		0 1	A		Cobalt	SOLID	N/A	4.4998E+00			0.82409	ug/g			BJ
44	SAMPLE	S10V002493		0 1	A		Chromium	SOLID	N/A	1.2214E+01			0.41204	ug/g			
44	SAMPLE	S10V002493		0 1	A		Copper	SOLID	N/A	9.3280E+00			0.41204	ug/g			
44	SAMPLE	S10V002493		0 1	A		Iron	SOLID	N/A	1.4223E+04			0.41204	ug/g			
44	SAMPLE	S10V002493		0 1	A		Potassium	SOLID	N/A	9.3432E+02			41.204	ug/g			
44	SAMPLE	S10V002493		0 1	A		Lanthanum	SOLID	N/A	6.5315E+00			0.24723	ug/g			
44	SAMPLE	S10V002493		0 1	A		Lithium	SOLID	N/A	8.6344E+00			0.24723	ug/g			
44	SAMPLE	S10V002493		0 1	A		Magnesium	SOLID	N/A	4.5970E+03			4.1204	ug/g			
44	SAMPLE	S10V002493		0 1	A		Manganese	SOLID	N/A	2.5055E+02			0.24723	ug/g			

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LABCORE Completed Batch Report for Batch# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
44	SAMPLE	S10V002493		0 1	A		Molybdenum	SOLID	N/A	<1.6482E+00			1.6482	ug/g			U
44	SAMPLE	S10V002493		0 1	A		Sodium	SOLID	N/A	1.3857E+02			8.2409	ug/g			
44	SAMPLE	S10V002493		0 1	A		Nickel	SOLID	N/A	1.2067E+01			1.6482	ug/g			J
44	SAMPLE	S10V002493		0 1	A		Phosphorus	SOLID	N/A	5.3441E+02			4.1204	ug/g			
44	SAMPLE	S10V002493		0 1	A		Sulfur	SOLID	N/A	6.0199E+01			8.2409	ug/g			J
44	SAMPLE	S10V002493		0 1	A		Silicon	SOLID	N/A	8.6077E+01			2.4723	ug/g			
44	SAMPLE	S10V002493		0 1	A		Strontium	SOLID	N/A	2.9267E+01			0.24723	ug/g			
44	SAMPLE	S10V002493		0 1	A		Titanium	SOLID	N/A	6.2149E+02			0.41204	ug/g			
44	SAMPLE	S10V002493		0 1	A		Vanadium	SOLID	N/A	2.5644E+01			0.41204	ug/g			
44	SAMPLE	S10V002493		0 1	A		Yttrium	SOLID	N/A	5.4678E+00			0.16482	ug/g			
44	SAMPLE	S10V002493		0 1	A		Zinc	SOLID	N/A	3.0913E+01			0.41204	ug/g			
44	SAMPLE	S10V002493		0 1	A		Zirconium	SOLID	N/A	6.3850E+00			0.41204	ug/g			b
Sample Sequence 45																	
45	ICSA	S1011190010		0 0			Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Aluminum	LIQUID	200	1.9372E+02			0.03	ug/mL	96.858	% Recovery	
45	ICSA	S1011190010		0 0			Boron	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Calcium	LIQUID	200	2.0219E+02			0.05	ug/mL	101.09	% Recovery	
45	ICSA	S1011190010		0 0			Cerium	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Cobalt	LIQUID		1.0470E-02			0.01	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Iron	LIQUID	200	1.8691E+02			5.00E-03	ug/mL	93.457	% Recovery	
45	ICSA	S1011190010		0 0			Potassium	LIQUID		<5.0000E-01			0.5	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Magnesium	LIQUID	200	1.9656E+02			0.05	ug/mL	98.279	% Recovery	
45	ICSA	S1011190010		0 0			Manganese	LIQUID		5.1820E-02			3.00E-03	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Sodium	LIQUID	200	1.8227E+02			0.1	ug/mL	91.133	% Recovery	
45	ICSA	S1011190010		0 0			Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Nickel	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Lead	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Rubidium	LIQUID		<1.0000E+00			1	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Antimony	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		

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LABCORE Completed Batch Report for Batch# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
45	ICSA	S1011190010		0 0			Selenium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Silicon	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Samarium	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Tin	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Thorium	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Uranium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
45	ICSA	S1011190010		0 0			Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL	N/A		
Sample Sequence 46																	
46	ICSAB	S1011190011		0 0			Silver	LIQUID	1	9.9379E-01			5.00E-03	ug/mL	99.379	% Recovery	
46	ICSAB	S1011190011		0 0			Aluminum	LIQUID	200	1.9198E+02			0.03	ug/mL	95.989	% Recovery	
46	ICSAB	S1011190011		0 0			Arsenic	LIQUID	5	5.1944E+00			0.05	ug/mL	103.89	% Recovery	
46	ICSAB	S1011190011		0 0			Boron	LIQUID	1	9.8288E-01			0.03	ug/mL	98.288	% Recovery	
46	ICSAB	S1011190011		0 0			Barium	LIQUID	1	9.2458E-01			3.00E-03	ug/mL	92.458	% Recovery	
46	ICSAB	S1011190011		0 0			Beryllium	LIQUID	.1	8.7190E-02			1.00E-03	ug/mL	87.19	% Recovery	
46	ICSAB	S1011190011		0 0			Bismuth	LIQUID	5	4.4252E+00			0.1	ug/mL	88.504	% Recovery	
46	ICSAB	S1011190011		0 0			Calcium	LIQUID	200	1.9629E+02			0.05	ug/mL	98.143	% Recovery	
46	ICSAB	S1011190011		0 0			Cadmium	LIQUID	.2	2.1012E-01			5.00E-03	ug/mL	105.06	% Recovery	
46	ICSAB	S1011190011		0 0			Cerium	LIQUID		<3.0000E-02			0.03	ug/mL	N/A		
46	ICSAB	S1011190011		0 0			Cobalt	LIQUID	5	4.7309E+00			0.01	ug/mL	94.618	% Recovery	
46	ICSAB	S1011190011		0 0			Chromium	LIQUID	5	4.7148E+00			5.00E-03	ug/mL	94.295	% Recovery	
46	ICSAB	S1011190011		0 0			Copper	LIQUID	5	5.0159E+00			5.00E-03	ug/mL	100.32	% Recovery	
46	ICSAB	S1011190011		0 0			Iron	LIQUID	200	1.8386E+02			5.00E-03	ug/mL	91.932	% Recovery	
46	ICSAB	S1011190011		0 0			Potassium	LIQUID		<5.0000E-01			0.5	ug/mL	N/A		
46	ICSAB	S1011190011		0 0			Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL	N/A		
46	ICSAB	S1011190011		0 0			Lithium	LIQUID	1	9.3643E-01			3.00E-03	ug/mL	93.643	% Recovery	
46	ICSAB	S1011190011		0 0			Magnesium	LIQUID	200	1.9320E+02			0.05	ug/mL	96.6	% Recovery	
46	ICSAB	S1011190011		0 0			Manganese	LIQUID	5	4.7348E+00			3.00E-03	ug/mL	94.697	% Recovery	
46	ICSAB	S1011190011		0 0			Molybdenum	LIQUID	5	4.6675E+00			0.02	ug/mL	93.35	% Recovery	
46	ICSAB	S1011190011		0 0			Sodium	LIQUID	200	1.7801E+02			0.1	ug/mL	89.007	% Recovery	
46	ICSAB	S1011190011		0 0			Neodymium	LIQUID		4.0870E-02			0.01	ug/mL	N/A		
46	ICSAB	S1011190011		0 0			Nickel	LIQUID	5	4.7116E+00			0.02	ug/mL	94.233	% Recovery	
46	ICSAB	S1011190011		0 0			Niobium	LIQUID	5	4.6675E+00			0.03	ug/mL	93.351	% Recovery	
46	ICSAB	S1011190011		0 0			Phosphorus	LIQUID	1	9.6716E-01			0.05	ug/mL	96.716	% Recovery	
46	ICSAB	S1011190011		0 0			Lead	LIQUID	1	1.1130E+00			0.05	ug/mL	111.3	% Recovery	
46	ICSAB	S1011190011		0 0			Palladium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		

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LABCORE Completed Batch Report for Batch# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
46	ICSAB	S1011190011		0 0			Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL	N/A		
46	ICSAB	S1011190011		0 0			Rubidium	LIQUID		<1.0000E+00			1	ug/mL	N/A		
46	ICSAB	S1011190011		0 0			Rhodium	LIQUID	1	9.6832E-01			0.05	ug/mL	96.832	% Recovery	
46	ICSAB	S1011190011		0 0			Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
46	ICSAB	S1011190011		0 0			Antimony	LIQUID	5	4.9448E+00			0.05	ug/mL	98.897	% Recovery	
46	ICSAB	S1011190011		0 0			Selenium	LIQUID	5	5.0229E+00			0.1	ug/mL	100.46	% Recovery	
46	ICSAB	S1011190011		0 0			Silicon	LIQUID	5	4.6795E+00			0.03	ug/mL	93.591	% Recovery	
46	ICSAB	S1011190011		0 0			Samarium	LIQUID		<2.0000E-02			0.02	ug/mL	N/A		
46	ICSAB	S1011190011		0 0			Tin	LIQUID	1	1.0917E+00			0.03	ug/mL	109.17	% Recovery	
46	ICSAB	S1011190011		0 0			Strontium	LIQUID	1	9.3651E-01			3.00E-03	ug/mL	93.651	% Recovery	
46	ICSAB	S1011190011		0 0			Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL	N/A		
46	ICSAB	S1011190011		0 0			Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL	N/A		
46	ICSAB	S1011190011		0 0			Thorium	LIQUID	5	4.5116E+00			0.05	ug/mL	90.232	% Recovery	
46	ICSAB	S1011190011		0 0			Titanium	LIQUID	50	4.7059E+01			5.00E-03	ug/mL	94.119	% Recovery	
46	ICSAB	S1011190011		0 0			Thallium	LIQUID	5	4.6392E+00			0.1	ug/mL	92.785	% Recovery	
46	ICSAB	S1011190011		0 0			Uranium	LIQUID	5	4.4428E+00			0.1	ug/mL	88.857	% Recovery	
46	ICSAB	S1011190011		0 0			Vanadium	LIQUID	1	9.6191E-01			5.00E-03	ug/mL	96.191	% Recovery	
46	ICSAB	S1011190011		0 0			Tungsten	LIQUID	5	5.1412E+00			0.2	ug/mL	102.82	% Recovery	
46	ICSAB	S1011190011		0 0			Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL	N/A		
46	ICSAB	S1011190011		0 0			Zinc	LIQUID	5	4.8261E+00			5.00E-03	ug/mL	96.522	% Recovery	
46	ICSAB	S1011190011		0 0			Zirconium	LIQUID	5	4.4892E+00			5.00E-03	ug/mL	89.784	% Recovery	
Sample Sequence 47																	
47	CCV	S1011190012		0 0			Silver	LIQUID	1	9.8757E-01			5.00E-03	ug/mL	98.757	% Recovery	
47	CCV	S1011190012		0 0			Aluminum	LIQUID	5	5.0394E+00			0.03	ug/mL	100.79	% Recovery	
47	CCV	S1011190012		0 0			Arsenic	LIQUID	5	5.1158E+00			0.05	ug/mL	102.32	% Recovery	
47	CCV	S1011190012		0 0			Boron	LIQUID	5	5.1099E+00			0.03	ug/mL	102.2	% Recovery	
47	CCV	S1011190012		0 0			Barium	LIQUID	5	5.2314E+00			3.00E-03	ug/mL	104.63	% Recovery	
47	CCV	S1011190012		0 0			Beryllium	LIQUID	5	5.0762E+00			1.00E-03	ug/mL	101.52	% Recovery	
47	CCV	S1011190012		0 0			Bismuth	LIQUID	5	5.1001E+00			0.1	ug/mL	102	% Recovery	
47	CCV	S1011190012		0 0			Calcium	LIQUID	5	5.0331E+00			0.05	ug/mL	100.66	% Recovery	
47	CCV	S1011190012		0 0			Cadmium	LIQUID	5	5.1471E+00			5.00E-03	ug/mL	102.94	% Recovery	
50	CCV	S1011190012		0 3			Cerium	LIQUID	5	5.3933E+00			0.03	ug/mL	107.87	% Recovery	
47	CCV	S1011190012		0 0			Cobalt	LIQUID	5	5.1960E+00			0.01	ug/mL	103.92	% Recovery	
47	CCV	S1011190012		0 0			Chromium	LIQUID	5	5.1737E+00			5.00E-03	ug/mL	103.47	% Recovery	
47	CCV	S1011190012		0 0			Copper	LIQUID	5	5.2263E+00			5.00E-03	ug/mL	104.53	% Recovery	
50	CCV	S1011190012		0 3			Europium	LIQUID	5	5.0876E+00			5.00E-03	ug/mL	101.75	% Recovery	
47	CCV	S1011190012		0 0			Iron	LIQUID	5	5.1162E+00			5.00E-03	ug/mL	102.32	% Recovery	
47	CCV	S1011190012		0 0			Potassium	LIQUID	5	4.6777E+00			0.5	ug/mL	93.553	% Recovery	
47	CCV	S1011190012		0 0			Lanthanum	LIQUID	5	5.1411E+00			3.00E-03	ug/mL	102.82	% Recovery	
47	CCV	S1011190012		0 0			Lithium	LIQUID	5	5.4607E+00			3.00E-03	ug/mL	109.21	% Recovery	
47	CCV	S1011190012		0 0			Magnesium	LIQUID	5	5.2144E+00			0.05	ug/mL	104.29	% Recovery	

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LABCORE Completed Batch Report for Batch# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
47	CCV	S1011190012		0 0			Manganese	LIQUID	5	5.1265E+00			3.00E-03	ug/mL	102.53	% Recovery	
47	CCV	S1011190012		0 0			Molybdenum	LIQUID	5	5.1645E+00			0.02	ug/mL	103.29	% Recovery	
48	CCV	S1011190012		0 1			Sodium	LIQUID	5	5.4457E+00			0.1	ug/mL	108.91	% Recovery	
50	CCV	S1011190012		0 3			Neodymium	LIQUID	5	5.0569E+00			0.01	ug/mL	101.14	% Recovery	
47	CCV	S1011190012		0 0			Nickel	LIQUID	5	5.1502E+00			0.02	ug/mL	103	% Recovery	
51	CCV	S1011190012		0 4			Niobium	LIQUID	5	5.0788E+00			0.03	ug/mL	101.58	% Recovery	
47	CCV	S1011190012		0 0			Phosphorus	LIQUID	5	5.1541E+00			0.05	ug/mL	103.08	% Recovery	
47	CCV	S1011190012		0 0			Lead	LIQUID	5	5.2886E+00			0.05	ug/mL	105.77	% Recovery	
50	CCV	S1011190012		0 3			Palladium	LIQUID	5	4.9289E+00			0.1	ug/mL	98.578	% Recovery	
50	CCV	S1011190012		0 3			Praseodymium	LIQUID	5	5.2874E+00			0.01	ug/mL	105.75	% Recovery	
50	CCV	S1011190012		0 3			Rubidium	LIQUID	5	4.8678E+00			1	ug/mL	97.357	% Recovery	
50	CCV	S1011190012		0 3			Rhodium	LIQUID	5	5.0532E+00			0.05	ug/mL	101.06	% Recovery	
50	CCV	S1011190012		0 3			Ruthenium	LIQUID	5	5.1912E+00			0.03	ug/mL	103.82	% Recovery	
47	CCV	S1011190012		0 0			Sulfur	LIQUID	5	5.1698E+00			0.1	ug/mL	103.4	% Recovery	
47	CCV	S1011190012		0 0			Antimony	LIQUID	5	5.0689E+00			0.05	ug/mL	101.38	% Recovery	
47	CCV	S1011190012		0 0			Selenium	LIQUID	5	5.3333E+00			0.1	ug/mL	106.67	% Recovery	
47	CCV	S1011190012		0 0			Silicon	LIQUID	5	4.8355E+00			0.03	ug/mL	96.71	% Recovery	
50	CCV	S1011190012		0 3			Samarium	LIQUID	5	5.2876E+00			0.02	ug/mL	105.75	% Recovery	
51	CCV	S1011190012		0 4			Tin	LIQUID	5	5.1672E+00			0.03	ug/mL	103.34	% Recovery	
47	CCV	S1011190012		0 0			Strontium	LIQUID	5	5.1788E+00			3.00E-03	ug/mL	103.58	% Recovery	
51	CCV	S1011190012		0 4			Tantalum	LIQUID	5	5.0396E+00			0.05	ug/mL	100.79	% Recovery	
51	CCV	S1011190012		0 4			Tellurium	LIQUID	5	5.0835E+00			0.1	ug/mL	101.67	% Recovery	
50	CCV	S1011190012		0 3			Thorium	LIQUID	5	5.1619E+00			0.05	ug/mL	103.24	% Recovery	
47	CCV	S1011190012		0 0			Titanium	LIQUID	5	5.0453E+00			5.00E-03	ug/mL	100.91	% Recovery	
50	CCV	S1011190012		0 3			Thallium	LIQUID	5	5.4231E+00			0.1	ug/mL	108.46	% Recovery	
50	CCV	S1011190012		0 3			Uranium	LIQUID	5	5.2328E+00			0.1	ug/mL	104.66	% Recovery	
47	CCV	S1011190012		0 0			Vanadium	LIQUID	5	5.2584E+00			5.00E-03	ug/mL	105.17	% Recovery	
51	CCV	S1011190012		0 4			Tungsten	LIQUID	5	5.0748E+00			0.2	ug/mL	101.5	% Recovery	
50	CCV	S1011190012		0 3			Yttrium	LIQUID	5	5.0944E+00			2.00E-03	ug/mL	101.89	% Recovery	
47	CCV	S1011190012		0 0			Zinc	LIQUID	5	5.1343E+00			5.00E-03	ug/mL	102.69	% Recovery	
47	CCV	S1011190012		0 0			Zirconium	LIQUID	5	4.9624E+00			5.00E-03	ug/mL	99.249	% Recovery	
Sample Sequence 52																	
52	LLS	S1011190014		0 0			Silver	LIQUID	.02	2.1510E-02			5.00E-03	ug/mL	107.55	% Recovery	
52	LLS	S1011190014		0 0			Aluminum	LIQUID	.1	1.0218E-01			0.03	ug/mL	102.18	% Recovery	
52	LLS	S1011190014		0 0			Arsenic	LIQUID	.2	2.0002E-01			0.05	ug/mL	100.01	% Recovery	
54	LLS	S1011190014		0 2			Boron	LIQUID	.1	1.0105E-01			0.03	ug/mL	101.05	% Recovery	
52	LLS	S1011190014		0 0			Barium	LIQUID	.01	1.0260E-02			3.00E-03	ug/mL	102.6	% Recovery	
53	LLS	S1011190014		0 1			Beryllium	LIQUID	.001	8.6000E-04			1.00E-04	ug/mL	86	% Recovery	
53	LLS	S1011190014		0 1			Bismuth	LIQUID	.2	1.9047E-01			0.1	ug/mL	95.235	% Recovery	
52	LLS	S1011190014		0 0			Calcium	LIQUID	.2	2.0008E-01			0.05	ug/mL	100.04	% Recovery	
52	LLS	S1011190014		0 0			Cadmium	LIQUID	.01	1.2210E-02			5.00E-03	ug/mL	122.1	% 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# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
52	LLS	S1011190014		0 0			Cerium	LIQUID	.2	2.0647E-01			0.03	ug/mL	103.24	% Recovery	
54	LLS	S1011190014		0 2			Cobalt	LIQUID	.04	4.0290E-02			0.01	ug/mL	100.72	% Recovery	
52	LLS	S1011190014		0 0			Chromium	LIQUID	.02	1.8580E-02			5.00E-03	ug/mL	92.9	% Recovery	
54	LLS	S1011190014		0 2			Copper	LIQUID	.02	2.1580E-02			5.00E-03	ug/mL	107.9	% Recovery	
55	LLS	S1011190014		0 3			Europium	LIQUID	.1	9.8120E-02			5.00E-03	ug/mL	98.12	% Recovery	
52	LLS	S1011190014		0 0			Iron	LIQUID	.05	5.0930E-02			5.00E-03	ug/mL	101.86	% Recovery	
53	LLS	S1011190014		0 1			Potassium	LIQUID	.5	4.8961E-01			0.1	ug/mL	97.922	% Recovery	
52	LLS	S1011190014		0 0			Lanthanum	LIQUID	.01	1.0580E-02			3.00E-03	ug/mL	105.8	% Recovery	
52	LLS	S1011190014		0 0			Lithium	LIQUID	.02	2.2370E-02			3.00E-03	ug/mL	111.85	% Recovery	
52	LLS	S1011190014		0 0			Magnesium	LIQUID	.2	2.1984E-01			0.05	ug/mL	109.92	% Recovery	
52	LLS	S1011190014		0 0			Manganese	LIQUID	.02	2.0300E-02			3.00E-03	ug/mL	101.5	% Recovery	
54	LLS	S1011190014		0 2			Molybdenum	LIQUID	.1	1.0164E-01			0.02	ug/mL	101.64	% Recovery	
52	LLS	S1011190014		0 0			Sodium	LIQUID	.2	2.1761E-01			0.1	ug/mL	108.8	% Recovery	
52	LLS	S1011190014		0 0			Neodymium	LIQUID	.1	9.3920E-02			0.01	ug/mL	93.92	% Recovery	
53	LLS	S1011190014		0 1			Nickel	LIQUID	.04	3.8290E-02			0.02	ug/mL	95.725	% Recovery	
57	LLS	S1011190014		0 5			Niobium	LIQUID	.1	1.0788E-01			0.03	ug/mL	107.88	% Recovery	
54	LLS	S1011190014		0 2			Phosphorus	LIQUID	.4	3.8519E-01			0.05	ug/mL	96.298	% Recovery	
52	LLS	S1011190014		0 0			Lead	LIQUID	.2	2.2115E-01			0.05	ug/mL	110.58	% Recovery	
56	LLS	S1011190014		0 4			Palladium	LIQUID	1	1.0347E+00			0.1	ug/mL	103.47	% Recovery	
55	LLS	S1011190014		0 3			Praseodymium	LIQUID	.1	1.1121E-01			0.01	ug/mL	111.21	% Recovery	
55	LLS	S1011190014		0 3			Rubidium	LIQUID	1	9.3275E-01			0.1	ug/mL	93.275	% Recovery	
56	LLS	S1011190014		0 4			Rhodium	LIQUID	.1	9.5370E-02			0.05	ug/mL	95.37	% Recovery	
56	LLS	S1011190014		0 4			Ruthenium	LIQUID	.1	1.0954E-01			0.03	ug/mL	109.54	% Recovery	
54	LLS	S1011190014		0 2			Sulfur	LIQUID	.2	1.7694E-01			0.1	ug/mL	88.47	% Recovery	
54	LLS	S1011190014		0 2			Antimony	LIQUID	.1	1.1103E-01			0.05	ug/mL	111.03	% Recovery	
52	LLS	S1011190014		0 0			Selenium	LIQUID	.2	1.8249E-01			0.1	ug/mL	91.245	% Recovery	
54	LLS	S1011190014		0 2			Silicon	LIQUID	.1	9.5110E-02			0.03	ug/mL	95.11	% Recovery	
52	LLS	S1011190014		0 0			Samarium	LIQUID	.1	1.0950E-01			0.02	ug/mL	109.5	% Recovery	
57	LLS	S1011190014		0 5			Tin	LIQUID	.1	1.0596E-01			0.03	ug/mL	105.96	% Recovery	
52	LLS	S1011190014		0 0			Strontium	LIQUID	.02	2.0880E-02			3.00E-03	ug/mL	104.4	% Recovery	
57	LLS	S1011190014		0 5			Tantalum	LIQUID	1	9.8768E-01			0.05	ug/mL	98.768	% Recovery	
57	LLS	S1011190014		0 5			Tellurium	LIQUID	1	9.4492E-01			0.1	ug/mL	94.492	% Recovery	
55	LLS	S1011190014		0 3			Thorium	LIQUID	.1	9.7030E-02			0.05	ug/mL	97.03	% Recovery	
54	LLS	S1011190014		0 2			Titanium	LIQUID	.02	1.9840E-02			5.00E-03	ug/mL	99.2	% Recovery	
53	LLS	S1011190014		0 1			Thallium	LIQUID	.4	4.1171E-01			0.1	ug/mL	102.93	% Recovery	
54	LLS	S1011190014		0 2			Uranium	LIQUID	.5	5.0804E-01			0.1	ug/mL	101.61	% Recovery	
54	LLS	S1011190014		0 2			Vanadium	LIQUID	.05	5.1590E-02			5.00E-03	ug/mL	103.18	% Recovery	
55	LLS	S1011190014		0 3			Yttrium	LIQUID	.1	1.0164E-01			2.00E-03	ug/mL	101.64	% Recovery	
54	LLS	S1011190014		0 2			Zinc	LIQUID	.02	2.0340E-02			5.00E-03	ug/mL	101.7	% Recovery	
54	LLS	S1011190014		0 2			Zirconium	LIQUID	.02	2.0820E-02			5.00E-03	ug/mL	104.1	% Recovery	

Sample Sequence 58

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# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
58	CCB	S1011190013		0 0			Silver	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
58	CCB	S1011190013		0 0			Aluminum	LIQUID		<3.0000E-02			0.03	ug/mL			
58	CCB	S1011190013		0 0			Arsenic	LIQUID		<5.0000E-02			0.05	ug/mL			
58	CCB	S1011190013		0 0			Boron	LIQUID		<3.0000E-02			0.03	ug/mL			
58	CCB	S1011190013		0 0			Barium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
58	CCB	S1011190013		0 0			Beryllium	LIQUID		<1.0000E-03			1.00E-03	ug/mL			
58	CCB	S1011190013		0 0			Bismuth	LIQUID		<1.0000E-01			0.1	ug/mL			
58	CCB	S1011190013		0 0			Calcium	LIQUID		<5.0000E-02			0.05	ug/mL			
58	CCB	S1011190013		0 0			Cadmium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
58	CCB	S1011190013		0 0			Cerium	LIQUID		<3.0000E-02			0.03	ug/mL			
58	CCB	S1011190013		0 0			Cobalt	LIQUID		<1.0000E-02			0.01	ug/mL			
58	CCB	S1011190013		0 0			Chromium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
58	CCB	S1011190013		0 0			Copper	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
58	CCB	S1011190013		0 0			Europium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
58	CCB	S1011190013		0 0			Iron	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
58	CCB	S1011190013		0 0			Potassium	LIQUID		<5.0000E-01			0.5	ug/mL			
58	CCB	S1011190013		0 0			Lanthanum	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
58	CCB	S1011190013		0 0			Lithium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
58	CCB	S1011190013		0 0			Magnesium	LIQUID		<5.0000E-02			0.05	ug/mL			
58	CCB	S1011190013		0 0			Manganese	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
58	CCB	S1011190013		0 0			Molybdenum	LIQUID		<2.0000E-02			0.02	ug/mL			
58	CCB	S1011190013		0 0			Sodium	LIQUID		<1.0000E-01			0.1	ug/mL			
58	CCB	S1011190013		0 0			Neodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
58	CCB	S1011190013		0 0			Nickel	LIQUID		<2.0000E-02			0.02	ug/mL			
58	CCB	S1011190013		0 0			Niobium	LIQUID		<3.0000E-02			0.03	ug/mL			
58	CCB	S1011190013		0 0			Phosphorus	LIQUID		<5.0000E-02			0.05	ug/mL			
58	CCB	S1011190013		0 0			Lead	LIQUID		<5.0000E-02			0.05	ug/mL			
58	CCB	S1011190013		0 0			Palladium	LIQUID		<1.0000E-01			0.1	ug/mL			
58	CCB	S1011190013		0 0			Praseodymium	LIQUID		<1.0000E-02			0.01	ug/mL			
58	CCB	S1011190013		0 0			Rubidium	LIQUID		<1.0000E+00			1	ug/mL			
58	CCB	S1011190013		0 0			Rhodium	LIQUID		<5.0000E-02			0.05	ug/mL			
58	CCB	S1011190013		0 0			Ruthenium	LIQUID		<3.0000E-02			0.03	ug/mL			
58	CCB	S1011190013		0 0			Sulfur	LIQUID		<1.0000E-01			0.1	ug/mL			
58	CCB	S1011190013		0 0			Antimony	LIQUID		<5.0000E-02			0.05	ug/mL			
58	CCB	S1011190013		0 0			Selenium	LIQUID		<1.0000E-01			0.1	ug/mL			
58	CCB	S1011190013		0 0			Silicon	LIQUID		<3.0000E-02			0.03	ug/mL			
58	CCB	S1011190013		0 0			Samarium	LIQUID		<2.0000E-02			0.02	ug/mL			
58	CCB	S1011190013		0 0			Tin	LIQUID		<3.0000E-02			0.03	ug/mL			
58	CCB	S1011190013		0 0			Strontium	LIQUID		<3.0000E-03			3.00E-03	ug/mL			
58	CCB	S1011190013		0 0			Tantalum	LIQUID		<5.0000E-02			0.05	ug/mL			
58	CCB	S1011190013		0 0			Tellurium	LIQUID		<1.0000E-01			0.1	ug/mL			

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

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00024239

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
58	CCB	S1011190013		0 0			Thorium	LIQUID		<5.0000E-02			0.05	ug/mL			
58	CCB	S1011190013		0 0			Titanium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
58	CCB	S1011190013		0 0			Thallium	LIQUID		<1.0000E-01			0.1	ug/mL			
58	CCB	S1011190013		0 0			Uranium	LIQUID		<1.0000E-01			0.1	ug/mL			
58	CCB	S1011190013		0 0			Vanadium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
58	CCB	S1011190013		0 0			Tungsten	LIQUID		<2.0000E-01			0.2	ug/mL			
58	CCB	S1011190013		0 0			Yttrium	LIQUID		<2.0000E-03			2.00E-03	ug/mL			
58	CCB	S1011190013		0 0			Zinc	LIQUID		<5.0000E-03			5.00E-03	ug/mL			
58	CCB	S1011190013		0 0			Zirconium	LIQUID		<5.0000E-03			5.00E-03	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00024239

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# 00024239

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1011190001	ICV				
2	S1011190001	ICV				
3	S1011190001	ICV				
4	S1011190001	ICV				
5	S1011190003	LLS				
6	S1011190003	LLS				
7	S1011190003	LLS				
8	S1011190003	LLS				
9	S1011190003	LLS				
10	S1011190003	LLS				
11	S1011190002	ICB				
12	S1011190004	ICSA				
13	S1011190005	ICSAB				
14	S1011050124	BLNK-PREP				
15	S1011090072	STD-PREP				
16	S1011090072	STD-PREP				
17	S1011190006	SERDIL	S10V002288			
18	S10V002288	SAMPLE		20100660	B26JL0	C Farm WMC 2010-2
19	S1011050126	DUP	S10V002288			
20	S1011090071	SPK-PREDIG	S10V002288			
21	S1011050127	SPK-PREDIG	S10V002288			
22	S1011190024	CCV				
23	S1011190024	CCV				
24	S1011190024	CCV				
25	S1011190024	CCV				
26	S1011190023	CCB				
27	S1011190023	CCB				
28	S1011190007	SPK-POST	S10V002288			
29	S1011190007	SPK-POST	S10V002288			
30	S1011190007	SPK-POST	S10V002288			
31	S10V002316	SAMPLE		20100660	B26JL1	C Farm WMC 2010-2
32	S10V002352	SAMPLE		20100660	B26C47	C Farm WMC 2010-2
33	S10V002398	SAMPLE		20100660	B26C51	C Farm WMC 2010-2
34	S10V002417	SAMPLE		20100660	B26C53	C Farm WMC 2010-2
35	S10V002436	SAMPLE		20100660	B26C55	C Farm WMC 2010-2

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

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LABCORE Completed Batch Report for Batch# 00024239

36	S10V002455	SAMPLE	20100660	B26C57	C Farm WMC 2010-2
37	S10V002474	SAMPLE	20100660	B26C59	C Farm WMC 2010-2
38	S1011190008	CCV			
39	S1011190008	CCV			
40	S1011190008	CCV			
41	S1011190008	CCV			
42	S1011190008	CCV			
43	S1011190009	CCB			
44	S10V002493	SAMPLE	20100660	B26C61	C Farm WMC 2010-2
45	S1011190010	ICSA			
46	S1011190011	ICSAB			
47	S1011190012	CCV			
48	S1011190012	CCV			
49	S1011190012	CCV			
50	S1011190012	CCV			
51	S1011190012	CCV			
52	S1011190014	LLS			
53	S1011190014	LLS			
54	S1011190014	LLS			
55	S1011190014	LLS			
56	S1011190014	LLS			
57	S1011190014	LLS			
58	S1011190013	CCB			

LABCORE Completed Batch Report for Batch# 00022376

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: 00021929, 00022037

Batch Comment:

Sb analysis for BY Barrier and C Farm WMC. LS

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	S1009210133		0 0			Antimony	LIQUID	.002	1.9720E-03			2.00E-06	ug/mL	98.6	% Recovery	
Sample Sequence 2																	
2	LLS	S1009210135		0 0			Antimony	LIQUID	.0001	1.0700E-04			2.00E-06	ug/mL	107	% Recovery	
Sample Sequence 3																	
3	ICB	S1009210134		0 0			Antimony	LIQUID		<2.0000E-06			2.00E-06	ug/mL			
Sample Sequence 4																	
4	BLNK-PREP	S1009030012		0 0	A		Antimony	LIQUID		<2.0000E-04			2.00E-04	ug/mL			
Sample Sequence 5																	
5	SERDIL	S1009210136	S10V002183	0 0			Antimony	SOLID					0.049111	ug/g	3.9064	% Diff	
Sample Sequence 7																	
7	DUP	S1009030014	S10V002183	0 0	A		Antimony	SOLID					9.87E-03	ug/g	6.7036	% RPD	
Sample Sequence 13																	
13	CCV	S1009210138		0 0			Antimony	LIQUID	.002	1.9410E-03			2.00E-06	ug/mL	97.05	% Recovery	
Sample Sequence 14																	
14	CCB	S1009210139		0 0			Antimony	LIQUID		<2.0000E-06			2.00E-06	ug/mL			
Sample Sequence 25																	
25	CCV	S1009210140		0 0			Antimony	LIQUID	.002	1.9850E-03			2.00E-06	ug/mL	99.25	% Recovery	
Sample Sequence 26																	
26	CCB	S1009210141		0 0			Antimony	LIQUID		<2.0000E-06			2.00E-06	ug/mL			
Sample Sequence 27																	
27	BLNK-PREP	S1009080210		0 0	A		Antimony	LIQUID		<2.0000E-04			2.00E-04	ug/mL			
Sample Sequence 28																	
28	SAMPLE	S10V002284		0 0	A		Antimony	SOLID	N/A	2.0697E-01			9.43E-03	ug/g			
Sample Sequence 29																	
29	DUP	S1009080212	S10V002284	0 0	A		Antimony	SOLID	2.0697E-01	1.9092E-01			9.38E-03	ug/g	8.0661	% RPD	
Sample Sequence 31																	
31	SAMPLE	S10V002313		0 0	A		Antimony	SOLID	N/A	2.1776E-01			9.50E-03	ug/g			
Sample Sequence 32																	
32	SAMPLE	S10V002347		0 0	A		Antimony	SOLID	N/A	4.2028E-01			9.40E-03	ug/g			
Sample Sequence 33																	
33	SAMPLE	S10V002395		0 0	A		Antimony	SOLID	N/A	1.1050E-01			9.36E-03	ug/g			
Sample Sequence 34																	
34	STD-PREP	S1009030013		0 0	A		Antimony	LIQUID	1	9.6750E-01			2.00E-03	ug/mL	96.75	% Recovery	

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LABCORE Completed Batch Report for Batch# 00022376

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 35																	
35	SPK-PREDIG	S1009030015	S10V002183	0 0	A		Antimony	SOLID					0.094868	ug/g	92.497	% Recovery	
Sample Sequence 36																	
36	SPK-POST	S1009210137	S10V002183	0 0			Antimony	SOLID					2.00E-06	ug/mL	99.323	% Recovery	
Sample Sequence 37																	
37	CCV	S1009210143		0 0			Antimony	LIQUID	.002	1.9790E-03			2.00E-06	ug/mL	98.95	% Recovery	
Sample Sequence 38																	
38	CCB	S1009210142		0 0			Antimony	LIQUID		<2.0000E-06			2.00E-06	ug/mL			
Sample Sequence 39																	
39	SAMPLE	S10V002414		0 0	A		Antimony	SOLID	N/A	8.9719E-02			9.55E-03	ug/g			J
Sample Sequence 40																	
40	SAMPLE	S10V002433		0 0	A		Antimony	SOLID	N/A	1.2631E-01			9.51E-03	ug/g			
Sample Sequence 41																	
41	SAMPLE	S10V002452		0 0	A		Antimony	SOLID	N/A	1.1477E-01			9.48E-03	ug/g			
Sample Sequence 42																	
42	SAMPLE	S10V002471		0 0	A		Antimony	SOLID	N/A	1.6962E-01			9.84E-03	ug/g			
Sample Sequence 43																	
43	SAMPLE	S10V002490		0 0	A		Antimony	SOLID	N/A	1.8094E-01			9.57E-03	ug/g			
Sample Sequence 44																	
44	STD-PREP	S1009080211		0 0	A		Antimony	LIQUID	1	9.9940E-01			2.00E-03	ug/mL	99.94	% Recovery	
Sample Sequence 45																	
45	SPK-PREDIG	S1009080213	S10V002284	0 0	A		Antimony	SOLID	46.891118	3.8254E+01			0.093782	ug/g	81.139	% Recovery	
Sample Sequence 46																	
46	SPK-POST	S1009210147	S10V002284	0 0			Antimony	SOLID	.1	1.0310E-01			2.00E-06	ug/mL	98.709	% Recovery	
Sample Sequence 47																	
47	CCV	S1009210146		0 0			Antimony	LIQUID	.002	1.9920E-03			2.00E-06	ug/mL	99.6	% Recovery	
Sample Sequence 48																	
48	LLS	S1009210144		0 0			Antimony	LIQUID	.0001	1.0330E-04			2.00E-06	ug/mL	103.3	% Recovery	
Sample Sequence 49																	
49	CCB	S1009210145		0 0			Antimony	LIQUID		<2.0000E-06			2.00E-06	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

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LABCORE Completed Batch Report for Batch# 00022376

Final Page for Batch# 00022376

Reviewer Signature **Date**

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LABCORE Completed Batch Report for Batch# 00022376

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1009210133	ICV				
2	S1009210135	LLS				
3	S1009210134	ICB				
4	S1009030012	BLNK-PREP				
5	S1009210136	SERDIL	S10V002183			
7	S1009030014	DUP	S10V002183			
13	S1009210138	CCV				
14	S1009210139	CCB				
25	S1009210140	CCV				
26	S1009210141	CCB				
27	S1009080210	BLNK-PREP				
28	S10V002284	SAMPLE		20100660	B26JL0	C Farm WMC 2010-2
29	S1009080212	DUP	S10V002284			
31	S10V002313	SAMPLE		20100660	B26JL1	C Farm WMC 2010-2
32	S10V002347	SAMPLE		20100660	B26C47	C Farm WMC 2010-2
33	S10V002395	SAMPLE		20100660	B26C51	C Farm WMC 2010-2
34	S1009030013	STD-PREP				
35	S1009030015	SPK-PREDIG	S10V002183			
36	S1009210137	SPK-POST	S10V002183			
37	S1009210143	CCV				
38	S1009210142	CCB				
39	S10V002414	SAMPLE		20100660	B26C53	C Farm WMC 2010-2
40	S10V002433	SAMPLE		20100660	B26C55	C Farm WMC 2010-2
41	S10V002452	SAMPLE		20100660	B26C57	C Farm WMC 2010-2
42	S10V002471	SAMPLE		20100660	B26C59	C Farm WMC 2010-2
43	S10V002490	SAMPLE		20100660	B26C61	C Farm WMC 2010-2
44	S1009080211	STD-PREP				
45	S1009080213	SPK-PREDIG	S10V002284			
46	S1009210147	SPK-POST	S10V002284			
47	S1009210146	CCV				
48	S1009210144	LLS				
49	S1009210145	CCB				

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

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LABCORE Completed Batch Report for Batch# 00023864

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: 00019100, 00022273

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	S1011050101		0 0			Thorium-232	LIQUID	.001	9.8250E-04			5.00E-07	ug/mL	98.25	% Recovery	
1	ICV	S1011050101		0 0			Uranium-235	LIQUID	.0000072	7.1980E-06			1.00E-08	ug/mL	99.972	% Recovery	
1	ICV	S1011050101		0 0			Neptunium-237	LIQUID	.00115	1.0720E-03			1.00E-07	ug/mL	93.217	% Recovery	
1	ICV	S1011050101		0 0			Uranium-238	LIQUID	.0009928	9.7540E-04			5.00E-07	ug/mL	98.247	% Recovery	
Sample Sequence 2																	
2	LLS	S1011050103		0 0			Thorium-232	LIQUID	.000005	5.5110E-06			5.00E-07	ug/mL	110.22	% Recovery	
2	LLS	S1011050103		0 0			Uranium-235	LIQUID	.000000036	2.6000E-08			1.00E-08	ug/mL	72.222	% Recovery	
2	LLS	S1011050103		0 0			Neptunium-237	LIQUID	.00000505	4.9360E-06			1.00E-07	ug/mL	97.743	% Recovery	
2	LLS	S1011050103		0 0			Uranium-238	LIQUID	.000004964	4.8400E-06			5.00E-07	ug/mL	97.502	% Recovery	
Sample Sequence 3																	
3	ICB	S1011050102		0 0			Thorium-230	LIQUID		<7.0000E-09			7.00E-09	ug/mL			
3	ICB	S1011050102		0 0			Thorium-232	LIQUID		5.0700E-07			5.00E-07	ug/mL			
3	ICB	S1011050102		0 0			Uranium-233	LIQUID		<1.0000E-08			1.00E-08	ug/mL			
3	ICB	S1011050102		0 0			Uranium-234	LIQUID		<5.0000E-09			5.00E-09	ug/mL			
3	ICB	S1011050102		0 0			Uranium-235	LIQUID		<1.0000E-08			1.00E-08	ug/mL			
3	ICB	S1011050102		0 0			Uranium-236	LIQUID		6.0000E-09			4.00E-09	ug/mL			
3	ICB	S1011050102		0 0			Neptunium-237	LIQUID		<1.0000E-07			1.00E-07	ug/mL			
3	ICB	S1011050102		0 0			Uranium-238	LIQUID		<5.0000E-07			5.00E-07	ug/mL			
Sample Sequence 4																	
4	BLNK-PREP	S1009170007		0 0	A		Thorium-230	LIQUID		5.2080E-06			2.80E-06	ug/mL			
4	BLNK-PREP	S1009170007		0 0	A		Thorium-232	LIQUID		<2.0000E-04			2.00E-04	ug/mL			
4	BLNK-PREP	S1009170007		0 0	A		Uranium-233	LIQUID		<4.0000E-06			4.00E-06	ug/mL			
4	BLNK-PREP	S1009170007		0 0	A		Uranium-234	LIQUID		<2.0000E-06			2.00E-06	ug/mL			
4	BLNK-PREP	S1009170007		0 0	A		Uranium-235	LIQUID		<4.0000E-06			4.00E-06	ug/mL			
4	BLNK-PREP	S1009170007		0 0	A		Uranium-236	LIQUID		<1.6000E-06			1.60E-06	ug/mL			
4	BLNK-PREP	S1009170007		0 0	A		Neptunium-237	LIQUID		<4.0000E-05			4.00E-05	ug/mL			
4	BLNK-PREP	S1009170007		0 0	A		Uranium-238	LIQUID		<2.0000E-04			2.00E-04	ug/mL			
Sample Sequence 5																	
5	SERDIL	S1011050104	S10V001772	0 0			Thorium-230	SOLID		3.5263E-04			1.38E-04	ug/g	1171.8	% Diff	
5	SERDIL	S1011050104	S10V001772	0 0			Thorium-232	SOLID		3.2300E+00			9.88E-03	ug/g	.33594	% Diff	
5	SERDIL	S1011050104	S10V001772	0 0			Uranium-233	SOLID		4.1397E-04			1.98E-04	ug/g	150.8	% Diff	

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LABCORE Completed Batch Report for Batch# 00023864

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
5	SERDIL	S1011050104	S10V001772	0 0			Uranium-234	SOLID		<9.8777E-05			9.88E-05	ug/g	N/A		
5	SERDIL	S1011050104	S10V001772	0 0			Uranium-235	SOLID		6.0629E-03			1.98E-04	ug/g	11.56	% Diff	
5	SERDIL	S1011050104	S10V001772	0 0			Uranium-236	SOLID		<7.9022E-05			7.90E-05	ug/g	N/A		
5	SERDIL	S1011050104	S10V001772	0 0			Neptunium-237	SOLID		<1.9755E-03			1.98E-03	ug/g	N/A		
5	SERDIL	S1011050104	S10V001772	0 0			Uranium-238	SOLID		8.2854E-01			9.88E-03	ug/g	1.1331	% Diff	
Sample Sequence 6																	
6	SAMPLE	S10V001772		0 0	A		Thorium-230	SOLID	N/A	2.7727E-05			2.77E-05	ug/g			BJ
6	SAMPLE	S10V001772		0 0	A		Thorium-232	SOLID	N/A	3.2409E+00			1.98E-03	ug/g			
6	SAMPLE	S10V001772		0 0	A		Uranium-233	SOLID	N/A	1.6506E-04			3.95E-05	ug/g			J
6	SAMPLE	S10V001772		0 0	A		Uranium-234	SOLID	N/A	<1.9755E-05			1.98E-05	ug/g			U
6	SAMPLE	S10V001772		0 0	A		Uranium-235	SOLID	N/A	5.4347E-03			3.95E-05	ug/g			e
6	SAMPLE	S10V001772		0 0	A		Uranium-236	SOLID	N/A	2.7085E-05			1.58E-05	ug/g			BJ
6	SAMPLE	S10V001772		0 0	A		Neptunium-237	SOLID	N/A	<3.9511E-04			3.95E-04	ug/g			U
6	SAMPLE	S10V001772		0 0	A		Uranium-238	SOLID	N/A	8.1926E-01			1.98E-03	ug/g			
Sample Sequence 7																	
7	DUP	S1009170009	S10V001772	0 0	A		Thorium-230	SOLID	2.7727E-05	<2.7809E-05			2.78E-05	ug/g			
7	DUP	S1009170009	S10V001772	0 0	A		Thorium-232	SOLID	3.2409E+00	3.2547E+00			1.99E-03	ug/g	0.42558	% RPD	
7	DUP	S1009170009	S10V001772	0 0	A		Uranium-233	SOLID	1.6506E-04	2.7452E-04			3.97E-05	ug/g	49.804	% RPD	
7	DUP	S1009170009	S10V001772	0 0	A		Uranium-234	SOLID	<1.9755E-05	<1.9864E-05			1.99E-05	ug/g			
7	DUP	S1009170009	S10V001772	0 0	A		Uranium-235	SOLID	5.4347E-03	5.5897E-03			3.97E-05	ug/g	2.8116	% RPD	
7	DUP	S1009170009	S10V001772	0 0	A		Uranium-236	SOLID	2.7085E-05	2.6816E-05			1.59E-05	ug/g	0.99699	% RPD	
7	DUP	S1009170009	S10V001772	0 0	A		Neptunium-237	SOLID	<3.9511E-04	<3.9727E-04			3.97E-04	ug/g			
7	DUP	S1009170009	S10V001772	0 0	A		Uranium-238	SOLID	8.1926E-01	8.3835E-01			1.99E-03	ug/g	2.3036	% RPD	
Sample Sequence 8																	
8	SAMPLE	S10V001792		0 0	A		Thorium-230	SOLID	N/A	4.6482E-05			2.76E-05	ug/g			BJ
8	SAMPLE	S10V001792		0 0	A		Thorium-232	SOLID	N/A	4.5644E+00			1.97E-03	ug/g			
8	SAMPLE	S10V001792		0 0	A		Uranium-233	SOLID	N/A	2.4226E-04			3.94E-05	ug/g			J
8	SAMPLE	S10V001792		0 0	A		Uranium-234	SOLID	N/A	<1.9704E-05			1.97E-05	ug/g			U
8	SAMPLE	S10V001792		0 0	A		Uranium-235	SOLID	N/A	3.4009E-03			3.94E-05	ug/g			
8	SAMPLE	S10V001792		0 0	A		Uranium-236	SOLID	N/A	<1.5763E-05			1.58E-05	ug/g			U
8	SAMPLE	S10V001792		0 0	A		Neptunium-237	SOLID	N/A	<3.9408E-04			3.94E-04	ug/g			U
8	SAMPLE	S10V001792		0 0	A		Uranium-238	SOLID	N/A	5.0088E-01			1.97E-03	ug/g			
Sample Sequence 9																	
9	SAMPLE	S10V001812		0 0	A		Thorium-230	SOLID	N/A	6.5834E-05			2.78E-05	ug/g			BJ
9	SAMPLE	S10V001812		0 0	A		Thorium-232	SOLID	N/A	3.9775E+00			1.98E-03	ug/g			
9	SAMPLE	S10V001812		0 0	A		Uranium-233	SOLID	N/A	2.4323E-04			3.97E-05	ug/g			J
9	SAMPLE	S10V001812		0 0	A		Uranium-234	SOLID	N/A	<1.9848E-05			1.98E-05	ug/g			U
9	SAMPLE	S10V001812		0 0	A		Uranium-235	SOLID	N/A	3.6142E-03			3.97E-05	ug/g			
9	SAMPLE	S10V001812		0 0	A		Uranium-236	SOLID	N/A	<1.5878E-05			1.59E-05	ug/g			U
9	SAMPLE	S10V001812		0 0	A		Neptunium-237	SOLID	N/A	<3.9695E-04			3.97E-04	ug/g			U
9	SAMPLE	S10V001812		0 0	A		Uranium-238	SOLID	N/A	5.4750E-01			1.98E-03	ug/g			
Sample Sequence 10																	

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LABCORE Completed Batch Report for Batch# 00023864

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
10	SAMPLE	S10V002288		0 0	A		Thorium-230	SOLID	N/A	<2.8080E-05			2.81E-05	ug/g			U
10	SAMPLE	S10V002288		0 0	A		Thorium-232	SOLID	N/A	3.4287E+00			2.01E-03	ug/g			
10	SAMPLE	S10V002288		0 0	A		Uranium-233	SOLID	N/A	1.8773E-04			4.01E-05	ug/g			J
10	SAMPLE	S10V002288		0 0	A		Uranium-234	SOLID	N/A	<2.0057E-05			2.01E-05	ug/g			U
10	SAMPLE	S10V002288		0 0	A		Uranium-235	SOLID	N/A	3.0095E-03			4.01E-05	ug/g			
10	SAMPLE	S10V002288		0 0	A		Uranium-236	SOLID	N/A	<1.6046E-05			1.60E-05	ug/g			U
10	SAMPLE	S10V002288		0 0	A		Neptunium-237	SOLID	N/A	<4.0114E-04			4.01E-04	ug/g			U
10	SAMPLE	S10V002288		0 0	A		Uranium-238	SOLID	N/A	4.4557E-01			2.01E-03	ug/g			
Sample Sequence 11																	
11	SAMPLE	S10V002316		0 0	A		Thorium-230	SOLID	N/A	<2.7888E-05			2.79E-05	ug/g			U
11	SAMPLE	S10V002316		0 0	A		Thorium-232	SOLID	N/A	3.8655E+00			1.99E-03	ug/g			
11	SAMPLE	S10V002316		0 0	A		Uranium-233	SOLID	N/A	1.6434E-04			3.98E-05	ug/g			J
11	SAMPLE	S10V002316		0 0	A		Uranium-234	SOLID	N/A	<1.9920E-05			1.99E-05	ug/g			U
11	SAMPLE	S10V002316		0 0	A		Uranium-235	SOLID	N/A	3.7559E-03			3.98E-05	ug/g			
11	SAMPLE	S10V002316		0 0	A		Uranium-236	SOLID	N/A	<1.5936E-05			1.59E-05	ug/g			U
11	SAMPLE	S10V002316		0 0	A		Neptunium-237	SOLID	N/A	<3.9840E-04			3.98E-04	ug/g			U
11	SAMPLE	S10V002316		0 0	A		Uranium-238	SOLID	N/A	5.7260E-01			1.99E-03	ug/g			
Sample Sequence 12																	
12	SAMPLE	S10V002352		0 0	A		Thorium-230	SOLID	N/A	<2.7922E-05			2.79E-05	ug/g			U
12	SAMPLE	S10V002352		0 0	A		Thorium-232	SOLID	N/A	3.4384E+00			1.99E-03	ug/g			
12	SAMPLE	S10V002352		0 0	A		Uranium-233	SOLID	N/A	2.0383E-04			3.99E-05	ug/g			J
12	SAMPLE	S10V002352		0 0	A		Uranium-234	SOLID	N/A	<1.9944E-05			1.99E-05	ug/g			U
12	SAMPLE	S10V002352		0 0	A		Uranium-235	SOLID	N/A	2.9667E-03			3.99E-05	ug/g			
12	SAMPLE	S10V002352		0 0	A		Uranium-236	SOLID	N/A	<1.5955E-05			1.60E-05	ug/g			U
12	SAMPLE	S10V002352		0 0	A		Neptunium-237	SOLID	N/A	<3.9888E-04			3.99E-04	ug/g			U
12	SAMPLE	S10V002352		0 0	A		Uranium-238	SOLID	N/A	4.7467E-01			1.99E-03	ug/g			
Sample Sequence 13																	
13	CCV	S1011050106		0 0			Thorium-232	LIQUID	.001	9.9060E-04			5.00E-07	ug/mL	99.06	% Recovery	
13	CCV	S1011050106		0 0			Uranium-235	LIQUID	.0000072	7.3930E-06			1.00E-08	ug/mL	102.68	% Recovery	
13	CCV	S1011050106		0 0			Neptunium-237	LIQUID	.00115	1.0760E-03			1.00E-07	ug/mL	93.565	% Recovery	
13	CCV	S1011050106		0 0			Uranium-238	LIQUID	.0009928	9.8400E-04			5.00E-07	ug/mL	99.114	% Recovery	
Sample Sequence 14																	
14	CCB	S1011050107		0 0			Thorium-230	LIQUID		1.2000E-08			7.00E-09	ug/mL			
14	CCB	S1011050107		0 0			Thorium-232	LIQUID		<5.0000E-07			5.00E-07	ug/mL			
14	CCB	S1011050107		0 0			Uranium-233	LIQUID		<1.0000E-08			1.00E-08	ug/mL			
14	CCB	S1011050107		0 0			Uranium-234	LIQUID		<5.0000E-09			5.00E-09	ug/mL			
14	CCB	S1011050107		0 0			Uranium-235	LIQUID		<1.0000E-08			1.00E-08	ug/mL			
14	CCB	S1011050107		0 0			Uranium-236	LIQUID		<4.0000E-09			4.00E-09	ug/mL			
14	CCB	S1011050107		0 0			Neptunium-237	LIQUID		<1.0000E-07			1.00E-07	ug/mL			
14	CCB	S1011050107		0 0			Uranium-238	LIQUID		<5.0000E-07			5.00E-07	ug/mL			
Sample Sequence 15																	
15	SAMPLE	S10V002398		0 0	A		Thorium-230	SOLID	N/A	3.6239E-05			2.79E-05	ug/g			BJ

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

LABCORE Completed Batch Report for Batch# 00023864

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
15	SAMPLE	S10V002398		0 0	A		Thorium-232	SOLID	N/A	2.4580E+00			1.99E-03	ug/g			
15	SAMPLE	S10V002398		0 0	A		Uranium-233	SOLID	N/A	1.0783E-04			3.98E-05	ug/g			J
15	SAMPLE	S10V002398		0 0	A		Uranium-234	SOLID	N/A	<1.9895E-05			1.99E-05	ug/g			U
15	SAMPLE	S10V002398		0 0	A		Uranium-235	SOLID	N/A	3.3215E-03			3.98E-05	ug/g			
15	SAMPLE	S10V002398		0 0	A		Uranium-236	SOLID	N/A	2.0939E-05			1.59E-05	ug/g			J
15	SAMPLE	S10V002398		0 0	A		Neptunium-237	SOLID	N/A	<3.9790E-04			3.98E-04	ug/g			U
15	SAMPLE	S10V002398		0 0	A		Uranium-238	SOLID	N/A	5.0414E-01			1.99E-03	ug/g			
Sample Sequence 16																	
16	SAMPLE	S10V002417		0 0	A		Thorium-230	SOLID	N/A	5.6436E-05			2.79E-05	ug/g			BJ
16	SAMPLE	S10V002417		0 0	A		Thorium-232	SOLID	N/A	2.5484E+00			2.00E-03	ug/g			
16	SAMPLE	S10V002417		0 0	A		Uranium-233	SOLID	N/A	1.3391E-04			3.99E-05	ug/g			J
16	SAMPLE	S10V002417		0 0	A		Uranium-234	SOLID	N/A	<1.9956E-05			2.00E-05	ug/g			U
16	SAMPLE	S10V002417		0 0	A		Uranium-235	SOLID	N/A	3.7039E-03			3.99E-05	ug/g			
16	SAMPLE	S10V002417		0 0	A		Uranium-236	SOLID	N/A	3.2419E-05			1.60E-05	ug/g			J
16	SAMPLE	S10V002417		0 0	A		Neptunium-237	SOLID	N/A	<3.9912E-04			3.99E-04	ug/g			U
16	SAMPLE	S10V002417		0 0	A		Uranium-238	SOLID	N/A	5.7404E-01			2.00E-03	ug/g			
Sample Sequence 17																	
17	SAMPLE	S10V002436		0 0	A		Thorium-230	SOLID	N/A	4.7050E-05			2.77E-05	ug/g			BJ
17	SAMPLE	S10V002436		0 0	A		Thorium-232	SOLID	N/A	4.5004E+00			1.98E-03	ug/g			
17	SAMPLE	S10V002436		0 0	A		Uranium-233	SOLID	N/A	2.2621E-04			3.95E-05	ug/g			J
17	SAMPLE	S10V002436		0 0	A		Uranium-234	SOLID	N/A	<1.9765E-05			1.98E-05	ug/g			U
17	SAMPLE	S10V002436		0 0	A		Uranium-235	SOLID	N/A	4.1743E-03			3.95E-05	ug/g			
17	SAMPLE	S10V002436		0 0	A		Uranium-236	SOLID	N/A	<1.5812E-05			1.58E-05	ug/g			U
17	SAMPLE	S10V002436		0 0	A		Neptunium-237	SOLID	N/A	<3.9530E-04			3.95E-04	ug/g			U
17	SAMPLE	S10V002436		0 0	A		Uranium-238	SOLID	N/A	6.5916E-01			1.98E-03	ug/g			
Sample Sequence 18																	
18	SAMPLE	S10V002455		0 0	A		Thorium-230	SOLID	N/A	3.7435E-05			2.78E-05	ug/g			BJ
18	SAMPLE	S10V002455		0 0	A		Thorium-232	SOLID	N/A	2.6907E+00			1.99E-03	ug/g			
18	SAMPLE	S10V002455		0 0	A		Uranium-233	SOLID	N/A	2.0292E-04			3.97E-05	ug/g			J
18	SAMPLE	S10V002455		0 0	A		Uranium-234	SOLID	N/A	1.9984E-05			1.99E-05	ug/g			J
18	SAMPLE	S10V002455		0 0	A		Uranium-235	SOLID	N/A	3.2241E-03			3.97E-05	ug/g			
18	SAMPLE	S10V002455		0 0	A		Uranium-236	SOLID	N/A	<1.5892E-05			1.59E-05	ug/g			U
18	SAMPLE	S10V002455		0 0	A		Neptunium-237	SOLID	N/A	<3.9730E-04			3.97E-04	ug/g			U
18	SAMPLE	S10V002455		0 0	A		Uranium-238	SOLID	N/A	4.5620E-01			1.99E-03	ug/g			
Sample Sequence 19																	
19	SAMPLE	S10V002474		0 0	A		Thorium-230	SOLID	N/A	8.7136E-05			2.81E-05	ug/g			BJ
19	SAMPLE	S10V002474		0 0	A		Thorium-232	SOLID	N/A	4.0091E+00			2.00E-03	ug/g			
19	SAMPLE	S10V002474		0 0	A		Uranium-233	SOLID	N/A	2.1053E-04			4.01E-05	ug/g			J
19	SAMPLE	S10V002474		0 0	A		Uranium-234	SOLID	N/A	3.7716E-05			2.00E-05	ug/g			J
19	SAMPLE	S10V002474		0 0	A		Uranium-235	SOLID	N/A	3.4149E-03			4.01E-05	ug/g			
19	SAMPLE	S10V002474		0 0	A		Uranium-236	SOLID	N/A	2.1904E-05			1.60E-05	ug/g			BJ
19	SAMPLE	S10V002474		0 0	A		Neptunium-237	SOLID	N/A	<4.0081E-04			4.01E-04	ug/g			U

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LABCORE Completed Batch Report for Batch# 00023864

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
19	SAMPLE	S10V002474		0 0	A		Uranium-238	SOLID	N/A	5.1274E-01			2.00E-03	ug/g			
Sample Sequence 20																	
20	SAMPLE	S10V002493		0 0	A		Thorium-230	SOLID	N/A	4.7713E-05			2.79E-05	ug/g			BJ
20	SAMPLE	S10V002493		0 0	A		Thorium-232	SOLID	N/A	3.8294E+00			1.99E-03	ug/g			
20	SAMPLE	S10V002493		0 0	A		Uranium-233	SOLID	N/A	2.0463E-04			3.99E-05	ug/g			J
20	SAMPLE	S10V002493		0 0	A		Uranium-234	SOLID	N/A	<1.9935E-05			1.99E-05	ug/g			U
20	SAMPLE	S10V002493		0 0	A		Uranium-235	SOLID	N/A	3.2473E-03			3.99E-05	ug/g			
20	SAMPLE	S10V002493		0 0	A		Uranium-236	SOLID	N/A	<1.5948E-05			1.59E-05	ug/g			U
20	SAMPLE	S10V002493		0 0	A		Neptunium-237	SOLID	N/A	<3.9869E-04			3.99E-04	ug/g			U
20	SAMPLE	S10V002493		0 0	A		Uranium-238	SOLID	N/A	4.8740E-01			1.99E-03	ug/g			
Sample Sequence 21																	
22	STD-PREP	S1009170008		0 1	A		Thorium-232	LIQUID	.02	2.0880E-02			1.00E-05	ug/mL	104.4	% Recovery	
22	STD-PREP	S1009170008		0 1	A		Uranium-235	LIQUID	.000144	1.3650E-04			2.00E-07	ug/mL	94.792	% Recovery	
21	STD-PREP	S1009170008		0 0	A		Neptunium-237	LIQUID	.0175	1.7800E-02			2.00E-06	ug/mL	101.71	% Recovery	
22	STD-PREP	S1009170008		0 1	A		Uranium-238	LIQUID	.019856	2.0720E-02			1.00E-05	ug/mL	104.35	% Recovery	
Sample Sequence 23																	
23	SPK-POST	S1011050105	S10V001772	0 0			Thorium-232	SOLID	.4	7.2880E-01			5.00E-07	ug/mL	100.18	% Recovery	
23	SPK-POST	S1011050105	S10V001772	0 0			Uranium-235	SOLID	.00288	3.4950E-03			1.00E-08	ug/mL	102.25	% Recovery	
23	SPK-POST	S1011050105	S10V001772	0 0			Neptunium-237	SOLID	.3934	3.9760E-01			1.00E-07	ug/mL	101.07	% Recovery	
23	SPK-POST	S1011050105	S10V001772	0 0			Uranium-238	SOLID	.39712	4.8030E-01			5.00E-07	ug/mL	100.06	% Recovery	
Sample Sequence 24																	
24	CCV	S1011050108		0 0			Thorium-232	LIQUID	.001	9.8070E-04			5.00E-07	ug/mL	98.07	% Recovery	
24	CCV	S1011050108		0 0			Uranium-235	LIQUID	.0000072	7.1180E-06			1.00E-08	ug/mL	98.861	% Recovery	
24	CCV	S1011050108		0 0			Neptunium-237	LIQUID	.00115	1.0650E-03			1.00E-07	ug/mL	92.609	% Recovery	
24	CCV	S1011050108		0 0			Uranium-238	LIQUID	.0009928	9.7160E-04			5.00E-07	ug/mL	97.865	% Recovery	
Sample Sequence 25																	
25	CCB	S1011050109		0 0			Thorium-230	LIQUID		<7.0000E-09			7.00E-09	ug/mL			
25	CCB	S1011050109		0 0			Thorium-232	LIQUID		<5.0000E-07			5.00E-07	ug/mL			
25	CCB	S1011050109		0 0			Uranium-233	LIQUID		<1.0000E-08			1.00E-08	ug/mL			
25	CCB	S1011050109		0 0			Uranium-234	LIQUID		<5.0000E-09			5.00E-09	ug/mL			
25	CCB	S1011050109		0 0			Uranium-235	LIQUID		<1.0000E-08			1.00E-08	ug/mL			
25	CCB	S1011050109		0 0			Uranium-236	LIQUID		4.0000E-09			4.00E-09	ug/mL			
25	CCB	S1011050109		0 0			Neptunium-237	LIQUID		<1.0000E-07			1.00E-07	ug/mL			
25	CCB	S1011050109		0 0			Uranium-238	LIQUID		<5.0000E-07			5.00E-07	ug/mL			
Sample Sequence 26																	
26	SPK-PREDIG	S1009170013	S10V001772	0 0	A		Neptunium-237	SOLID	.493247902896	4.8349E-01			3.94E-04	ug/g	98.022	% Recovery	
Sample Sequence 27																	
27	SPK-PREDIG	S1009170015	S10V001772	0 0	A		Thorium-232	SOLID	1.0028279	4.1938E+00			2.01E-03	ug/g	95.121	% Recovery	
27	SPK-PREDIG	S1009170015	S10V001772	0 0	A		Uranium-235	SOLID	.0072203609	1.2706E-02			4.01E-05	ug/g	100.7	% Recovery	
27	SPK-PREDIG	S1009170015	S10V001772	0 0	A		Uranium-238	SOLID	1.0010228098	1.8773E+00			2.01E-03	ug/g	105.7	% Recovery	
Sample Sequence 29																	
29	CCV	S1011050119		0 0			Thorium-232	LIQUID	.001	9.8490E-04			5.00E-07	ug/mL	98.49	% Recovery	

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LABCORE Completed Batch Report for Batch# 00023864

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
29	CCV	S1011050119		0 0			Uranium-235	LIQUID	.0000072	7.2830E-06			1.00E-08	ug/mL	101.15	% Recovery	
29	CCV	S1011050119		0 0			Neptunium-237	LIQUID	.00115	1.0690E-03			1.00E-07	ug/mL	92.957	% Recovery	
29	CCV	S1011050119		0 0			Uranium-238	LIQUID	.0009928	9.7720E-04			5.00E-07	ug/mL	98.429	% Recovery	
Sample Sequence 30																	
30	LLS	S1011050112		0 0			Thorium-232	LIQUID	.000005	5.1160E-06			5.00E-07	ug/mL	102.32	% Recovery	
30	LLS	S1011050112		0 0			Uranium-235	LIQUID	.000000036	3.5000E-08			1.00E-08	ug/mL	97.222	% Recovery	
30	LLS	S1011050112		0 0			Neptunium-237	LIQUID	.00000505	4.9920E-06			1.00E-07	ug/mL	98.851	% Recovery	
30	LLS	S1011050112		0 0			Uranium-238	LIQUID	.000004964	4.8750E-06			5.00E-07	ug/mL	98.207	% Recovery	
Sample Sequence 31																	
31	CCB	S1011050118		0 0			Thorium-230	LIQUID		<7.0000E-09			7.00E-09	ug/mL			
31	CCB	S1011050118		0 0			Thorium-232	LIQUID		<5.0000E-07			5.00E-07	ug/mL			
31	CCB	S1011050118		0 0			Uranium-233	LIQUID		<1.0000E-08			1.00E-08	ug/mL			
31	CCB	S1011050118		0 0			Uranium-234	LIQUID		<5.0000E-09			5.00E-09	ug/mL			
31	CCB	S1011050118		0 0			Uranium-235	LIQUID		<1.0000E-08			1.00E-08	ug/mL			
31	CCB	S1011050118		0 0			Uranium-236	LIQUID		<4.0000E-09			4.00E-09	ug/mL			
31	CCB	S1011050118		0 0			Neptunium-237	LIQUID		<1.0000E-07			1.00E-07	ug/mL			
31	CCB	S1011050118		0 0			Uranium-238	LIQUID		<5.0000E-07			5.00E-07	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00023864

Reviewer Signature **Date**

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LABCORE Completed Batch Report for Batch# 00023864

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1011050101	ICV				
2	S1011050103	LLS				
3	S1011050102	ICB				
4	S1009170007	BLNK-PREP				
5	S1011050104	SERDIL	S10V001772			
6	S10V001772	SAMPLE		20100556	B26CD0	C Farm WMC 2010-2
7	S1009170009	DUP	S10V001772			
8	S10V001792	SAMPLE		20100556	B26CD2	C Farm WMC 2010-2
9	S10V001812	SAMPLE		20100556	B26CD4	C Farm WMC 2010-2
10	S10V002288	SAMPLE		20100660	B26JL0	C Farm WMC 2010-2
11	S10V002316	SAMPLE		20100660	B26JL1	C Farm WMC 2010-2
12	S10V002352	SAMPLE		20100660	B26C47	C Farm WMC 2010-2
13	S1011050106	CCV				
14	S1011050107	CCB				
15	S10V002398	SAMPLE		20100660	B26C51	C Farm WMC 2010-2
16	S10V002417	SAMPLE		20100660	B26C53	C Farm WMC 2010-2
17	S10V002436	SAMPLE		20100660	B26C55	C Farm WMC 2010-2
18	S10V002455	SAMPLE		20100660	B26C57	C Farm WMC 2010-2
19	S10V002474	SAMPLE		20100660	B26C59	C Farm WMC 2010-2
20	S10V002493	SAMPLE		20100660	B26C61	C Farm WMC 2010-2
21	S1009170008	STD-PREP				
22	S1009170008	STD-PREP				
23	S1011050105	SPK-POST	S10V001772			
24	S1011050108	CCV				
25	S1011050109	CCB				
26	S1009170013	SPK-PREDIG	S10V001772			
27	S1009170015	SPK-PREDIG	S10V001772			
29	S1011050119	CCV				
30	S1011050112	LLS				
31	S1011050118	CCB				

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LABCORE Completed Batch Report for Batch# 00023853

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: 00022490

Batch Comment:

ICPMS Fission Product C-farm WMC 2010-2. RJB

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1																	
2	ICV	S1011050073		0 1			Technetium-99	LIQUID	.001	1.0090E-03			3.00E-07	ug/mL	100.9	% Recovery	
1	ICV	S1011050073		0 0			Tin-117	LIQUID	.001	1.0600E-03			1.00E-05	ug/mL	106	% Recovery	
Sample Sequence 3																	
4	LLS	S1011050075		0 1			Technetium-99	LIQUID	.000002	2.0930E-06			3.00E-07	ug/mL	104.65	% Recovery	
3	LLS	S1011050075		0 0			Tin-117	LIQUID	.000016	1.6870E-05			1.00E-05	ug/mL	105.44	% Recovery	
Sample Sequence 5																	
5	ICB	S1011050074		0 0			Technetium-99	LIQUID		<3.0000E-07			3.00E-07	ug/mL			
5	ICB	S1011050074		0 0			Tin-117	LIQUID		<1.0000E-05			1.00E-05	ug/mL			
5	ICB	S1011050074		0 0			Tin-126	LIQUID		<2.0000E-07			2.00E-07	ug/mL			
Sample Sequence 6																	
6	BLNK-PREP	S1009230141		0 0	A		Technetium-99	LIQUID		<3.0000E-05			3.00E-05	ug/mL			
6	BLNK-PREP	S1009230141		0 0	A		Tin-117	LIQUID		<1.0000E-03			1.00E-03	ug/mL			
6	BLNK-PREP	S1009230141		0 0	A		Tin-126	LIQUID		<2.0000E-05			2.00E-05	ug/mL			
Sample Sequence 7																	
7	SERDIL	S1011050076	S10V001814	0 0			Technetium-99	SOLID		<1.5000E-03			1.50E-03	ug/g	N/A		
7	SERDIL	S1011050076	S10V001814	0 0			Tin-117	SOLID		<4.9999E-02			0.049999	ug/g	N/A		
7	SERDIL	S1011050076	S10V001814	0 0			Tin-126	SOLID		<9.9998E-04			1.00E-03	ug/g	N/A		
Sample Sequence 8																	
8	SAMPLE	S10V001814		0 0	A		Technetium-99	SOLID	N/A	<2.9999E-04			3.00E-04	ug/g			U
8	SAMPLE	S10V001814		0 0	A		Tin-117	SOLID	N/A	<9.9998E-03			1.00E-02	ug/g			U
8	SAMPLE	S10V001814		0 0	A		Tin-126	SOLID	N/A	5.3509E-04			2.00E-04	ug/g			BJ
Sample Sequence 9																	
9	DUP	S1009230143	S10V001814	0 0	A		Technetium-99	SOLID	<2.9999E-04	<2.9996E-04			3.00E-04	ug/g			
9	DUP	S1009230143	S10V001814	0 0	A		Tin-117	SOLID	<9.9998E-03	1.0679E-02			1.00E-02	ug/g	6.5690	% RPD	
9	DUP	S1009230143	S10V001814	0 0	A		Tin-126	SOLID	5.3509E-04	4.7224E-04			2.00E-04	ug/g	12.478	% RPD	
Sample Sequence 10																	
10	SAMPLE	S10V001774		0 0	A		Technetium-99	SOLID	N/A	3.1075E-04			2.98E-04	ug/g			J
10	SAMPLE	S10V001774		0 0	A		Tin-117	SOLID	N/A	1.2490E-02			9.94E-03	ug/g			J
10	SAMPLE	S10V001774		0 0	A		Tin-126	SOLID	N/A	6.6924E-04			1.99E-04	ug/g			BJ
Sample Sequence 11																	
12	CCV	S1011050088		0 1			Technetium-99	LIQUID	.001	1.0130E-03			3.00E-07	ug/mL	101.3	% Recovery	
11	CCV	S1011050088		0 0			Tin-117	LIQUID	.001	1.0670E-03			1.00E-05	ug/mL	106.7	% Recovery	

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00023853

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 13																	
13	CCB	S1011050087		0 0			Technetium-99	LIQUID		<3.0000E-07			3.00E-07	ug/mL			
13	CCB	S1011050087		0 0			Tin-117	LIQUID		<1.0000E-05			1.00E-05	ug/mL			
13	CCB	S1011050087		0 0			Tin-126	LIQUID		2.8400E-07			2.00E-07	ug/mL			
Sample Sequence 14																	
14	SAMPLE	S10V001794		0 0	A		Technetium-99	SOLID	N/A	3.1337E-03			2.93E-04	ug/g			
14	SAMPLE	S10V001794		0 0	A		Tin-117	SOLID	N/A	<9.7807E-03			9.78E-03	ug/g			U
14	SAMPLE	S10V001794		0 0	A		Tin-126	SOLID	N/A	5.8772E-04			1.96E-04	ug/g			BJ
Sample Sequence 15																	
15	SAMPLE	S10V002291		0 0	A		Technetium-99	SOLID	N/A	<2.9998E-04			3.00E-04	ug/g			U
15	SAMPLE	S10V002291		0 0	A		Tin-117	SOLID	N/A	1.1009E-02			1.00E-02	ug/g			J
15	SAMPLE	S10V002291		0 0	A		Tin-126	SOLID	N/A	4.1078E-04			2.00E-04	ug/g			BJ
Sample Sequence 16																	
16	SAMPLE	S10V002318		0 0	A		Technetium-99	SOLID	N/A	<2.9448E-04			2.94E-04	ug/g			U
16	SAMPLE	S10V002318		0 0	A		Tin-117	SOLID	N/A	1.0719E-02			9.82E-03	ug/g			J
16	SAMPLE	S10V002318		0 0	A		Tin-126	SOLID	N/A	7.9078E-04			1.96E-04	ug/g			BJ
Sample Sequence 17																	
17	SAMPLE	S10V002354		0 0	A		Technetium-99	SOLID	N/A	<2.9999E-04			3.00E-04	ug/g			U
17	SAMPLE	S10V002354		0 0	A		Tin-117	SOLID	N/A	1.0720E-02			1.00E-02	ug/g			J
17	SAMPLE	S10V002354		0 0	A		Tin-126	SOLID	N/A	6.9209E-04			2.00E-04	ug/g			BJ
Sample Sequence 18																	
18	SAMPLE	S10V002400		0 0	A		Technetium-99	SOLID	N/A	<2.9999E-04			3.00E-04	ug/g			U
18	SAMPLE	S10V002400		0 0	A		Tin-117	SOLID	N/A	<9.9996E-03			1.00E-02	ug/g			U
18	SAMPLE	S10V002400		0 0	A		Tin-126	SOLID	N/A	2.7729E-04			2.00E-04	ug/g			BJ
Sample Sequence 19																	
19	SAMPLE	S10V002419		0 0	A		Technetium-99	SOLID	N/A	<2.9770E-04			2.98E-04	ug/g			U
19	SAMPLE	S10V002419		0 0	A		Tin-117	SOLID	N/A	1.1848E-02			9.92E-03	ug/g			J
19	SAMPLE	S10V002419		0 0	A		Tin-126	SOLID	N/A	4.3851E-04			1.98E-04	ug/g			BJ
Sample Sequence 20																	
20	SAMPLE	S10V002438		0 0	A		Technetium-99	SOLID	N/A	<2.9747E-04			2.97E-04	ug/g			U
20	SAMPLE	S10V002438		0 0	A		Tin-117	SOLID	N/A	<9.9157E-03			9.92E-03	ug/g			U
20	SAMPLE	S10V002438		0 0	A		Tin-126	SOLID	N/A	4.7060E-04			1.98E-04	ug/g			BJ
Sample Sequence 21																	
21	SAMPLE	S10V002457		0 0	A		Technetium-99	SOLID	N/A	<2.9999E-04			3.00E-04	ug/g			U
21	SAMPLE	S10V002457		0 0	A		Tin-117	SOLID	N/A	<9.9998E-03			1.00E-02	ug/g			U
21	SAMPLE	S10V002457		0 0	A		Tin-126	SOLID	N/A	4.0879E-04			2.00E-04	ug/g			BJ
Sample Sequence 22																	
22	SAMPLE	S10V002476		0 0	A		Technetium-99	SOLID	N/A	<2.9687E-04			2.97E-04	ug/g			U
22	SAMPLE	S10V002476		0 0	A		Tin-117	SOLID	N/A	<9.8955E-03			9.90E-03	ug/g			U
22	SAMPLE	S10V002476		0 0	A		Tin-126	SOLID	N/A	4.5539E-04			1.98E-04	ug/g			BJ
Sample Sequence 23																	
23	SAMPLE	S10V002495		0 0	A		Technetium-99	SOLID	N/A	<2.9999E-04			3.00E-04	ug/g			U
23	SAMPLE	S10V002495		0 0	A		Tin-117	SOLID	N/A	1.1030E-02			1.00E-02	ug/g			J

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

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LABCORE Completed Batch Report for Batch# 00023853

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
23	SAMPLE	S10V002495		0 0	A		Tin-126	SOLID	N/A	6.7357E-04			2.00E-04	ug/g			BJ
Sample Sequence 24																	
25	CCV	S1011050080		0 1			Technetium-99	LIQUID	.001	1.0030E-03			3.00E-07	ug/mL	100.3	% Recovery	
24	CCV	S1011050080		0 0			Tin-117	LIQUID	.001	1.0500E-03			1.00E-05	ug/mL	105	% Recovery	
Sample Sequence 26																	
26	CCB	S1011050081		0 0			Technetium-99	LIQUID		<3.0000E-07			3.00E-07	ug/mL			
26	CCB	S1011050081		0 0			Tin-117	LIQUID		<1.0000E-05			1.00E-05	ug/mL			
26	CCB	S1011050081		0 0			Tin-126	LIQUID		3.6700E-07			2.00E-07	ug/mL			
Sample Sequence 27																	
27	STD-PREP	S1009230146		0 0	A		Technetium-99	LIQUID	.0005249	5.7160E-04			3.00E-07	ug/mL	108.9	% Recovery	
28	STD-PREP	S1009230146		0 1	A		Tin-117	LIQUID	.00308	3.1440E-03			2.00E-05	ug/mL	102.08	% Recovery	
Sample Sequence 29																	
29	SPK-PREDIG	S1009230144	S10V001814	0 0	A		Technetium-99	SOLID	.00524858008	5.6885E-03			3.00E-04	ug/g	108.38	% Recovery	
Sample Sequence 30																	
30	SPK-PREDIG	S1009230145	S10V001814	0 0	A		Tin-117	SOLID	.15399692	1.1480E-01			1.00E-02	ug/g	74.545	% Recovery	
Sample Sequence 31																	
32	SPK-POST	S1011050077	S10V001814	0 1			Technetium-99	SOLID	.1	9.2250E-02			3.00E-07	ug/mL	92.25	% Recovery	
31	SPK-POST	S1011050077	S10V001814	0 0			Tin-117	SOLID	.1	1.0510E-01			1.00E-05	ug/mL	105.1	% Recovery	
Sample Sequence 33																	
34	CCV	S1011050078		0 1			Technetium-99	LIQUID	.001	9.9710E-04			3.00E-07	ug/mL	99.71	% Recovery	
33	CCV	S1011050078		0 0			Tin-117	LIQUID	.001	1.0530E-03			1.00E-05	ug/mL	105.3	% Recovery	
Sample Sequence 35																	
36	LLS	S1011050082		0 1			Technetium-99	LIQUID	.000002	2.0640E-06			3.00E-07	ug/mL	103.2	% Recovery	
35	LLS	S1011050082		0 0			Tin-117	LIQUID	.000016	1.6830E-05			1.00E-05	ug/mL	105.19	% Recovery	
Sample Sequence 37																	
37	CCB	S1011050079		0 0			Technetium-99	LIQUID		<3.0000E-07			3.00E-07	ug/mL			
37	CCB	S1011050079		0 0			Tin-117	LIQUID		<1.0000E-05			1.00E-05	ug/mL			
37	CCB	S1011050079		0 0			Tin-126	LIQUID		<2.0000E-07			2.00E-07	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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LABCORE Completed Batch Report for Batch# 00023853

Final Page for Batch# 00023853

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# 00023853

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1011050073	ICV				
2	S1011050073	ICV				
3	S1011050075	LLS				
4	S1011050075	LLS				
5	S1011050074	ICB				
6	S1009230141	BLNK-PREP				
7	S1011050076	SERDIL	S10V001814			
8	S10V001814	SAMPLE		20100556	B26CD4	C Farm WMC 2010-2
9	S1009230143	DUP	S10V001814			
10	S10V001774	SAMPLE		20100556	B26CD0	C Farm WMC 2010-2
11	S1011050088	CCV				
12	S1011050088	CCV				
13	S1011050087	CCB				
14	S10V001794	SAMPLE		20100556	B26CD2	C Farm WMC 2010-2
15	S10V002291	SAMPLE		20100660	B26JL0	C Farm WMC 2010-2
16	S10V002318	SAMPLE		20100660	B26JL1	C Farm WMC 2010-2
17	S10V002354	SAMPLE		20100660	B26C47	C Farm WMC 2010-2
18	S10V002400	SAMPLE		20100660	B26C51	C Farm WMC 2010-2
19	S10V002419	SAMPLE		20100660	B26C53	C Farm WMC 2010-2
20	S10V002438	SAMPLE		20100660	B26C55	C Farm WMC 2010-2
21	S10V002457	SAMPLE		20100660	B26C57	C Farm WMC 2010-2
22	S10V002476	SAMPLE		20100660	B26C59	C Farm WMC 2010-2
23	S10V002495	SAMPLE		20100660	B26C61	C Farm WMC 2010-2
24	S1011050080	CCV				
25	S1011050080	CCV				
26	S1011050081	CCB				
27	S1009230146	STD-PREP				
28	S1009230146	STD-PREP				
29	S1009230144	SPK-PREDIG	S10V001814			
30	S1009230145	SPK-PREDIG	S10V001814			
31	S1011050077	SPK-POST	S10V001814			
32	S1011050077	SPK-POST	S10V001814			
33	S1011050078	CCV				
34	S1011050078	CCV				
35	S1011050082	LLS				

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LABCORE Completed Batch Report for Batch# 00023853

36	S1011050082	LLS
37	S1011050079	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# 00023162

Analyst: Shaw, Levi

Book#:

Instrument: ICP/MS PQ-EXCELL

Method: MS TC-99, LA-506-102 Rev/Mod F-1

Specification: C Farm WMC 2010-2

Prep Batch: 00022393

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	S1010130180		0 0			Technetium-99	LIQUID	.001	1.0280E-03			3.00E-07	ug/mL	102.8	% Recovery	
Sample Sequence 2																	
2	LLS	S1010130182		0 0			Technetium-99	LIQUID	.000001856	2.1800E-06			3.00E-07	ug/mL	117.46	% Recovery	
Sample Sequence 3																	
3	ICB	S1010130181		0 0			Technetium-99	LIQUID		<3.0000E-07			3.00E-07	ug/mL			
Sample Sequence 4																	
4	BLNK-PREP	S1009220064		0 0	WV		Technetium-99	LIQUID		<3.0000E-06			3.00E-06	ug/mL			
Sample Sequence 5																	
5	SERDIL	S1010130183	S10V001657	0 0			Technetium-99	SOLID		<1.4883E-05			1.49E-05	ug/g	N/A		
Sample Sequence 6																	
6	SAMPLE	S10V001657		0 0	WV		Technetium-99	SOLID	N/A	<2.9765E-06			2.98E-06	ug/g			U
Sample Sequence 7																	
7	DUP	S1009220065	S10V001657	0 0	WV		Technetium-99	SOLID	<2.9765E-06	<2.9719E-06			2.97E-06	ug/g			
Sample Sequence 8																	
8	SAMPLE	S10V001609		0 0	WV		Technetium-99	SOLID	N/A	<2.8384E-06			2.84E-06	ug/g			U
Sample Sequence 9																	
9	SAMPLE	S10V001637		0 0	WV		Technetium-99	SOLID	N/A	<2.8738E-06			2.87E-06	ug/g			U
Sample Sequence 10																	
10	SAMPLE	S10V001697		0 0	WV		Technetium-99	SOLID	N/A	<2.9912E-06			2.99E-06	ug/g			U
Sample Sequence 11																	
11	STD-PREP	S1009220063		0 0	WV		Technetium-99	LIQUID	.001048	1.1480E-03			6.00E-07	ug/mL	109.54	% Recovery	
Sample Sequence 12																	
12	SPK-POST	S1010130185	S10V001657	0 0			Technetium-99	SOLID	.00928	9.3610E-03			3.00E-07	ug/mL	100.87	% Recovery	
Sample Sequence 13																	
13	CCV	S1010130186		0 0			Technetium-99	LIQUID	.001	1.0170E-03			3.00E-07	ug/mL	101.7	% Recovery	
Sample Sequence 14																	
14	CCB	S1010130187		0 0			Technetium-99	LIQUID		4.8800E-07			3.00E-07	ug/mL			
Sample Sequence 15																	
15	SAMPLE	S10V001717		0 0	WV		Technetium-99	SOLID	N/A	<2.9759E-06			2.98E-06	ug/g			U
Sample Sequence 16																	
16	SAMPLE	S10V001767		0 0	WV		Technetium-99	SOLID	N/A	7.1360E-06			3.51E-06	ug/g			BJ
Sample Sequence 17																	
17	SAMPLE	S10V001787		0 0	WV		Technetium-99	SOLID	N/A	1.2864E-03			3.05E-06	ug/g			

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# 00023162

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	S10V001807		0 0	WV		Technetium-99	SOLID	N/A	<2.8225E-06			2.82E-06	ug/g			U
Sample Sequence 19																	
19	SAMPLE	S10V002282		0 0	WV		Technetium-99	SOLID	N/A	<2.9468E-06			2.95E-06	ug/g			U
Sample Sequence 20																	
20	SAMPLE	S10V002311		0 0	WV		Technetium-99	SOLID	N/A	<2.9657E-06			2.97E-06	ug/g			U
Sample Sequence 21																	
21	SAMPLE	S10V002343		0 0	WV		Technetium-99	SOLID	N/A	<3.4040E-06			3.40E-06	ug/g			U
Sample Sequence 22																	
22	SAMPLE	S10V002393		0 0	WV		Technetium-99	SOLID	N/A	<3.0909E-06			3.09E-06	ug/g			U
Sample Sequence 23																	
23	SAMPLE	S10V002412		0 0	WV		Technetium-99	SOLID	N/A	<3.0331E-06			3.03E-06	ug/g			U
Sample Sequence 24																	
24	SAMPLE	S10V002431		0 0	WV		Technetium-99	SOLID	N/A	<3.1691E-06			3.17E-06	ug/g			U
Sample Sequence 25																	
25	CCV	S1010130188		0 0			Technetium-99	LIQUID	.001	1.0040E-03			3.00E-07	ug/mL	100.4	% Recovery	
Sample Sequence 26																	
26	CCB	S1010130189		0 0			Technetium-99	LIQUID		<3.0000E-07			3.00E-07	ug/mL			
Sample Sequence 27																	
27	SAMPLE	S10V002450		0 0	WV		Technetium-99	SOLID	N/A	<3.1041E-06			3.10E-06	ug/g			U
Sample Sequence 28																	
28	SAMPLE	S10V002469		0 0	WV		Technetium-99	SOLID	N/A	<3.0164E-06			3.02E-06	ug/g			U
Sample Sequence 29																	
29	SAMPLE	S10V002488		0 0	WV		Technetium-99	SOLID	N/A	<2.8788E-06			2.88E-06	ug/g			U
Sample Sequence 30																	
30	CCV	S1010130191		0 0			Technetium-99	LIQUID	.001	1.0010E-03			3.00E-07	ug/mL	100.1	% Recovery	
Sample Sequence 31																	
31	LLS	S1010130192		0 0			Technetium-99	LIQUID	.000001856	2.0100E-06			3.00E-07	ug/mL	108.3	% Recovery	
Sample Sequence 32																	
32	CCB	S1010130190		0 0			Technetium-99	LIQUID		<3.0000E-07			3.00E-07	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# 00023162

Final Page for Batch# 00023162

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# 00023162

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1010130180	ICV				
2	S1010130182	LLS				
3	S1010130181	ICB				
4	S1009220064	BLNK-PREP				
5	S1010130183	SERDIL	S10V001657			
6	S10V001657	SAMPLE		20100556	B29612 WE	C Farm WMC 2010-2
7	S1009220065	DUP	S10V001657			
8	S10V001609	SAMPLE		20100556	B26JK6 WE	C Farm WMC 2010-2
9	S10V001637	SAMPLE		20100556	B26JK7 WE	C Farm WMC 2010-2
10	S10V001697	SAMPLE		20100556	B26CC4 WE	C Farm WMC 2010-2
11	S1009220063	STD-PREP				
12	S1010130185	SPK-POST	S10V001657			
13	S1010130186	CCV				
14	S1010130187	CCB				
15	S10V001717	SAMPLE		20100556	B29613 WE	C Farm WMC 2010-2
16	S10V001767	SAMPLE		20100556	B26CD0 WE	C Farm WMC 2010-2
17	S10V001787	SAMPLE		20100556	B26CD2 WE	C Farm WMC 2010-2
18	S10V001807	SAMPLE		20100556	B26CD4 WE	C Farm WMC 2010-2
19	S10V002282	SAMPLE		20100660	B26JL0 WE	C Farm WMC 2010-2
20	S10V002311	SAMPLE		20100660	B26JL1 WE	C Farm WMC 2010-2
21	S10V002343	SAMPLE		20100660	B26C47 WE	C Farm WMC 2010-2
22	S10V002393	SAMPLE		20100660	B26C51 WE	C Farm WMC 2010-2
23	S10V002412	SAMPLE		20100660	B26C53 WE	C Farm WMC 2010-2
24	S10V002431	SAMPLE		20100660	B26C55 WE	C Farm WMC 2010-2
25	S1010130188	CCV				
26	S1010130189	CCB				
27	S10V002450	SAMPLE		20100660	B26C57 WE	C Farm WMC 2010-2
28	S10V002469	SAMPLE		20100660	B26C59 WE	C Farm WMC 2010-2
29	S10V002488	SAMPLE		20100660	B26C61 WE	C Farm WMC 2010-2
30	S1010130191	CCV				
31	S1010130192	LLS				
32	S1010130190	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# 00021668

Analyst: Dinh, Liem **Book#:** 122N11B

Instrument: Hg by FIMS

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

Specification: C Farm WMC 2010-2

Prep Batch:

Batch Comment:

Hg for BY Barrier/C-Farm WMC 2010-2. 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	S1008260121		0 0			Mercury	LIQUID	.01	1.0010E-02			1.00E-04	ug/mL	100.1	% Recovery	
Sample Sequence 2																	
2	ICB	S1008260122		0 0			Mercury	LIQUID		<1.0000E-04			1.00E-04	ug/mL			
Sample Sequence 3																	
3	LLS	S1008260123		0 0			Mercury	LIQUID	.001	1.0150E-03			1.00E-04	ug/mL	101.5	% Recovery	
Sample Sequence 4																	
4	SAMPLE	S10V002280		0 0			Mercury	SOLID	N/A	<9.1575E-03			9.16E-03	ug/g			U
Sample Sequence 5																	
5	SPK-PREDIG	S1008260129	S10V002280	0 0			Mercury	SOLID	.4314064	4.3486E-01			8.63E-03	ug/g	100.8	% Recovery	
Sample Sequence 6																	
6	SPKPRE-DUP	S1008260130	S10V002280	0 0			Mercury	SOLID	.4599816	4.6937E-01			9.20E-03	ug/g	102.04	% Recovery	
															1.2226	% RPD	
Sample Sequence 7																	
7	SAMPLE	S10V002309		0 0			Mercury	SOLID	N/A	<8.7451E-03			8.75E-03	ug/g			U
Sample Sequence 8																	
8	SAMPLE	S10V002338		0 0			Mercury	SOLID	N/A	<9.7466E-03			9.75E-03	ug/g			U
Sample Sequence 9																	
9	SAMPLE	S10V002391		0 0			Mercury	SOLID	N/A	<8.9606E-03			8.96E-03	ug/g			U
Sample Sequence 10																	
10	SAMPLE	S10V002410		0 0			Mercury	SOLID	N/A	<8.1599E-03			8.16E-03	ug/g			U
Sample Sequence 11																	
11	SAMPLE	S10V002429		0 0			Mercury	SOLID	N/A	<8.5653E-03			8.57E-03	ug/g			U
Sample Sequence 12																	
12	SAMPLE	S10V002448		0 0			Mercury	SOLID	N/A	<8.8067E-03			8.81E-03	ug/g			U
Sample Sequence 13																	
13	CCV	S1008260127		0 0			Mercury	LIQUID	.01	9.8100E-03			1.00E-04	ug/mL	98.1	% Recovery	
Sample Sequence 14																	
14	CCB	S1008260128		0 0			Mercury	LIQUID		<1.0000E-04			1.00E-04	ug/mL			
Sample Sequence 16																	
16	SPK-PREDIG	S1008260131	S10V002161	0 0			Mercury	SOLID					9.02E-03	ug/g	102.24	% Recovery	
Sample Sequence 17																	
17	SPKPRE-DUP	S1008260132	S10V002161	0 0			Mercury	SOLID					8.10E-03	ug/g	98.44	% 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# 00021668

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
															3.7871	% RPD	
Sample Sequence 22																	
22	CCV	S1008260134		0	0		Mercury	LIQUID	.01	9.8420E-03			1.00E-04	ug/mL	98.42	% Recovery	
Sample Sequence 23																	
23	CCB	S1008260133		0	0		Mercury	LIQUID		<1.0000E-04			1.00E-04	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00021668

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# 00021668

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1008260121	ICV				
2	S1008260122	ICB				
3	S1008260123	LLS				
4	S10V002280	SAMPLE		20100660	B26JL0	C Farm WMC 2010-2
5	S1008260129	SPK-PREDIG	S10V002280			
6	S1008260130	SPKPRE-DUP	S10V002280			
7	S10V002309	SAMPLE		20100660	B26JL1	C Farm WMC 2010-2
8	S10V002338	SAMPLE		20100660	B26C47	C Farm WMC 2010-2
9	S10V002391	SAMPLE		20100660	B26C51	C Farm WMC 2010-2
10	S10V002410	SAMPLE		20100660	B26C53	C Farm WMC 2010-2
11	S10V002429	SAMPLE		20100660	B26C55	C Farm WMC 2010-2
12	S10V002448	SAMPLE		20100660	B26C57	C Farm WMC 2010-2
13	S1008260127	CCV				
14	S1008260128	CCB				
16	S1008260131	SPK-PREDIG	S10V002161			
17	S1008260132	SPKPRE-DUP	S10V002161			
22	S1008260134	CCV				
23	S1008260133	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																	

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
17	SAMPLE	S10V002486		0 1			Mercury	SOLID	N/A	<9.9256E-03			9.93E-03	ug/g			U
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

Quality Control Report

Attention Melissa Garrard
Department Inorganic

Group # WSCF111100

QC Batch 173809 **Test** ICP-2008 MS All possible metal
Associated Samples 111100001, 111100002, 111100003, 111100004, 111100005, 111100006, 111100007, 111100008, 111100009, 111100010, 111100011, 111100012, 111100013, 111100014, 111100015, 111100016, 111100017, 111100018, 111100019, 111100020

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
BLANK			**QC Sample #46100**							
Silver	7440-22-4		<0.10	ug/L					U	01/16/11
Antimony	7440-36-0		<0.30	ug/L					U	01/16/11
Cadmium	7440-43-9		<0.10	ug/L					U	01/16/11
Lead	7439-92-1		<0.10	ug/L					U	01/16/11
Thallium	7440-28-0		<0.050	ug/L					U	01/16/11
Arsenic	7440-38-2		<0.40	ug/L					U	01/16/11
Selenium	7782-49-2		<0.30	ug/L					U	01/16/11
LCS			**QC Sample #46101**							
Silver	7440-22-4		108	mg/kg	112	83 - 127				01/16/11
Antimony	7440-36-0		149	mg/kg	173.6	62 - 205				01/16/11
Cadmium	7440-43-9		77.7	mg/kg	122.6	76 - 129				01/16/11
Lead	7439-92-1		138	mg/kg	111.1	79 - 124				01/16/11
Thallium	7440-28-0		149	mg/kg	117.7	52 - 137				01/16/11
Arsenic	7440-38-2		132	mg/kg	105.2	79 - 125				01/16/11
Selenium	7782-49-2		170	mg/kg	110.6	82 - 133				01/16/11
MS			**QC Sample #46102**							
			Original	**111100001**						
Silver	7440-22-4	<0.11	101	mg/kg	101.7	70 - 130				01/16/11

Quality Control Report

Attention Melissa Garrard
Department Inorganic

Group # WSCF111100

Analyte	CAS #	Original Found	QC Found	Units	% Recov	Limits	RPD	RPD Limit	RQ	Analyzed
Antimony	7440-36-0	<0.32	92.6	mg/kg	93.1	70 - 130				01/16/11
Cadmium	7440-43-9		102	mg/kg	102.6	70 - 130				01/16/11
Lead	7439-92-1		100	mg/kg	101	70 - 130				01/16/11
Thallium	7440-28-0		98.9	mg/kg	99.5	70 - 130				01/16/11
Arsenic	7440-38-2	6.03	102	mg/kg	102.5	70 - 130				01/16/11
Selenium	7782-49-2	1.36	97.6	mg/kg	98.2	70 - 130				01/16/11
MSD			**QC Sample #46103**							
			Original 111100001						**Paired 46102**	
Silver	7440-22-4	<0.11	103	mg/kg	101.9	70 - 130	1.40	30		01/16/11
Antimony	7440-36-0	<0.32	88.4	mg/kg	87.8	70 - 130	4.70	30		01/16/11
Cadmium	7440-43-9		104	mg/kg	103	70 - 130	1.50	30		01/16/11
Lead	7439-92-1		102	mg/kg	101.5	70 - 130	1.60	30		01/16/11
Thallium	7440-28-0		101	mg/kg	100.4	70 - 130	2.10	30		01/16/11
Arsenic	7440-38-2	6.03	103	mg/kg	102.5	70 - 130	1.10	30		01/16/11
Selenium	7782-49-2	1.36	97.8	mg/kg	97.2	70 - 130	0.20	30		01/16/11

Date: 21 June 2011
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: WMA C
Subject: General Chemistry - Sample Data Group (SDG) 20100660

INTRODUCTION

This memorandum presents the results of data validation for SDG 20100660 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
B26C59	8/24/2010	Soil	C	See note 1
B26JL0	8/17/2010	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 exception. Sample B26JL0 was analyzed for pH 34 days after sample collection. Based on professional judgment, this result should be qualified as an estimate and flagged "J."

- **Blanks**

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

Laboratory Blanks

All laboratory blank results were acceptable with the following exceptions. For batches 21436 and 21732, the ammonium laboratory blank results were > the MDLs. The ammonium result for sample B26JL0 was a detect >5X the associated laboratory blank result and should not be qualified. The ammonium result for sample B26C59 was a detect <5X the associated laboratory blank result and should be qualified as a non-detect at the sample concentration (1.60 ug/g) and flagged "U."

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 batch 22014, the MS recovery for cyanide was < the lower acceptance limit. The cyanide result for sample B26JL0 was a non-detect and should be qualified as an estimate and flagged "UJ."

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.

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 20100660 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 a holding time infraction, a laboratory blank infraction, and an MS recovery infraction. 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: 20100660	Reviewer: AQA	Project: WMA C	Page 1 of 1
Analyte(s)	**DV Flag**	**Samples Affected**	**Reason**
pH	J	B26JL0	Analysis beyond the holding time
Ammonium	1.60U	B26C59	Lab blank contamination
Cyanide	UJ	B26JL0	Low MS recovery

Comments: None

Appendix 3

Annotated Laboratory Reports

Data Summary Report

Sample Group: 20100660
Core Number: C7682
Customer Sample ID: B26C59
Sample Depth: 88-90

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002467			%WATERA	%WATER APD	%	n/a	n/a	4.150	n/a	n/a	n/a	n/a	0.01000	n/a	
S10V002467			57-12-5	Cyanide	ug/g	105	<0.0370	<2.58	n/a	n/a	n/a	n/a	2.58	n/a	U
S10V002467			7439-97-6	Mercury	ug/g	87.7	<1.00E-04	<9.63E-03	n/a	n/a	n/a	n/a	9.63E-03	n/a	U
S10V002467			PH	pH	unitless	n/a	n/a	8.59	n/a	n/a	n/a	n/a	0.0100	n/a	
S10V002467			12597-04-5	Sulfide	ug/g	96.1	<0.180	8.04	n/a	n/a	n/a	n/a	7.10	n/a	B
S10V002468			13966-00-2	Potassium-40	uCi/g	n/a	n/a	1.88E-05	1.76E-05	n/a	n/a	n/a	7.75E-06	28.59	
S10V002468			10198-40-0	Cobalt-60	uCi/g	98.2	<3.92E-07	<3.95E-07	<3.81E-07	n/a	n/a	n/a	3.95E-07	n/a	U
S10V002468			14234-35-6	Antimony-125	uCi/g	n/a	<1.02E-06	<1.05E-06	<1.02E-06	n/a	n/a	n/a	1.05E-06	n/a	U
S10V002468			10045-97-3	Cesium-137	uCi/g	100	<5.19E-07	<5.86E-07	<5.37E-07	n/a	n/a	n/a	5.86E-07	n/a	U
S10V002468			14683-23-9	Europium-152	uCi/g	n/a	<1.88E-06	<1.92E-06	<1.99E-06	n/a	n/a	n/a	1.92E-06	n/a	U
S10V002468			15585-10-1	Europium-154	uCi/g	n/a	<1.08E-06	<1.38E-06	<1.19E-06	n/a	n/a	n/a	1.38E-06	n/a	U
S10V002468			14391-16-3	Europium-155	uCi/g	n/a	<9.28E-07	<1.03E-06	<1.02E-06	n/a	n/a	n/a	1.03E-06	n/a	U
S10V002468			14274-82-9	Thorium-228	uCi/g	n/a	<2.19E-05	<2.43E-05	<2.43E-05	n/a	n/a	n/a	2.43E-05	n/a	U
S10V002468			15065-10-8	Thorium-234	uCi/g	n/a	<1.82E-05	<2.01E-05	<1.87E-05	n/a	n/a	n/a	2.01E-05	n/a	U
S10V002468			15046-84-1	Iodine-129	uCi/g	113	<1.93E-07	<1.65E-07	n/a	n/a	n/a	n/a	1.65E-07	n/a	U
S10V002469		WV	14133-76-7	Technetium-99	ug/g	110	<3.00E-06	<3.02E-06	n/a	n/a	n/a	n/a	3.02E-06	n/a	U
S10V002470		W	14762-75-5	Carbon-14	uCi/g	92.4	<1.33E-07	<1.31E-06	n/a	n/a	n/a	n/a	1.31E-06	n/a	U
S10V002470		W	10028-17-8	Tritium	uCi/g	94.7	<4.95E-06	2.68E-06	n/a	n/a	n/a	n/a	2.50E-06	164.945	
S10V002471		A	7440-36-0	Antimony	ug/g	99.9	<2.00E-04	0.170	n/a	n/a	n/a	n/a	9.84E-03	n/a	
S10V002472		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	60.8	<77.4	<76.5	n/a	n/a	n/a	n/a	76.5	n/a	U
S10V002472		O	95-50-1	1,2-Dichlorobenzene	ug/kg	n/a	<101	<99.5	n/a	n/a	n/a	n/a	99.5	n/a	U
S10V002472		O	121-14-2	2,4-Dinitrotoluene	ug/kg	80.2	<38.1	<37.7	n/a	n/a	n/a	n/a	37.7	n/a	U
S10V002472		O	95-95-4	2,4,5-Trichlorophenol	ug/kg	n/a	<44.0	<43.5	n/a	n/a	n/a	n/a	43.5	n/a	U
S10V002472		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
S10V002472		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
S10V002472		O	88-75-5	2-Nitrophenol	ug/kg	n/a	<53.7	<53.1	n/a	n/a	n/a	n/a	53.1	n/a	U
S10V002472		O	65794-96-9	3 &4 Methylphenol	ug/kg	n/a	<51.4	<50.8	n/a	n/a	n/a	n/a	50.8	n/a	U
S10V002472		O	83-32-9	Acenaphthene	ug/kg	68.8	<17.6	<17.4	n/a	n/a	n/a	n/a	17.4	n/a	U
S10V002472		O	56-55-3	Benzo(a)anthracene	ug/kg	n/a	<37.8	<37.4	n/a	n/a	n/a	n/a	37.4	n/a	U

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LS
6-21-2011

M - RPD Outside Range
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Data Summary Report

Sample Group: 20100660
Core Number: C7682
Customer Sample ID: B26C59
Sample Depth: 88-90

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002472		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
S10V002472		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
S10V002472		O	117-81-7	Bis(2-ethylhexyl) phthalate	ug/kg	n/a	<590	<583	n/a	n/a	n/a	n/a	583	n/a	U
S10V002472		O	207-08-9	Benzo(k)fluoranthene	ug/kg	n/a	<39.1	<38.7	n/a	n/a	n/a	n/a	38.7	n/a	U
S10V002472		O	85-68-7	Butylbenzylphthalate	ug/kg	n/a	<50.0	<49.4	n/a	n/a	n/a	n/a	49.4	n/a	U
S10V002472		O	59-50-7	4-Chloro-3-methylphenol	ug/kg	62.4	<43.2	<42.7	n/a	n/a	n/a	n/a	42.7	n/a	U
S10V002472		O	95-57-8	2-Chlorophenol	ug/kg	67.6	<66.5	<65.7	n/a	n/a	n/a	n/a	65.7	n/a	U
S10V002472		O	218-01-9	Chrysene	ug/kg	n/a	<81.4	<80.5	n/a	n/a	n/a	n/a	80.5	n/a	U
S10V002472		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
S10V002472		O	84-74-2	Di-n-butylphthalate	ug/kg	n/a	<562	<556	n/a	n/a	n/a	n/a	556	n/a	U
S10V002472		O	117-84-0	Di-n-octylphthalate	ug/kg	n/a	<47.7	<47.2	n/a	n/a	n/a	n/a	47.2	n/a	U
S10V002472		O	621-64-7	N-Nitroso-di-n-dipropylamine	ug/kg	61.9	<58.1	<57.4	n/a	n/a	n/a	n/a	57.4	n/a	U
S10V002472		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
S10V002472		O	87-68-3	Hexachlorobutadiene	ug/kg	n/a	<69.7	<68.9	n/a	n/a	n/a	n/a	68.9	n/a	U
S10V002472		O	67-72-1	Hexachloroethane	ug/kg	n/a	<112	<111	n/a	n/a	n/a	n/a	111	n/a	U
S10V002472		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
S10V002472		O	91-20-3	Naphthalene	ug/kg	n/a	<62.6	<61.9	n/a	n/a	n/a	n/a	61.9	n/a	U
S10V002472		O	98-95-3	Nitrobenzene	ug/kg	n/a	<64.6	<63.9	n/a	n/a	n/a	n/a	63.9	n/a	U
S10V002472		O	129-00-0	Pyrene	ug/kg	80.1	<62.9	<62.2	n/a	n/a	n/a	n/a	62.2	n/a	U
S10V002472		O	110-86-1	Pyridine	ug/kg	n/a	<65.0	<64.3	n/a	n/a	n/a	n/a	64.3	n/a	U
S10V002472		O	126-73-8	Tributyl phosphate	ug/kg	n/a	<108	<107	n/a	n/a	n/a	n/a	107	n/a	U
S10V002472		O	128-37-0	BHT	ug/kg	n/a	<236	<233	n/a	n/a	n/a	n/a	233	n/a	U
S10V002472		O	110-80-5	2-Ethoxyethanol	ug/kg	n/a	<182	<180	n/a	n/a	n/a	n/a	180	n/a	U
S10V002472		O	1319-77-3	Total Methylphenols	ug/kg	n/a	<107	<105	n/a	n/a	n/a	n/a	105	n/a	U
S10V002472		O	108-94-1	Cyclohexanone	ug/kg	n/a	<558	<552	n/a	n/a	n/a	n/a	552	n/a	U
S10V002472		O	59-89-2	N-Nitrosomorpholine	ug/kg	n/a	<191	<189	n/a	n/a	n/a	n/a	189	n/a	U
S10V002472		O	78-83-1	Isobutanol	ug/kg	n/a	<460	<455	n/a	n/a	n/a	n/a	455	n/a	U
S10V002473		W	16984-48-8	Fluoride	ug/g	98.6	<1.61E-03	0.739	n/a	n/a	n/a	n/a	0.0160	n/a	
S10V002473		W	GLYCOLAT	Glycolate	ug/g	98.0	<9.37E-03	<0.0933	n/a	n/a	n/a	n/a	0.0933	n/a	U

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LS
6-21-2011

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Data Summary Report

Sample Group: 20100660
Core Number: C7682
Customer Sample ID: B26C59
Sample Depth: 88-90

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002473	W	71-50-1	Acetate	ug/g	95.0	<6.04E-03	0.202	n/a	n/a	n/a	n/a	0.0602	n/a	B
S10V002473	W	FORMATE	Formate	ug/g	99.0	<4.67E-03	0.204	n/a	n/a	n/a	n/a	0.0465	n/a	B
S10V002473	W	16887-00-6	Chloride	ug/g	97.1	<9.98E-03	9.75	n/a	n/a	n/a	n/a	0.0994	n/a	
S10V002473	W	14797-65-0	Nitrite	ug/g	97.3	<0.0192	1.24	n/a	n/a	n/a	n/a	0.191	n/a	B
S10V002473	W	14808-79-8	Sulfate	ug/g	99.3	<0.0187	96.7	n/a	n/a	n/a	n/a	0.186	n/a	
S10V002473	W	338-70-5	Oxalate	ug/g	99.8	<0.0231	<0.230	n/a	n/a	n/a	n/a	0.230	n/a	U
S10V002473	W	24959-67-9	Bromide	ug/g	97.9	<0.0580	<0.578	n/a	n/a	n/a	n/a	0.578	n/a	U
S10V002473	W	14797-55-8	Nitrate	ug/g	98.3	<0.0208	19.2	n/a	n/a	n/a	n/a	0.207	n/a	
S10V002473	W	14265-44-2	Phosphate	ug/g	98.0	<0.0167	<0.166	n/a	n/a	n/a	n/a	0.166	n/a	U
S10V002474	A	7429-90-5	Aluminum	ug/g	94.0	<0.0300	6.36E+03	n/a	n/a	n/a	n/a	2.48	n/a	
S10V002474	A	7440-39-3	Barium	ug/g	102	<3.00E-03	64.3	n/a	n/a	n/a	n/a	0.248	n/a	
S10V002474	A	7440-41-7	Beryllium	ug/g	106	<1.00E-03	0.160	n/a	n/a	n/a	n/a	0.0825	n/a	B
S10V002474	A	7440-70-2	Calcium	ug/g	91.9	<0.0500	7.87E+03	n/a	n/a	n/a	n/a	4.13	n/a	
S10V002474	A	7440-45-1	Cerium	ug/g	101	<0.0300	13.3	n/a	n/a	n/a	n/a	2.48	n/a	B
S10V002474	A	7440-48-4	Cobalt	ug/g	98.4	0.0122	5.43	n/a	n/a	n/a	n/a	0.825	n/a	B
S10V002474	A	7440-47-3	Chromium	ug/g	97.7	<5.00E-03	24.6	n/a	n/a	n/a	n/a	0.413	n/a	
S10V002474	A	7440-50-8	Copper	ug/g	102	<5.00E-03	10.1	n/a	n/a	n/a	n/a	0.413	n/a	
S10V002474	A	7439-89-6	Iron	ug/g	98.2	5.24E-03	1.41E+04	n/a	n/a	n/a	n/a	0.413	n/a	
S10V002474	A	7440-09-7	Potassium	ug/g	89.7	<0.500	1.16E+03	n/a	n/a	n/a	n/a	41.3	n/a	
S10V002474	A	7439-91-0	Lanthanum	ug/g	102	<3.00E-03	6.39	n/a	n/a	n/a	n/a	0.248	n/a	
S10V002474	A	7439-93-2	Lithium	ug/g	108	<3.00E-03	9.71	n/a	n/a	n/a	n/a	0.248	n/a	
S10V002474	A	7439-95-4	Magnesium	ug/g	95.5	<0.0500	4.80E+03	n/a	n/a	n/a	n/a	4.13	n/a	
S10V002474	A	7439-96-5	Manganese	ug/g	97.0	<3.00E-03	283	n/a	n/a	n/a	n/a	0.248	n/a	
S10V002474	A	7439-98-7	Molybdenum	ug/g	108	<0.0200	<1.65	n/a	n/a	n/a	n/a	1.65	n/a	U
S10V002474	A	7440-23-5	Sodium	ug/g	107	<0.100	145	n/a	n/a	n/a	n/a	8.25	n/a	
S10V002474	A	7440-02-0	Nickel	ug/g	95.7	<0.0200	18.2	n/a	n/a	n/a	n/a	1.65	n/a	
S10V002474	A	7723-14-0	Phosphorus	ug/g	106	<0.0500	479	n/a	n/a	n/a	n/a	4.13	n/a	
S10V002474	A	7704-34-9	Sulfur	ug/g	106	<0.100	62.5	n/a	n/a	n/a	n/a	8.25	n/a	B
S10V002474	A	7440-21-3	Silicon	ug/g	89.3	<0.0300	58.7	n/a	n/a	n/a	n/a	2.48	n/a	

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LS
6-21-2011

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Data Summary Report

Sample Group: 20100660
Core Number: C7682
Customer Sample ID: B26C59
Sample Depth: 88-90

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002474		A	7440-24-6	Strontium	ug/g	102	<3.00E-03	34.0	n/a	n/a	n/a	n/a	0.248	n/a	
S10V002474		A	7440-32-6	Titanium	ug/g	107	<5.00E-03	561	n/a	n/a	n/a	n/a	0.413	n/a	
S10V002474		A	7440-62-2	Vanadium	ug/g	100	<5.00E-03	25.8	n/a	n/a	n/a	n/a	0.413	n/a	
S10V002474		A	7440-65-5	Yttrium	ug/g	93.7	<2.00E-03	4.91	n/a	n/a	n/a	n/a	0.165	n/a	
S10V002474		A	7440-66-6	Zinc	ug/g	96.7	<5.00E-03	33.0	n/a	n/a	n/a	n/a	0.413	n/a	
S10V002474		A	7440-67-7	Zirconium	ug/g	105	<5.00E-03	5.24	n/a	n/a	n/a	n/a	0.413	n/a	N
S10V002474		A	14269-63-7	Thorium-230	ug/g	n/a	5.21E-06	8.71E-05	n/a	n/a	n/a	n/a	2.81E-05	n/a	B
S10V002474		A	TH-232	Thorium-232	ug/g	104	<2.00E-04	4.01	n/a	n/a	n/a	n/a	2.00E-03	n/a	
S10V002474		A	13968-55-3	Uranium-233	ug/g	n/a	<4.00E-06	2.11E-04	n/a	n/a	n/a	n/a	4.01E-05	n/a	
S10V002474		A	13966-29-5	Uranium-234	ug/g	n/a	<2.00E-06	3.77E-05	n/a	n/a	n/a	n/a	2.00E-05	n/a	
S10V002474		A	15117-96-1	Uranium-235	ug/g	94.8	<4.00E-06	3.41E-03	n/a	n/a	n/a	n/a	4.01E-05	n/a	
S10V002474		A	13982-70-2	Uranium-236	ug/g	n/a	<1.60E-06	2.19E-05	n/a	n/a	n/a	n/a	1.60E-05	n/a	B
S10V002474		A	13994-20-2	Neptunium-237	ug/g	102	<4.00E-05	<4.01E-04	n/a	n/a	n/a	n/a	4.01E-04	n/a	U
S10V002474		A	U-238	Uranium-238	ug/g	104	<2.00E-04	0.513	n/a	n/a	n/a	n/a	2.00E-03	n/a	
S10V002475		S	14798-03-9	Ammonium 1.60U	ug/g	104	0.0279	1.60	n/a	n/a	n/a	n/a	0.477	n/a	CB
S10V002476		A	14133-76-7	Technetium-99	ug/g	109	<3.00E-05	<2.97E-04	n/a	n/a	n/a	n/a	2.97E-04	n/a	U
S10V002476		A	SN-117	Tin-117	ug/g	102	<1.00E-03	<9.90E-03	n/a	n/a	n/a	n/a	9.90E-03	n/a	U
S10V002476		A	15832-50-5	Tin-126	ug/g	n/a	<2.00E-05	4.55E-04	n/a	n/a	n/a	n/a	1.98E-04	n/a	B
S10V002477		E	CM-243/244	Curium-243/244	uCi/g	n/a	<2.19E-07	<2.43E-07	<1.67E-07	n/a	n/a	n/a	2.43E-07	n/a	U
S10V002477		E	14596-10-2	Americium-241	uCi/g	103	<5.46E-07	<6.09E-07	<4.16E-07	n/a	n/a	n/a	6.09E-07	n/a	U
S10V002477		E	15510-73-3	Curium-242	uCi/g	n/a	<2.19E-07	<2.43E-07	<1.67E-07	n/a	n/a	n/a	2.44E-07	n/a	U
S10V002477		E	PU-239/240	Plutonium-239/240	uCi/g	98.9	<5.46E-07	<4.67E-07	<2.98E-07	n/a	n/a	n/a	4.67E-07	n/a	U
S10V002477		E	13981-16-3	Plutonium-238	uCi/g	n/a	<5.46E-07	<4.67E-07	<2.98E-07	n/a	n/a	n/a	4.67E-07	n/a	U
S10V002478		E	SR-89/90	Strontium-89/90	uCi/g	101	<2.09E-07	<7.13E-07	<5.62E-07	n/a	n/a	n/a	7.13E-07	n/a	U
S10V002479		E	13981-37-8	Nickel-63	uCi/g	90.8	<3.89E-06	<5.10E-06	<4.89E-06	n/a	n/a	n/a	5.10E-06	n/a	U
S10V002479		E	15758-45-9	Selenium-79	uCi/g	n/a	<2.73E-06	<2.45E-06	<4.03E-06	n/a	n/a	n/a	2.45E-06	n/a	U

LS
6-21-2011

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Data Summary Report

Sample Group: 20100660
Core Number: C7682
Customer Sample ID: B26JL0
Sample Depth: Surface

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
~~S10V002280~~			~~%WATERA~~	~~%WATER-APD~~	~~%~~	~~n/a~~	~~n/a~~	~~4.880~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~0.01000~~	~~n/a~~	
S10V002280			57-12-5	Cyanide UJ	ug/g	96.5	<0.0370	<2.66	<2.65	n/a	n/a	74.4	2.66	n/a	UN
~~S10V002280~~			~~7439-97-6~~	~~Mercury~~	~~ug/g~~	~~100~~	~~<1.00E-04~~	~~<9.16E-03~~	~~n/a~~	~~n/a~~	~~n/a~~	~~101~~	~~9.16E-03~~	~~n/a~~	~~U~~
S10V002280			PH	pH J	unitless	n/a	n/a	9.37	n/a	n/a	n/a	n/a	0.0100	n/a	
S10V002280			12597-04-5	Sulfide	ug/g	95.5	<0.180	10.2	10.4	10.3	1.85	97.2	7.12	n/a	B
~~S10V002281~~			~~13966-00-2~~	~~Potassium-40~~	~~uCi/g~~	~~n/a~~	~~n/a~~	~~2.00E-05~~	~~n/a~~	~~n/a~~	~~n/a~~	~~n/a~~	~~7.73E-06~~	~~26.95~~	
S10V002281			10198-40-0	Cobalt-60	uCi/g	98.2	<3.92E-07	<4.11E-07	n/a	n/a	n/a	n/a	4.11E-07	n/a	U
S10V002281			14234-35-6	Antimony-125	uCi/g	n/a	<1.02E-06	<9.85E-07	n/a	n/a	n/a	n/a	9.85E-07	n/a	U
S10V002281			10045-97-3	Cesium-137	uCi/g	100	<5.19E-07	<5.66E-07	n/a	n/a	n/a	n/a	5.66E-07	n/a	U
S10V002281			14683-23-9	Europium-152	uCi/g	n/a	<1.88E-06	<1.90E-06	n/a	n/a	n/a	n/a	1.90E-06	n/a	U
S10V002281			15585-10-1	Europium-154	uCi/g	n/a	<1.08E-06	<1.22E-06	n/a	n/a	n/a	n/a	1.22E-06	n/a	U
S10V002281			14391-16-3	Europium-155	uCi/g	n/a	<9.28E-07	<1.03E-06	n/a	n/a	n/a	n/a	1.03E-06	n/a	U
S10V002281			14274-82-9	Thorium-228	uCi/g	n/a	<2.19E-05	<2.48E-05	n/a	n/a	n/a	n/a	2.48E-05	n/a	U
S10V002281			15065-10-8	Thorium-234	uCi/g	n/a	<1.82E-05	<1.97E-05	n/a	n/a	n/a	n/a	1.97E-05	n/a	U
S10V002281			15046-84-1	Iodine-129	uCi/g	111	<1.83E-07	<1.55E-07	n/a	n/a	n/a	n/a	1.55E-07	n/a	U
S10V002282		WV	14133-76-7	Technetium-99	ug/g	110	<3.00E-06	<2.95E-06	n/a	n/a	n/a	n/a	2.95E-06	n/a	U
S10V002283		W	14762-75-5	Carbon-14	uCi/g	92.4	<1.33E-07	<1.39E-06	n/a	n/a	n/a	n/a	1.39E-06	n/a	U
S10V002283		W	10028-17-8	Tritium	uCi/g	94.7	<4.95E-06	<4.62E-06	n/a	n/a	n/a	n/a	4.62E-06	n/a	U
S10V002284		A	7440-36-0	Antimony	ug/g	99.9	<2.00E-04	0.207	0.191	0.199	8.07	81.1	9.43E-03	n/a	
S10V002285		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	65.7	<77.4	<77.4	n/a	n/a	n/a	n/a	77.4	n/a	U
S10V002285		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
S10V002285		O	121-14-2	2,4-Dinitrotoluene	ug/kg	89.9	<38.1	<38.1	n/a	n/a	n/a	n/a	38.1	n/a	U
S10V002285		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
S10V002285		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
S10V002285		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
S10V002285		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
S10V002285		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
S10V002285		O	83-32-9	Acenaphthene	ug/kg	75.0	<17.6	<17.6	n/a	n/a	n/a	n/a	17.6	n/a	U
~~S10V002285~~		~~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~~

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LS
6-21-2011

Data Summary Report

Sample Group: 20100660
Core Number: C7682
Customer Sample ID: B26JL0
Sample Depth: Surface

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002285		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
S10V002285		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
S10V002285		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
S10V002285		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
S10V002285		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
S10V002285		O	59-50-7	4-Chloro-3-methylphenol	ug/kg	69.6	<43.2	<43.2	n/a	n/a	n/a	n/a	43.2	n/a	U
S10V002285		O	95-57-8	2-Chlorophenol	ug/kg	73.2	<66.5	<66.5	n/a	n/a	n/a	n/a	66.5	n/a	U
S10V002285		O	218-01-9	Chrysene	ug/kg	n/a	<81.4	<81.4	n/a	n/a	n/a	n/a	81.4	n/a	U
S10V002285		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
S10V002285		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
S10V002285		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
S10V002285		O	621-64-7	N-Nitroso-di-n-dipropylamine	ug/kg	66.9	<58.1	<58.1	n/a	n/a	n/a	n/a	58.1	n/a	U
S10V002285		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
S10V002285		O	87-68-3	Hexachlorobutadiene	ug/kg	n/a	<69.7	<69.7	n/a	n/a	n/a	n/a	69.7	n/a	U
S10V002285		O	67-72-1	Hexachloroethane	ug/kg	n/a	<112	<112	n/a	n/a	n/a	n/a	112	n/a	U
S10V002285		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
S10V002285		O	91-20-3	Naphthalene	ug/kg	n/a	<62.6	<62.6	n/a	n/a	n/a	n/a	62.6	n/a	U
S10V002285		O	98-95-3	Nitrobenzene	ug/kg	n/a	<64.6	<64.6	n/a	n/a	n/a	n/a	64.6	n/a	U
S10V002285		O	129-00-0	Pyrene	ug/kg	83.7	<62.9	<62.9	n/a	n/a	n/a	n/a	62.9	n/a	U
S10V002285		O	110-86-1	Pyridine	ug/kg	n/a	<65.0	<65.0	n/a	n/a	n/a	n/a	65.0	n/a	U
S10V002285		O	126-73-8	Tributyl phosphate	ug/kg	n/a	<108	<108	n/a	n/a	n/a	n/a	108	n/a	U
S10V002285		O	128-37-0	BHT	ug/kg	n/a	<236	<236	n/a	n/a	n/a	n/a	236	n/a	U
S10V002285		O	110-80-5	2-Ethoxyethanol	ug/kg	n/a	<182	<182	n/a	n/a	n/a	n/a	182	n/a	U
S10V002285		O	1319-77-3	Total Methylphenols	ug/kg	n/a	<107	<107	n/a	n/a	n/a	n/a	107	n/a	U
S10V002285		O	108-94-1	Cyclohexanone	ug/kg	n/a	<558	<558	n/a	n/a	n/a	n/a	558	n/a	U
S10V002285		O	59-89-2	N-Nitrosomorpholine	ug/kg	n/a	<191	<191	n/a	n/a	n/a	n/a	191	n/a	U
S10V002285		O	78-83-1	Isobutanol	ug/kg	n/a	<460	<460	n/a	n/a	n/a	n/a	460	n/a	U
S10V002286		W	16984-48-8	Fluoride	ug/g	98.6	<1.61E-03	1.96	n/a	n/a	n/a	n/a	0.0161	n/a	
S10V002286		W	GLYCOLAT	Glycolate	ug/g	98.0	<9.37E-03	<0.0935	n/a	n/a	n/a	n/a	0.0935	n/a	U

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LS
6-21-2011

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Data Summary Report

Sample Group: 20100660
Core Number: C7682
Customer Sample ID: B26JL0
Sample Depth: Surface

Sample# R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002286	W	71-50-1	Acetate	ug/g	95.0	<6.04E-03	0.160	n/a	n/a	n/a	n/a	0.0603	n/a	B
S10V002286	W	FORMATE	Formate	ug/g	99.0	<4.67E-03	0.168	n/a	n/a	n/a	n/a	0.0466	n/a	B
S10V002286	W	16887-00-6	Chloride	ug/g	97.1	<9.98E-03	36.3	n/a	n/a	n/a	n/a	0.0996	n/a	
S10V002286	W	14797-65-0	Nitrite	ug/g	97.3	<0.0192	0.963	n/a	n/a	n/a	n/a	0.192	n/a	B
S10V002286	W	14808-79-8	Sulfate	ug/g	99.3	<0.0187	11.8	n/a	n/a	n/a	n/a	0.187	n/a	
S10V002286	W	338-70-5	Oxalate	ug/g	99.8	<0.0231	2.10	n/a	n/a	n/a	n/a	0.231	n/a	B
S10V002286	W	24959-67-9	Bromide	ug/g	97.9	<0.0580	<0.579	n/a	n/a	n/a	n/a	0.579	n/a	U
S10V002286	W	14797-55-8	Nitrate	ug/g	98.3	<0.0208	53.0	n/a	n/a	n/a	n/a	0.208	n/a	
S10V002286	W	14265-44-2	Phosphate	ug/g	98.0	<0.0167	5.60	n/a	n/a	n/a	n/a	0.167	n/a	
S10V002288	A	7429-90-5	Aluminum	ug/g	94.0	<0.0300	5.91E+03	5.99E+03	5.95E+03	1.33	1.31E+03	2.48	n/a	
S10V002288	A	7440-39-3	Barium	ug/g	102	<3.00E-03	76.6	75.9	76.3	0.930	95.1	0.248	n/a	
S10V002288	A	7440-41-7	Beryllium	ug/g	106	<1.00E-03	0.203	0.217	0.210	6.70	94.5	0.0825	n/a	B
S10V002288	A	7440-70-2	Calcium	ug/g	91.9	<0.0500	1.05E+04	1.18E+04	1.11E+04	12.0	2.06E+03	4.13	n/a	
S10V002288	A	7440-45-1	Cerium	ug/g	101	<0.0300	18.0	18.8	18.4	4.70	105	2.48	n/a	B
S10V002288	A	7440-48-4	Cobalt	ug/g	98.4	0.0122	7.11	6.84	6.98	3.89	96.7	0.825	n/a	B
S10V002288	A	7440-47-3	Chromium	ug/g	97.7	<5.00E-03	7.25	7.81	7.53	7.49	96.3	0.413	n/a	
S10V002288	A	7440-50-8	Copper	ug/g	102	<5.00E-03	10.8	11.4	11.1	4.85	98.7	0.413	n/a	
S10V002288	A	7439-89-6	Iron	ug/g	98.2	5.24E-03	1.57E+04	1.66E+04	1.61E+04	5.50	2.36E+03	0.413	n/a	
S10V002288	A	7440-09-7	Potassium	ug/g	89.7	<0.500	1.26E+03	1.34E+03	1.30E+03	5.87	216	41.3	n/a	
S10V002288	A	7439-91-0	Lanthanum	ug/g	102	<3.00E-03	8.16	7.99	8.08	2.06	94.1	0.248	n/a	
S10V002288	A	7439-93-2	Lithium	ug/g	108	<3.00E-03	7.56	7.86	7.71	3.87	102	0.248	n/a	
S10V002288	A	7439-95-4	Magnesium	ug/g	95.5	<0.0500	4.62E+03	4.83E+03	4.73E+03	4.37	666	4.13	n/a	
S10V002288	A	7439-96-5	Manganese	ug/g	97.0	<3.00E-03	317	317	317	0.262	83.8	0.248	n/a	
S10V002288	A	7439-98-7	Molybdenum	ug/g	108	<0.0200	<1.65	<1.66	n/a	n/a	86.2	1.65	n/a	U
S10V002288	A	7440-23-5	Sodium	ug/g	107	<0.100	625	642	633	2.71	234	8.25	n/a	
S10V002288	A	7440-02-0	Nickel	ug/g	95.7	<0.0200	8.33	8.32	8.33	0.0979	97.6	1.65	n/a	B
S10V002288	A	7723-14-0	Phosphorus	ug/g	106	<0.0500	775	781	778	0.782	6.75	4.13	n/a	
S10V002288	A	7704-34-9	Sulfur	ug/g	106	<0.100	71.5	75.6	73.6	5.59	95.3	8.25	n/a	B
S10V002288	A	7440-21-3	Silicon	ug/g	89.3	<0.0300	77.7	74.6	76.1	4.06	95.1	2.48	n/a	

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LS
6-21-2011

Data Summary Report

Sample Group: 20100660
Core Number: C7682
Customer Sample ID: B26JL0
Sample Depth: Surface

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002288		A	7440-24-6	Strontium	ug/g	102	<3.00E-03	25.4	27.2	26.3	6.53	98.6	0.248	n/a	
S10V002288		A	7440-32-6	Titanium	ug/g	107	<5.00E-03	635	653	644	2.67	397	0.413	n/a	
S10V002288		A	7440-62-2	Vanadium	ug/g	100	<5.00E-03	25.2	27.6	26.4	9.02	104	0.413	n/a	
S10V002288		A	7440-65-5	Yttrium	ug/g	93.7	<2.00E-03	8.09	8.00	8.04	1.14	96.5	0.165	n/a	
S10V002288		A	7440-66-6	Zinc	ug/g	96.7	<5.00E-03	34.4	36.5	35.5	5.90	99.6	0.413	n/a	
S10V002288		A	7440-67-7	Zirconium	ug/g	105	<5.00E-03	9.31	8.86	9.08	4.98	50.4	0.413	n/a	N
S10V002288		A	14269-63-7	Thorium-230	ug/g	n/a	5.21E-06	<2.81E-05	n/a	n/a	n/a	n/a	2.81E-05	n/a	U
S10V002288		A	TH-232	Thorium-232	ug/g	104	<2.00E-04	3.43	n/a	n/a	n/a	n/a	2.01E-03	n/a	
S10V002288		A	13968-55-3	Uranium-233	ug/g	n/a	<4.00E-06	1.88E-04	n/a	n/a	n/a	n/a	4.01E-05	n/a	
S10V002288		A	13966-29-5	Uranium-234	ug/g	n/a	<2.00E-06	<2.01E-05	n/a	n/a	n/a	n/a	2.01E-05	n/a	U
S10V002288		A	15117-96-1	Uranium-235	ug/g	94.8	<4.00E-06	3.01E-03	n/a	n/a	n/a	n/a	4.01E-05	n/a	
S10V002288		A	13982-70-2	Uranium-236	ug/g	n/a	<1.60E-06	<1.60E-05	n/a	n/a	n/a	n/a	1.60E-05	n/a	U
S10V002288		A	13994-20-2	Neptunium-237	ug/g	102	<4.00E-05	<4.01E-04	n/a	n/a	n/a	n/a	4.01E-04	n/a	U
S10V002288		A	U-238	Uranium-238	ug/g	104	<2.00E-04	0.446	n/a	n/a	n/a	n/a	2.01E-03	n/a	
S10V002290		S	14798-03-9	Ammonium	ug/g	101	0.0486	10.5	13.1	11.8	21.9	98.6	0.477	n/a	
S10V002291		A	14133-76-7	Technetium-99	ug/g	109	<3.00E-05	<3.00E-04	n/a	n/a	n/a	n/a	3.00E-04	n/a	U
S10V002291		A	SN-117	Tin-117	ug/g	102	<1.00E-03	0.0110	n/a	n/a	n/a	n/a	0.0100	n/a	
S10V002291		A	15832-50-5	Tin-126	ug/g	n/a	<2.00E-05	4.11E-04	n/a	n/a	n/a	n/a	2.00E-04	n/a	B
S10V002294		E	CM-243/244	Curium-243/244	uCi/g	n/a	<2.19E-07	<1.70E-07	n/a	n/a	n/a	n/a	1.70E-07	n/a	U
S10V002294		E	14596-10-2	Americium-241	uCi/g	103	<5.46E-07	<4.24E-07	n/a	n/a	n/a	n/a	4.24E-07	n/a	U
S10V002294		E	15510-73-3	Curium-242	uCi/g	n/a	<2.19E-07	<1.70E-07	n/a	n/a	n/a	n/a	1.70E-07	n/a	U
S10V002294		E	PU-239/240	Plutonium-239/240	uCi/g	98.9	<5.46E-07	<2.98E-07	n/a	n/a	n/a	n/a	2.98E-07	n/a	U
S10V002294		E	13981-16-3	Plutonium-238	uCi/g	n/a	<5.46E-07	<2.98E-07	n/a	n/a	n/a	n/a	2.98E-07	n/a	U
S10V002301		E	SR-89/90	Strontium-89/90	uCi/g	101	<2.09E-07	<6.20E-07	n/a	n/a	n/a	n/a	6.20E-07	n/a	U
S10V002303		E	13981-37-8	Nickel-63	uCi/g	90.8	<3.89E-06	<4.65E-06	n/a	n/a	n/a	n/a	4.65E-06	n/a	U
S10V002303		E	15758-45-9	Selenium-79	uCi/g	n/a	<2.73E-06	<1.97E-06	n/a	n/a	n/a	n/a	1.97E-06	n/a	U

LS
6-21-2011

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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 C7682 IN SUPPORT OF RCRA SOIL CHARACTERIZATION OF THE VADOSE ZONE

1.0 INTRODUCTION

This final report presents the results for the samples taken from Waste Management Area C between August 17, 2010 and August 25, 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 QC Results
Attachment 5	Tentatively Identified Compounds (TIC) for Organic Analyses
Attachment 6	Analytical Batch and Laboratory Sample Identification Number Index
Attachment 7	Geological Report
Attachment 8	Characterization Change Notices (CCN) and Correspondence
Attachment 9	Receipt Paperwork
Appendix A	Analytical Report for Analysis Performed at the Waste Sampling and Characterization Facility (WSCF) - Metals Analysis

2.0 SAMPLE RECEIPT AND BREAKDOWN

2.1 SAMPLE RECEIPT

A total of eight core intervals and two surface grab samples from core hole C7682 along with nine field blanks, six trip blanks, and one equipment blank were received by the 222-S Laboratory between August 17, 2010 and August 25, 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 8).

In order to facilitate shipping, the 222-S Laboratory personnel store the field blank sample containers designated for offsite laboratories in a small refrigerator in the sample receipt area, which is outside the laboratory's radiological contamination area. This refrigerator exceeded its lower temperature range, and one of the three 1-liter sample containers for polychlorinated biphenyl analysis and one of the two 1-liter sample containers for pesticides and the monobutyl and dibutyl phosphate analysis froze and cracked. This resulted in the monobutyl and dibutyl phosphate analysis not being performed for the equipment blank. The issue with the refrigerator freezing samples has been resolved.

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 7. 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 and was combined with interval I003 (see Attachment 2 and Attachment 9). The sample material recovered from I002 was used for the VOA sample liners, and shoe samples from interval I003 were used to make the composite sample.

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%.

"X" for comment on VOA, see Section 3.4.1, Batch 21533.

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, liner composite samples, and the equipment blank. 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 the current laboratory procedure (lachet micro-distillation) is reporting.

Batches 21785 and 21829: There were no notable quality control (QC) issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batches 22013 and 22014: The MS for these batches exceed the ±25% at 43% and 74%. These samples were batched with samples from a separate vadose project for which the MSs were within the required range. Since the MS for the C Farm sample failed twice, it is the laboratory's opinion that there is a matrix interference. All affected sample results have been flagged with an "N". For batch 22013 the LLS was recovered outside the ±30% limit at 28% recovery. This could indicate a low bias for results near the LLS level. All sample results in this batch were below the MDL.

3.2.2 Sulfide

Sulfide analysis by distillation and ion selective electrode was performed on the grab samples, liner composite samples, and the equipment blank. 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 solid 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, liner composite samples, and the equipment blank. 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 sample compositing was performed. The sampling to analysis time varied from 1 to 34 days for the solid samples (see Attachment 3) and 15 hours for the liquid sample. There was 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 holding 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, liner composite samples, and the equipment blank. 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, liner composite samples, and the equipment blank. 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.

Batch 21436: 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 21540: Ammonium was detected in the preparation blanks at a level below the quantitation limit and above the MDL. Ammonium was also detected in all but one of the samples below the quantitation limit and less than 5 times the level of the blank; therefore, these results have been flagged with a “C”. Ammonium was also detected in one sample above the quantitation limit but at more than 5 times the level of the blank; therefore, this result has not been flagged with a “C”.

Batch 21732: Ammonium was detected in the preparation blanks at a level below the quantitation limit and above the MDL. Ammonium was also detected the samples above the quantitation limit and less than 5 times the level of the blank; therefore, these results have been flagged with a “C”.

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 at a similar level; therefore, the result has been flagged with a “C”. The RPD was above the ±30% requirement. However, since the result was below the quantitation limit this criterion did not apply.

3.2.6 Ion Chromatography – Anions and Small Organic Acids

Ion chromatography analysis was performed on all grab samples, liner composite samples, and the equipment blank. 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.

Fluoride was detected in the equipment blank above the quantitation limit. Since fluoride is commonly found in drinking water, the laboratory believes the most likely source of the fluoride was probably the water used by field personnel to make the equipment blank.

Batch 21524: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batch 22189: The RPD for oxalate exceeded the ±30% requirement in the FSAP at 139%. The laboratory believes this is likely due to sample nonhomogeneity. Since the result for the duplicate was below the quantitation limit, reanalysis was not required and no flag has been applied. The high sample result for oxalate is anomalous for vadose soil.

Batch 22897: The RPD for sulfate exceeded the ±30% requirement in the FSAP at 34%. The laboratory believes this is likely due to sample nonhomogeneity. This was discussed with the client, and the laboratory was instructed to report the result with this narration (see Attachment 8). The RPDs for nitrite and oxalate exceeded the ±30% requirement in the FSAP. Since the results for both analytes were below the quantitation limit, this criteria does not apply. A low level of nitrite was detected in the preparation blank, and the result has been flagged with a "C". Since both blank and sample results were below the quantitation limit, reanalysis was not required.

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, liner composite samples, and the equipment blank. 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 22570: The interference check standard-A (ICSA) produced positive results for arsenic, cadmium, selenium, manganese, and nickel. Since the sample results for these elements were below the MDL and the interference check sample AB (ICSAB) recoveries were within the required limit, the data usability was not affected. The initial low level standard (LLS) recovery for potassium was above the ±30% limit at 150%. Since the sample result for potassium was below the MDL, the data usability was not affected.

Batch 24239: The ICSA produced positive results for manganese. However, in the ICSAB, manganese was recovered at 98%, and there appears to be no positive interference at this concentration. Since the sample concentration for manganese is near the ICSAB concentration, the data usability was not affected. 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. Cobalt was detected in the preparation blank at slightly above the MDL. One sample result for cobalt was less than 5 times the blank result and has been flagged with "C". Since both the blank and sample results were below the quantitation limit, reanalysis was not required. The remaining 8 sample results were more than 5 times the blank result. The MS recoveries for aluminum, calcium, iron, magnesium, potassium, sodium, 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.

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, liner composite samples, and the equipment blank. The ICP/MS ^{126}Sn and ^{99}Tc analysis was performed on the same basic 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 performed 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 solid sample results for ^{126}Sn were above the MDL and below the quantitation limit. 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. 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 24429: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batch 23853: There were no notable issues with this batch, and all QC requirements in the QAPP were met. However, the laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples from another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

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.

Batch 23162: There were no notable issues with this batch, and all QC requirements in the QAPP were met. However, the laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples from another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

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 24022: The closing low level standard (LLS) for ^{235}U and ^{238}U exceeded the ±30% limit at 17% and 35%. The sample results for these isotopes were below the MDL. This could indicate a low bias for results near the LLS. However, assuming a 90% low bias, the adjusted results would still be below the quantitation limit. The closing continuing calibration blank (CCB) result for ^{237}Np was slightly above the MDL. The sample result for this isotope was below the MDL.

Batch 23864: The preparation blank and CCB results for ^{230}Th and ^{236}U were slightly above the MDL. Some of the samples had similar results that should be considered equivalent to the blank. The affected results have been flagged with a "B". The laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples for another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

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. Due to an extended room outage at the 222-S

Laboratory, samples were sent to the WSCF Laboratory by WRPS for analysis. Table 2 lists the samples and analytes that were analyzed and reported by WSCF for C7682. The WSCF report is included in Appendix A of this report, and these results will be placed in the Hanford Environmental Information System. The WSCF report is included in its entirety, but not all results pertain to this report. 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. All samples were analyzed within the holding time.

Table 2. ICPMS Analysis Performed at the WSCF Laboratory

Client Sample No.	Sample Depth	ICP/MS Analysis Performed at WSCF
B26JL0	Surface	Arsenic, Cadmium, Lead, Selenium, Silver, Thallium
B26JL1	Surface Dup	Arsenic, Cadmium, Lead, Selenium, Silver, Thallium
B26C47	5-7ft	Selenium, Silver, Arsenic
B26C51	12-14ft	Selenium, Silver, Arsenic
B26C53	14-16ft	Selenium, Silver, Arsenic
B26C55	18-20ft	Selenium, Silver, Arsenic
B26C57	47-47ft	Selenium, Silver, Arsenic
B26C61	122-124ft	Selenium, Silver, Arsenic

Batch 22376: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met. This batch only reported antimony.

Batch 24036: The laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples for another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4. The serial dilution for lead exceeded the ±10% requirement at +24%. This would indicate a low bias.

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, liner composite samples, and the equipment blank. 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, liner composite samples, and the equipment blank. 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 these batches, 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, liner composite samples, and directly on the equipment blank. 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.

Batch 22818: The preparation blank demonstrated a positive result below the quantitation limit. This result had a very large counting uncertainty and was below the target detection limit. The sample result was below the MDA, and therefore, the data usability was not affected.

Batch 23378: There were no notable issues with the batch, and all QC requirements in the FSAP, SAP, and QAPP were met. However, the laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples for another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

3.3.4 Selenium-79

The ^{79}Se analysis by LSC was performed on the grab samples, liner composite samples, and the equipment blank. 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 23910: The carrier recovery for one sample was below the 30% level at 26%; however, even with the reduced sensitivity, the sample MDA was below the target detection. The sample result was below the MDA, and therefore, reanalysis was not performed.

3.3.5 Carbon-14

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

Batch 22686: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met. However, the laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples for another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

3.3.6 Nickel-63

The ^{63}Ni analysis by LSC was performed on the grab samples, liner composite samples, and the equipment blank. 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 these batches, 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 all grab samples, liner composite samples, and the equipment blank. 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, liner composite samples, and the equipment blank. 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, liner composite samples, and the equipment blank. 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, six trip blanks, and one equipment blank 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 except for one met the required holding time. The equipment blank sample, B26PF, was analyzed 4 days past the holding time, due to an oversight in holding time tracking. 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 8). Isobutanol, another poor purger, was reported as a semivolatile organic compound.

Seven 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 source of chloroform may be the water used by sampling personnel to make the various field blanks.

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.

Batch 21533: The method blank results for toluene and styrene were above the MDL but below the quantitation limit. All of the samples contained toluene and most contained styrene, and all of which have been flagged with at "B". Since the blank results were below the quantitation limit, reanalysis was not required. Carbon disulfide was detected in the method blank below the quantitation limit but was not detected in the samples. The continuing calibration verification standard (CCV) demonstrated a % difference (%D) for chloro-methane of -26%, which exceeds the ±20% limit. This could indicate a slight low bias for this compound; however, the raw response for this compound's monitor ions was well below the MDL. The %D for 1-butanol in the CCV exceeded the ±20% limit at +29%. Since 1-butanol was not detected in the samples, the usability of the data was not affected.

The internal standards for one sample, B26JM1 (S10V002306), were recovered extremely low, ranging from -89% to -90%. This was not discovered until November 7, 2010, well after the holding time had expired. Therefore, no reanalysis was performed and the results have been flagged with an "X". Examination of the raw response numbers indicated that approximately 5 to 6 times less sample was transferred to the column for this sample than others in the batch. This effectively raises the MDLs for this sample's results by a factor of 5. Since the quantitation limit is 10 times the MDL, it is unlikely that any results above the quantitation limit were missed. Additionally, the surrogate recoveries were within the required ranges, indicating that enough internal standard was recovered to make meaningful adjustments to the raw instrument responses.

Batch 21601: The method blank result for toluene was above the MDL but below the quantitation limit. Since all toluene sample results in the batch were below the MDL, the data usability was not affected.

Batch 21716: The method blank result for toluene was above the MDL but below the quantitation limit. Since all toluene results in the batch were below the MDL, the data usability was not affected. The internal standards for MSD for sample B26CY5 (S10V002245) were recovered extremely low, ranging from -94% to -95%. The spike and surrogate compound recoveries were within the required ranges, indicating that enough internal standard was recovered to make meaningful adjustments to the raw instrument responses for the surrogate and spike compounds. Since the MSD is only used to verify the RPD between the MS and MSD, which it did, reanalysis was not required.

Batch 21718: The method blank result for toluene was above the MDL but below the quantitation limit. One of the samples in this batch contained toluene at a similar level and has been flagged with at "B".

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

Batch 23317: The method blank result for toluene was above the MDL but below the quantitation limit. Since the toluene result for the sample was below the MDL, the data usability was not affected. The %D for 1-butanol in the CCV exceeded the ±20% limit at +29%. Since 1-butanol was not detected in the sample, the usability of the data was not affected.

3.4.2 Semivolatile Organic Analysis

The semivolatile organic analysis (SVOA) by GC/MS was performed on methylene chloride extractions of all grab samples, liner composite samples, and the equipment blank. 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. There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

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 3 lists the analytical procedures used for analysis of the Area C samples.

Table 3. Analytical Procedures

Analysis	Preparation Method	Analysis Procedure
Inorganic Analyses		
Cyanide (soil)	LA-695-103, Rev. J-0 (SW-846 9010C)	LA-695-103, Rev. J-0 (SW-846 9014)
Cyanide (water)	LA-695-102, Rev. L-0 (SW-846 9010C)	LA-695-102, Rev. L-0 (SW-846 9014)

Analysis	Preparation Method	Analysis Procedure
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)
pH (water)	LA-212-106, Rev. H-0-A (SW-846 9040C)	LA-212-106, Rev. H-0-A (SW-846 9040C)
Mercury – Cold Vapor Atomic Absorption	LA-325-110, Rev. A-0 (SW-846 7471A) (solid)	LA-325-110, Rev. A-0 (SW-846 7471A) (solid)
	LA-325-106, Rev. G-0 (SW-846 7470A) (liquid)	LA-325-106, Rev. G-0 (SW-846 7470A) (liquid)
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-506-102, Rev. F-1
Metals – ICP/MS	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-506-102, Rev. F-1 (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
^{90}Sr – Separation/Beta counting (liquid)		LA-220-104, Rev. I-0
^{3}H – LSC	LA-504-101, Rev. M-0 (solid)	LA-218-111, Rev. G-0
^{14}C – LSC	LA-504-101, Rev. M-0 (solid)	LA-348-104, Rev. I-0
^{79}Se – Separation/LSC	LA-544-101, Rev. F-0 (solid)	LA-365-132, Rev. I-0
^{63}Ni – Separation/LSC	LA-544-101, Rev. F-0 (solid)	LA-285-102, Rev. E-0
^{129}I – Separation/GEA (soil)	LA-378-105, Rev. D-0	LA-378-105, Rev. D-0
^{129}I – Separation/GEA (water)	LA-378-103, Rev. D-0	LA-378-103, Rev. K-0
^{241}Am, $^{243/244, 242}$Cm – Separation/AEA	LA-544-101, Rev. F-0 (solid)	LA-953-104, Rev. H-1
$^{239/240, 238}$Pu – Separation/AEA	LA-544-101, Rev. F-0 (solid)	LA-953-104, Rev. H-1
Organic Analyses		
VOC – GC/MS	Direct	LA-523-118, Rev. H-O (SW-846 8260B)

Analysis	Preparation Method	Analysis Procedure
SVOC – GC/MS	LA-523-138, Rev. G-0 (SW-846 3540C) (solid) LA-523-115, Rev. H-0 (SW-846 3520C) (liquid)	LA-523-135, Rev. D-0 (SW-846 8270C)

5.0 REFERENCES

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

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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.

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.

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

Washington River Protection Solutions	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	V10-003-171	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8P	DATA TURNAROUND
Dan Harris	TEMPLETON, AM	373-5589	BERLIN, PC	AIR QUALITY ☐	75 Days / 75 Days

SAMPLING LOCATION	PROJECT DESIGNATION	SAF NO.
C7682 I007	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	88' - 90'	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~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	
B26C59	SOIL	8-24-10	1030	—

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Dan Harris Dan Harris	8-24-10 1130	RtSteele RtSteele	8.24.10 1130
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

ov/6/pk

GRP # 20100660
SAM # 510U00 2464
2465
2466

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			V10-003-171	PAGE 2 OF 2
COLLECTOR Dan 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 C7682 I007	**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** 88'-90'	**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	V10-003-259	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8P	DATA TURNAROUND
Ekstrom / Campbell	TEMPLETON, AM	373-5589	BERLIN, PC	AIR QUALITY ☐	75 Days / 75 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**		
C7682 Surface	WMA C Sampling for CMS		V10-003		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
TFVS-09-003	TFV2-10-000004	Surface	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~4C
HOLDING TIME	14/40 Days
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B26JL0	SOIL	8/17/10	0930	✓

S10V002280

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
RBLittle BCEkstrom	8/17/10 1100	RHSteele RHSteele	8.17.10 1100	0°C
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	2225-20100660
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			V10-003-259	PAGE 2 OF 2
COLLECTOR Ekstrom / Campbell	COMPANY CONTACT TEMPLETON, AM	TELEPHONE NO. 373-5589	PROJECT COORDINATOR BERLIN, PC	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C7682 Surface	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V10-003	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO. TFVS-09-003	FIELD LOGBOOK NO. TFVZ-10-000004	ACTUAL SAMPLE DEPTH Surface	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: VSR11-047		
VALIDATOR: Carl Schloesslin		LAB: 222-S Lab		DATE: 6-21-2011	
			SDG: 20100660		
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 B26C59 and B26JL0					

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: batch 21436 ammonium 1.95 ug/g
batch 21732 ammonium 1.11 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:

Batch 22014 cyanide MS %R = 74%

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

Duplicate RPD values acceptable?..... Yes No N/A

Duplicate results acceptable?..... Yes No N/A

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

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

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

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

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

Comments:

None

6. HOLDING TIMES (all levels)

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

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

Comments:

Sample B26JL0 analyzed for pH 34 days 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
20100660	S10V002280	SOLID	SW846-9014	SW846-9010C	08/17/10 09:30	08/17/10 11:00	08/23/10 15:22	N
20100660	S10V002309	SOLID	SW846-9014	SW846-9010C	08/17/10 09:30	08/17/10 11:00	08/23/10 15:22	N
20100660	S10V002338	SOLID	SW846-9014	SW846-9010C	08/18/10 09:00	08/18/10 12:00	08/23/10 15:22	N
20100660	S10V002391	SOLID	SW846-9014	SW846-9010C	08/18/10 11:30	08/18/10 12:00	08/23/10 15:22	N
20100660	S10V002410	SOLID	SW846-9014	SW846-9010C	08/19/10 09:10	08/19/10 11:40	08/27/10 14:35	N
20100660	S10V002429	SOLID	SW846-9014	SW846-9010C	08/19/10 10:30	08/19/10 11:40	08/27/10 14:35	N
20100660	S10V002448	SOLID	SW846-9014	SW846-9010C	08/23/10 10:00	08/23/10 11:15	08/31/10 14:40	N
20100660	S10V002467	SOLID	SW846-9014	SW846-9010C	08/24/10 10:30	08/24/10 11:30	08/31/10 14:40	N
20100660	S10V002486	SOLID	SW846-9014	SW846-9010C	08/25/10 10:05	08/25/10 11:05	08/31/10 14:40	N
20100676	S10V002652	LIQUID	SW846-9014	SW846-9010C	08/23/10 00:45	08/23/10 11:10	09/01/10 15:30	N

Holding Time Report: Sulfide

Sample Group	Sample	Matrix	Method	Prep Method	Sample Date	Received Date	Analysis Date	Missed Holding Time
20100660	S10V002280	SOLID	SW-846 9215	SW-846 9030B	08/17/10 09:30	08/17/10 11:00	08/19/10 22:49	N
20100660	S10V002309	SOLID	SW-846 9215	SW-846 9030B	08/17/10 09:30	08/17/10 11:00	08/19/10 22:49	N
20100660	S10V002338	SOLID	SW-846 9215	SW-846 9030B	08/18/10 09:00	08/18/10 12:00	08/19/10 22:49	N
20100660	S10V002391	SOLID	SW-846 9215	SW-846 9030B	08/18/10 11:30	08/18/10 12:00	08/19/10 22:49	N
20100660	S10V002410	SOLID	SW-846 9215	SW-846 9030B	08/19/10 09:10	08/19/10 11:40	08/24/10 14:30	N
20100660	S10V002429	SOLID	SW-846 9215	SW-846 9030B	08/19/10 10:30	08/19/10 11:40	08/24/10 14:30	N
20100660	S10V002448	SOLID	SW-846 9215	SW-846 9030B	08/23/10 10:00	08/23/10 11:15	08/27/10 14:20	N
20100660	S10V002467	SOLID	SW-846 9215	SW-846 9030B	08/24/10 10:30	08/24/10 11:30	08/27/10 14:20	N
20100660	S10V002486	SOLID	SW-846 9215	SW-846 9030B	08/25/10 10:05	08/25/10 11:05	08/31/10 13:45	N
20100676	S10V002651	LIQUID	SW-846 9215	SW-846 9030B	08/23/10 00:45	08/23/10 11:10	08/24/10 14:30	N

Holding Time Report: pH

Sample Group	Sample	Matrix	Method	Sample Date	Received Date	Analysis Date	Days Lasped
20100676	S10V002650	LIQUID	SW-846 9040C	08/23/10 00:45	08/23/10 11:10	08/23/10 15:50	0.6
20100660	S10V002280	SOLID	SW-846 9045D	08/17/10 09:30	08/17/10 11:00	09/20/10 15:45	34.3
20100660	S10V002309	SOLID	SW-846 9045D	08/17/10 09:30	08/17/10 11:00	08/25/10 10:24	8.0
20100660	S10V002338	SOLID	SW-846 9045D	08/18/10 09:00	08/18/10 12:00	08/25/10 10:24	7.1
20100660	S10V002391	SOLID	SW-846 9045D	08/18/10 11:30	08/18/10 12:00	09/20/10 15:45	33.2
20100660	S10V002410	SOLID	SW-846 9045D	08/19/10 09:10	08/19/10 11:40	08/25/10 10:24	6.1
20100660	S10V002429	SOLID	SW-846 9045D	08/19/10 10:30	08/19/10 11:40	08/25/10 10:24	6.0
20100660	S10V002448	SOLID	SW-846 9045D	08/23/10 10:00	08/23/10 11:15	08/25/10 10:24	2.0
20100660	S10V002467	SOLID	SW-846 9045D	08/24/10 10:30	08/24/10 11:30	08/25/10 10:24	1.0
20100660	S10V002486	SOLID	SW-846 9045D	08/25/10 10:05	08/25/10 11:05	09/20/10 15:45	26.2

Holding Time Report: IC Ammonium

Sample Group	Sample	Matrix	Method	Prep Method	Sample Date	Received Date	Prep Date	Analysis Date	Missed Holding Time
20100660	S10V002290	SOLID	EPA-300.7	Distillation	08/17/10 09:30	08/17/10 11:00	08/19/10 11:42	08/19/10 16:12	N
20100660	S10V002317	SOLID	EPA-300.7	Distillation	08/17/10 09:30	08/17/10 11:00	08/19/10 11:42	08/19/10 17:21	N
20100660	S10V002353	SOLID	EPA-300.7	Distillation	08/18/10 09:00	08/18/10 12:00	08/24/10 10:30	08/24/10 17:14	N
20100660	S10V002399	SOLID	EPA-300.7	Distillation	08/18/10 11:30	08/18/10 12:00	08/24/10 10:30	08/24/10 18:05	N
20100660	S10V002418	SOLID	EPA-300.7	Distillation	08/19/10 09:10	08/19/10 11:40	08/24/10 10:30	08/24/10 18:22	N
20100660	S10V002437	SOLID	EPA-300.7	Distillation	08/19/10 10:30	08/19/10 11:40	08/24/10 10:30	08/24/10 18:39	N
20100660	S10V002456	SOLID	EPA-300.7	Distillation	08/23/10 10:00	08/23/10 11:15	08/27/10 13:45	08/27/10 20:54	N
20100660	S10V002475	SOLID	EPA-300.7	Distillation	08/24/10 10:30	08/24/10 11:30	08/27/10 13:45	08/27/10 20:37	N
20100660	S10V002494	SOLID	EPA-300.7	Distillation	08/25/10 10:05	08/25/10 11:05	08/31/10 15:50	08/31/10 19:56	N
20100676	S10V002653	LIQUID	EPA-300.7	Distillation	08/23/10 00:45	08/23/10 11:10	08/24/10 10:30	08/24/10 18:56	N

Holding Time Report: IC-Anions/Small Organic Acids

Sample Group	Sample	Matrix	Method	Prep Method	Sample Date	Received Date	Prep Date	Analysis Date	Missed Holding Time
20100660	S10V002286	SOLID	SW-846 9056A	Water Digest	08/17/10 09:30	08/17/10 11:00	09/14/10 10:00	09/15/10 01:28	N
20100660	S10V002315	SOLID	SW-846 9056A	Water Digest	08/17/10 09:30	08/17/10 11:00	09/14/10 10:00	09/15/10 12:23	N
20100660	S10V002351	SOLID	SW-846 9056A	Water Digest	08/18/10 09:00	08/18/10 12:00	09/14/10 10:00	09/15/10 04:07	N
20100660	S10V002397	SOLID	SW-846 9056A	Water Digest	08/18/10 11:30	08/18/10 12:00	09/14/10 10:00	09/15/10 04:39	N
20100660	S10V002416	SOLID	SW-846 9056A	Water Digest	08/19/10 09:10	08/19/10 11:40	09/14/10 10:00	09/15/10 05:11	N
20100660	S10V002435	SOLID	SW-846 9056A	Water Digest	08/19/10 10:30	08/19/10 11:40	09/14/10 10:00	09/15/10 05:43	N
20100660	S10V002454	SOLID	SW-846 9056A	Water Digest	08/23/10 10:00	08/23/10 11:15	09/14/10 10:00	09/15/10 07:19	N
20100660	S10V002473	SOLID	SW-846 9056A	Water Digest	08/24/10 10:30	08/24/10 11:30	09/14/10 10:00	09/15/10 07:51	N
20100660	S10V002315	SOLID	SW-846 9056A	Water Digest	08/17/10 09:30	08/17/10 11:00	10/05/10 01:00	10/06/10 09:30	N
20100660	S10V002492	SOLID	SW-846 9056A	Water Digest	08/25/10 10:05	08/25/10 11:05	10/05/10 17:00	10/06/10 07:54	N
20100676	S10V002650	LIQUID	SW-846 9056A	Water Digest	08/23/10 00:45	08/23/10 11:10	N/A	08/24/10 01:48	N

LABCORE Completed Batch Report for Batch# 00021785

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:

EDTA 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	S1009070081		0 0			Cyanide	LIQUID	.2008	2.0991E-01			0.037	ug/mL	104.54	% Recovery	
Sample Sequence 2																	
2	LLS	S1009070213		0 0			Cyanide	LIQUID	.04016	4.6350E-02			0.037	ug/mL	115.41	% Recovery	
Sample Sequence 3																	
3	ICB	S1009070216		0 0			Cyanide	LIQUID		<3.7000E-02			0.037	ug/mL			
Sample Sequence 4																	
4	SAMPLE	S10V002448		0 0			Cyanide	SOLID	N/A	<2.6064E+00			2.6064	ug/g			U
Sample Sequence 5																	
5	DUP	S1008310067	S10V002448	0 0			Cyanide	SOLID	<2.6064E+00	<2.6302E+00			2.6302	ug/g			
Sample Sequence 6																	
6	SPK	S1008310068	S10V002448	0 0			Cyanide	SOLID	7.069626	6.6894E+00			2.6053	ug/g	94.622	% Recovery	
Sample Sequence 7																	
7	SAMPLE	S10V002467		0 0			Cyanide	SOLID	N/A	<2.5819E+00			2.5819	ug/g			U
Sample Sequence 8																	
8	SAMPLE	S10V002486		0 0			Cyanide	SOLID	N/A	<2.6524E+00			2.6524	ug/g			U
Sample Sequence 9																	
9	CCV	S1009070215		0 0			Cyanide	LIQUID	.2008	2.2106E-01			0.037	ug/mL	110.09	% Recovery	
Sample Sequence 10																	
10	CCB	S1009070214		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# 00021785

Final Page for Batch# 00021785

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# 00021785

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1009070081	ICV				
2	S1009070213	LLS				
3	S1009070216	ICB				
4	S10V002448	SAMPLE		20100660	B26C57	C Farm WMC 2010-2
5	S1008310067	DUP	S10V002448			
6	S1008310068	SPK	S10V002448			
7	S10V002467	SAMPLE		20100660	B26C59	C Farm WMC 2010-2
8	S10V002486	SAMPLE		20100660	B26C61	C Farm WMC 2010-2
9	S1009070215	CCV				
10	S1009070214	CCB				

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

* = Rejected Analyte
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LABCORE Completed Batch Report for Batch# 00022014

Analyst: Mull, Bryanna

Book#:

Instrument: CARY 50-1

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

Specification: C Farm WMC 2010-2

Prep Batch:

Batch Comment:

Cyanide for C-Farm WMC 2010-2. 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	CCV	S1009080115		0 0			Cyanide	LIQUID	.2008	1.9371E-01			0.037	ug/mL	96.469	% Recovery	
Sample Sequence 2																	
2	ICB	S1009080109		0 0			Cyanide	LIQUID		<3.7000E-02			0.037	ug/mL			
Sample Sequence 3																	
3	LLS	S1009080110		0 0			Cyanide	LIQUID	.04028	4.0800E-02			0.037	ug/mL	101.29	% Recovery	
Sample Sequence 4																	
4	SAMPLE	S10V002280		0 0			Cyanide	SOLID	N/A	<2.6570E+00			2.657	ug/g			Ub
Sample Sequence 5																	
5	DUP	S1009080111	S10V002280	0 0			Cyanide	SOLID	<2.6570E+00	<2.6530E+00			2.653	ug/g			
Sample Sequence 6																	
6	SPK	S1009080112	S10V002280	0 0			Cyanide	SOLID	7.281694	5.4197E+00			2.675	ug/g	74.428	% Recovery	
Sample Sequence 7																	
7	SAMPLE	S10V002309		0 0			Cyanide	SOLID	N/A	<2.6050E+00			2.605	ug/g			Ub
Sample Sequence 8																	
8	SAMPLE	S10V002338		0 0			Cyanide	SOLID	N/A	<2.6080E+00			2.608	ug/g			Ub
Sample Sequence 9																	
9	SAMPLE	S10V002391		0 0			Cyanide	SOLID	N/A	<2.6610E+00			2.661	ug/g			Ub
Sample Sequence 10																	
10	CCV	S1009080113		0 0			Cyanide	LIQUID	.2009	1.9867E-01			0.037	ug/mL	98.89	% Recovery	
Sample Sequence 11																	
11	CCB	S1009080114		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.

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LABCORE Completed Batch Report for Batch# 00022014

Final Page for Batch# 00022014

Reviewer Signature **Date**

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LABCORE Completed Batch Report for Batch# 00022014

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1009080115	CCV				
2	S1009080109	ICB				
3	S1009080110	LLS				
4	S10V002280	SAMPLE		20100660	B26JL0	C Farm WMC 2010-2
5	S1009080111	DUP	S10V002280			
6	S1009080112	SPK	S10V002280			
7	S10V002309	SAMPLE		20100660	B26JL1	C Farm WMC 2010-2
8	S10V002338	SAMPLE		20100660	B26C47	C Farm WMC 2010-2
9	S10V002391	SAMPLE		20100660	B26C51	C Farm WMC 2010-2
10	S1009080113	CCV				
11	S1009080114	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# 00021697

Analyst: Dinh, Liem

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 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	ICV	S1008270078		0 0			Sulfide	LIQUID	5.0135	5.0800E+00			0.18	ug/mL	101.33	% Recovery	
Sample Sequence 2																	
2	ICB	S1008270079		0 0			Sulfide	LIQUID		<1.8000E-01			0.18	ug/mL			
Sample Sequence 3																	
3	LLS	S1008270080		0 0			Sulfide	LIQUID	1.0027	1.1200E+00			0.18	ug/mL	111.7	% Recovery	
Sample Sequence 4																	
4	BLNK-PREP	S1008270081		0 0			Sulfide	LIQUID		<1.8000E-01			0.18	ug/mL			
Sample Sequence 5																	
5	LCS	S1008270082		0 0			Sulfide	LIQUID	2.50675	2.4100E+00			0.18	ug/mL	96.14	% Recovery	
Sample Sequence 6																	
6	SAMPLE	S10V002448		0 0			Sulfide	SOLID	N/A	1.0929E+01			7.1799	ug/g			J
Sample Sequence 7																	
7	DUP	S1008270083	S10V002448	0 0			Sulfide	SOLID	1.0929E+01	1.0044E+01			7.2029	ug/g	8.4392	% RPD	
Sample Sequence 8																	
8	SPK-PREDIG	S1008270084	S10V002448	0 0			Sulfide	SOLID	99.43	1.0908E+02			7.14	ug/g	98.717	% Recovery	
Sample Sequence 9																	
9	SAMPLE	S10V002467		0 0			Sulfide	SOLID	N/A	8.0442E+00			7.0978	ug/g			J
Sample Sequence 10																	
10	SAMPLE	S10V001869		0 0			Sulfide	SOLID	N/A	2.8931E+01			7.0755	ug/g			J
Sample Sequence 11																	
11	SAMPLE	S10V001886		0 0			Sulfide	SOLID	N/A	2.4465E+01			7.1372	ug/g			J
Sample Sequence 12																	
12	CCV	S1008270085		0 0			Sulfide	LIQUID	5.0135	5.2700E+00			0.18	ug/mL	105.12	% Recovery	
Sample Sequence 13																	
13	CCB	S1008270086		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# 00021697

Final Page for Batch# 00021697

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# 00021697

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1008270078	ICV				
2	S1008270079	ICB				
3	S1008270080	LLS				
4	S1008270081	BLNK-PREP				
5	S1008270082	LCS				
6	S10V002448	SAMPLE		20100660	B26C57	C Farm WMC 2010-2
7	S1008270083	DUP	S10V002448			
8	S1008270084	SPK-PREDIG	S10V002448			
9	S10V002467	SAMPLE		20100660	B26C59	C Farm WMC 2010-2
10	S10V001869	SAMPLE		20100584	B26JK8	C Farm WMC 2010-2
11	S10V001886	SAMPLE		20100584	B26JK9	C Farm WMC 2010-2
12	S1008270085	CCV				
13	S1008270086	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# 00021465

Analyst: Hexum, Troy

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 SOLIDS ANALYSIS FOR C-FARM 2010-2 TJH

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	S1008190047		0 0			Sulfide	LIQUID	5.0045	5.0900E+00			0.18	ug/mL	101.71	% Recovery	
Sample Sequence 2																	
2	ICB	S1008190048		0 0			Sulfide	LIQUID		<1.8000E-01			0.18	ug/mL			
Sample Sequence 3																	
3	LLS	S1008190049		0 0			Sulfide	LIQUID	1.0009	1.0300E+00			0.18	ug/mL	102.91	% Recovery	
Sample Sequence 4																	
4	BLNK-PREP	S1008190050		0 0			Sulfide	LIQUID		<1.8000E-01			0.18	ug/mL			
Sample Sequence 5																	
5	LCS	S1008190051		0 0			Sulfide	LIQUID	2.502	2.3900E+00			0.18	ug/mL	95.524	% Recovery	
Sample Sequence 6																	
6	SAMPLE	S10V002280		0 0			Sulfide	SOLID	N/A	1.0241E+01			7.1174	ug/g			J
Sample Sequence 7																	
7	DUP	S1008190052	S10V002280	0 0			Sulfide	SOLID	1.0241E+01	1.0432E+01			7.14	ug/g	1.8514	% RPD	
Sample Sequence 8																	
8	SPK-PREDIG	S1008190053	S10V002280	0 0			Sulfide	SOLID	98.85	1.0628E+02			7.1118	ug/g	97.158	% Recovery	
Sample Sequence 9																	
9	SAMPLE	S10V002309		0 0			Sulfide	SOLID	N/A	1.3341E+01			7.0838	ug/g			J
Sample Sequence 10																	
10	SAMPLE	S10V002338		0 0			Sulfide	SOLID	N/A	7.4532E+00			7.1742	ug/g			J
Sample Sequence 11																	
11	SAMPLE	S10V002391		0 0			Sulfide	SOLID	N/A	8.9825E+00			7.1542	ug/g			J
Sample Sequence 12																	
12	CCV	S1008190054		0 0			Sulfide	LIQUID	5.0045	5.0300E+00			0.18	ug/mL	100.51	% Recovery	
Sample Sequence 13																	
13	CCB	S1008190055		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# 00021465

Final Page for Batch# 00021465

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# 00021465

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1008190047	ICV				
2	S1008190048	ICB				
3	S1008190049	LLS				
4	S1008190050	BLNK-PREP				
5	S1008190051	LCS				
6	S10V002280	SAMPLE		20100660	B26JL0	C Farm WMC 2010-2
7	S1008190052	DUP	S10V002280			
8	S1008190053	SPK-PREDIG	S10V002280			
9	S10V002309	SAMPLE		20100660	B26JL1	C Farm WMC 2010-2
10	S10V002338	SAMPLE		20100660	B26C47	C Farm WMC 2010-2
11	S10V002391	SAMPLE		20100660	B26C51	C Farm WMC 2010-2
12	S1008190054	CCV				
13	S1008190055	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# 00021602

Analyst: Purinton, Tony

Book#:

Instrument: PH02

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

Specification: C Farm WMC 2010-2

Prep Batch:

Batch Comment:

pH solids trm

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	S1008260042		0 0			pH	LIQUID	8	8			0.01	pH			
Sample Sequence 2																	
2	SAMPLE	S10V002410		0 0			pH	SOLID	N/A	9.14			0.01	pH			
Sample Sequence 3																	
3	DUP	S1008260044	S10V002410	0 0			pH	SOLID	9.14	9.12			0.01	pH	0.21906	% RPD	
Sample Sequence 4																	
4	SAMPLE	S10V002467		0 0			pH	SOLID	N/A	8.59			0.01	pH			
Sample Sequence 5																	
5	SAMPLE	S10V002309		0 0			pH	SOLID	N/A	9.64			0.01	pH			
Sample Sequence 6																	
6	SAMPLE	S10V002429		0 0			pH	SOLID	N/A	8.94			0.01	pH			
Sample Sequence 7																	
7	SAMPLE	S10V002448		0 0			pH	SOLID	N/A	8.48			0.01	pH			
Sample Sequence 8																	
8	SAMPLE	S10V002338		0 0			pH	SOLID	N/A	9.1			0.01	pH			
Sample Sequence 9																	
9	CCVPH	S1008260045		0 0			pH	LIQUID	8	8			0.01	pH			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00021602

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# 00021602

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1008260042	ICVPH				
2	S10V002410	SAMPLE		20100660	B26C53	C Farm WMC 2010-2
3	S1008260044	DUP	S10V002410			
4	S10V002467	SAMPLE		20100660	B26C59	C Farm WMC 2010-2
5	S10V002309	SAMPLE		20100660	B26JL1	C Farm WMC 2010-2
6	S10V002429	SAMPLE		20100660	B26C55	C Farm WMC 2010-2
7	S10V002448	SAMPLE		20100660	B26C57	C Farm WMC 2010-2
8	S10V002338	SAMPLE		20100660	B26C47	C Farm WMC 2010-2
9	S1008260045	CCVPH				

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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			

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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				

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LABCORE Completed Batch Report for Batch# 00022189

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: 00022173, 00022174

Batch Comment:

C-Farm WMC 2010-2 IC anions small organic acids. KJL/AMP

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	S1009140055		0 0			Fluoride	LIQUID	.47619048	4.6761E-01			1.61E-03	ug/mL	98.198	% Recovery	
1	CCV	S1009140055		0 0			Glycolate	LIQUID	2.960317484	2.8734E+00			9.37E-03	ug/mL	97.062	% Recovery	
1	CCV	S1009140055		0 0			Acetate	LIQUID	3.595238124	3.4019E+00			6.04E-03	ug/mL	94.622	% Recovery	
1	CCV	S1009140055		0 0			Formate	LIQUID	3.484127012	3.4394E+00			4.67E-03	ug/mL	98.715	% Recovery	
1	CCV	S1009140055		0 0			Chloride	LIQUID	.6738095292	6.5476E-01			9.98E-03	ug/mL	97.173	% Recovery	
1	CCV	S1009140055		0 0			Nitrite	LIQUID	4.222222256	4.1933E+00			0.0192	ug/mL	99.315	% Recovery	
1	CCV	S1009140055		0 0			Sulfate	LIQUID	5.190476232	5.1662E+00			0.0187	ug/mL	99.533	% Recovery	
1	CCV	S1009140055		0 0			Oxalate	LIQUID	4.12698416	4.1148E+00			0.0231	ug/mL	99.706	% Recovery	
1	CCV	S1009140055		0 0			Bromide	LIQUID	4.833333372	4.6875E+00			0.058	ug/mL	96.982	% Recovery	
1	CCV	S1009140055		0 0			Nitrate	LIQUID	4.396825432	4.2708E+00			0.0208	ug/mL	97.133	% Recovery	
1	CCV	S1009140055		0 0			Phosphate	LIQUID	4.380952416	4.2629E+00			0.0167	ug/mL	97.305	% Recovery	
Sample Sequence 2																	
2	CCB	S1009140056		0 0			Fluoride	LIQUID		<1.6100E-03			1.61E-03	ug/mL			
2	CCB	S1009140056		0 0			Glycolate	LIQUID		<9.3700E-03			9.37E-03	ug/mL			
2	CCB	S1009140056		0 0			Acetate	LIQUID		<6.0400E-03			6.04E-03	ug/mL			
2	CCB	S1009140056		0 0			Formate	LIQUID		<4.6700E-03			4.67E-03	ug/mL			
2	CCB	S1009140056		0 0			Chloride	LIQUID		<9.9800E-03			9.98E-03	ug/mL			
2	CCB	S1009140056		0 0			Nitrite	LIQUID		<1.9200E-02			0.0192	ug/mL			
2	CCB	S1009140056		0 0			Sulfate	LIQUID		<1.8700E-02			0.0187	ug/mL			
2	CCB	S1009140056		0 0			Oxalate	LIQUID		<2.3100E-02			0.0231	ug/mL			
2	CCB	S1009140056		0 0			Bromide	LIQUID		<5.8000E-02			0.058	ug/mL			
2	CCB	S1009140056		0 0			Nitrate	LIQUID		<2.0800E-02			0.0208	ug/mL			
2	CCB	S1009140056		0 0			Phosphate	LIQUID		<1.6700E-02			0.0167	ug/mL			
Sample Sequence 3																	
3	LLS	S1009140057		0 0			Fluoride	LIQUID	.02985072	2.3060E-02			1.61E-03	ug/mL	77.251	% Recovery	
3	LLS	S1009140057		0 0			Glycolate	LIQUID	.185571976	1.3309E-01			9.37E-03	ug/mL	71.719	% Recovery	
3	LLS	S1009140057		0 0			Acetate	LIQUID	.225372936	1.6774E-01			6.04E-03	ug/mL	74.428	% Recovery	
3	LLS	S1009140057		0 0			Formate	LIQUID	.218407768	1.7957E-01			4.67E-03	ug/mL	82.218	% Recovery	
3	LLS	S1009140057		0 0			Chloride	LIQUID	.0422387688	3.9520E-02			9.98E-03	ug/mL	93.563	% Recovery	
3	LLS	S1009140057		0 0			Nitrite	LIQUID	.264676384	2.3567E-01			0.0192	ug/mL	89.041	% Recovery	
3	LLS	S1009140057		0 0			Sulfate	LIQUID	.325372848	3.0672E-01			0.0187	ug/mL	94.267	% Recovery	

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LABCORE Completed Batch Report for Batch# 00022189

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
3	LLS	S1009140057		0 0			Oxalate	LIQUID	.25870624	2.4132E-01			0.0231	ug/mL	93.28	% Recovery	
3	LLS	S1009140057		0 0			Bromide	LIQUID	.302984808	2.5749E-01			0.058	ug/mL	84.984	% Recovery	
3	LLS	S1009140057		0 0			Nitrate	LIQUID	.275621648	2.4687E-01			0.0208	ug/mL	89.568	% Recovery	
3	LLS	S1009140057		0 0			Phosphate	LIQUID	.274626624	2.7284E-01			0.0167	ug/mL	99.349	% Recovery	
Sample Sequence 4																	
4	BLNK-PREP	S1009140024		0 0	W		Fluoride	LIQUID		<1.6100E-03			1.61E-03	ug/mL			
4	BLNK-PREP	S1009140024		0 0	W		Glycolate	LIQUID		<9.3700E-03			9.37E-03	ug/mL			
4	BLNK-PREP	S1009140024		0 0	W		Acetate	LIQUID		<6.0400E-03			6.04E-03	ug/mL			
4	BLNK-PREP	S1009140024		0 0	W		Formate	LIQUID		<4.6700E-03			4.67E-03	ug/mL			
4	BLNK-PREP	S1009140024		0 0	W		Chloride	LIQUID		<9.9800E-03			9.98E-03	ug/mL			
4	BLNK-PREP	S1009140024		0 0	W		Nitrite	LIQUID		<1.9200E-02			0.0192	ug/mL			
4	BLNK-PREP	S1009140024		0 0	W		Sulfate	LIQUID		<1.8700E-02			0.0187	ug/mL			
4	BLNK-PREP	S1009140024		0 0	W		Oxalate	LIQUID		<2.3100E-02			0.0231	ug/mL			
4	BLNK-PREP	S1009140024		0 0	W		Bromide	LIQUID		<5.8000E-02			0.058	ug/mL			
4	BLNK-PREP	S1009140024		0 0	W		Nitrate	LIQUID		<2.0800E-02			0.0208	ug/mL			
4	BLNK-PREP	S1009140024		0 0	W		Phosphate	LIQUID		<1.6700E-02			0.0167	ug/mL			
Sample Sequence 5																	
5	STD-PREP	S1009140068		0 0			Fluoride	LIQUID	.6	6.0024E-01			1.61E-03	ug/mL	100.04	% Recovery	
5	STD-PREP	S1009140068		0 0			Glycolate	LIQUID	3.73	3.6863E+00			9.37E-03	ug/mL	98.828	% Recovery	
5	STD-PREP	S1009140068		0 0			Acetate	LIQUID	4.53	4.4035E+00			6.04E-03	ug/mL	97.208	% Recovery	
5	STD-PREP	S1009140068		0 0			Formate	LIQUID	4.39	4.3918E+00			4.67E-03	ug/mL	100.04	% Recovery	
5	STD-PREP	S1009140068		0 0			Chloride	LIQUID	.849	8.3306E-01			9.98E-03	ug/mL	98.122	% Recovery	
5	STD-PREP	S1009140068		0 0			Nitrite	LIQUID	5.32	5.3099E+00			0.0192	ug/mL	99.81	% Recovery	
5	STD-PREP	S1009140068		0 0			Sulfate	LIQUID	6.54	6.5971E+00			0.0187	ug/mL	100.87	% Recovery	
5	STD-PREP	S1009140068		0 0			Oxalate	LIQUID	5.2	5.2572E+00			0.0231	ug/mL	101.1	% Recovery	
5	STD-PREP	S1009140068		0 0			Bromide	LIQUID	6.09	6.0385E+00			0.058	ug/mL	99.154	% Recovery	
5	STD-PREP	S1009140068		0 0			Nitrate	LIQUID	5.54	5.5225E+00			0.0208	ug/mL	99.685	% Recovery	
5	STD-PREP	S1009140068		0 0			Phosphate	LIQUID	5.52	5.4584E+00			0.0167	ug/mL	98.884	% Recovery	
Sample Sequence 6																	
6	SAMPLE	S10V001771		0 1	W		Fluoride	SOLID	N/A	1.3175E+00			0.01606	ug/g			
6	SAMPLE	S10V001771		0 1	W		Glycolate	SOLID	N/A	<9.3464E-02			0.093464	ug/g			U
6	SAMPLE	S10V001771		0 1	W		Acetate	SOLID	N/A	<6.0248E-02			0.060248	ug/g			U
6	SAMPLE	S10V001771		0 1	W		Formate	SOLID	N/A	<4.6583E-02			0.046583	ug/g			U
6	SAMPLE	S10V001771		0 1	W		Chloride	SOLID	N/A	8.2532E-01			0.099549	ug/g			
6	SAMPLE	S10V001771		0 1	W		Nitrite	SOLID	N/A	<1.9152E-01			0.19152	ug/g			U
6	SAMPLE	S10V001771		0 1	W		Sulfate	SOLID	N/A	1.1130E+01			0.18653	ug/g			
6	SAMPLE	S10V001771		0 1	W		Oxalate	SOLID	N/A	<2.3042E-01			0.23042	ug/g			U
6	SAMPLE	S10V001771		0 1	W		Bromide	SOLID	N/A	<5.7854E-01			0.57854	ug/g			U
6	SAMPLE	S10V001771		0 1	W		Nitrate	SOLID	N/A	1.1835E+01			0.20748	ug/g			
6	SAMPLE	S10V001771		0 1	W		Phosphate	SOLID	N/A	4.0947E-01			0.16658	ug/g			J
Sample Sequence 7																	
7	SAMPLE	S10V001791		0 1	W		Fluoride	SOLID	N/A	4.3298E-01			0.015854	ug/g			

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LABCORE Completed Batch Report for Batch# 00022189

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
7	SAMPLE	S10V001791		0 1	W		Glycolate	SOLID	N/A	<9.2268E-02			0.092268	ug/g			U
7	SAMPLE	S10V001791		0 1	W		Acetate	SOLID	N/A	3.3756E-01			0.059477	ug/g			J
7	SAMPLE	S10V001791		0 1	W		Formate	SOLID	N/A	6.9649E-01			0.045986	ug/g			J
7	SAMPLE	S10V001791		0 1	W		Chloride	SOLID	N/A	1.3681E+01			0.098275	ug/g			
7	SAMPLE	S10V001791		0 1	W		Nitrite	SOLID	N/A	3.9320E-01			0.18907	ug/g			J
7	SAMPLE	S10V001791		0 1	W		Sulfate	SOLID	N/A	1.3105E+02			0.18414	ug/g			
7	SAMPLE	S10V001791		0 1	W		Oxalate	SOLID	N/A	<2.2747E-01			0.22747	ug/g			U
7	SAMPLE	S10V001791		0 1	W		Bromide	SOLID	N/A	<5.7114E-01			0.57114	ug/g			U
7	SAMPLE	S10V001791		0 1	W		Nitrate	SOLID	N/A	7.1600E+01			0.20482	ug/g			
7	SAMPLE	S10V001791		0 1	W		Phosphate	SOLID	N/A	<1.6445E-01			0.16445	ug/g			U
Sample Sequence 8																	
8	DUP	S1009140025	S10V001791	0 0	W		Fluoride	SOLID	4.3298E-01	5.2355E-01			0.016086	ug/g	18.937	% RPD	
8	DUP	S1009140025	S10V001791	0 0	W		Glycolate	SOLID	<9.2268E-02	<9.3619E-02			0.093619	ug/g			
8	DUP	S1009140025	S10V001791	0 0	W		Acetate	SOLID	3.3756E-01	3.1673E-01			0.060348	ug/g	6.3675	% RPD	
8	DUP	S1009140025	S10V001791	0 0	W		Formate	SOLID	6.9649E-01	6.3445E-01			0.04666	ug/g	9.3228	% RPD	
8	DUP	S1009140025	S10V001791	0 0	W		Chloride	SOLID	1.3681E+01	1.3792E+01			0.099714	ug/g	0.80612	% RPD	
8	DUP	S1009140025	S10V001791	0 0	W		Nitrite	SOLID	3.9320E-01	6.8721E-01			0.19184	ug/g	54.426	% RPD	
8	DUP	S1009140025	S10V001791	0 0	W		Sulfate	SOLID	1.3105E+02	1.3292E+02			0.18684	ug/g	1.4206	% RPD	
8	DUP	S1009140025	S10V001791	0 0	W		Oxalate	SOLID	<2.2747E-01	<2.3080E-01			0.2308	ug/g			
8	DUP	S1009140025	S10V001791	0 0	W		Bromide	SOLID	<5.7114E-01	<5.7950E-01			0.5795	ug/g			
8	DUP	S1009140025	S10V001791	0 0	W		Nitrate	SOLID	7.1600E+01	7.0953E+01			0.20782	ug/g	0.90810	% RPD	
8	DUP	S1009140025	S10V001791	0 0	W		Phosphate	SOLID	<1.6445E-01	<1.6686E-01			0.16686	ug/g			
Sample Sequence 9																	
9	SPK-PREDIG	S1009140077	S10V001791	0 0			Fluoride	SOLID	6.0678	6.2813E+00			1.61E-03	ug/g	96.383	% Recovery	
9	SPK-PREDIG	S1009140077	S10V001791	0 0			Glycolate	SOLID	37.72149	3.6098E+01			9.37E-03	ug/g	95.697	% Recovery	
9	SPK-PREDIG	S1009140077	S10V001791	0 0			Acetate	SOLID	45.81189	4.2896E+01			6.04E-03	ug/g	92.899	% Recovery	
9	SPK-PREDIG	S1009140077	S10V001791	0 0			Formate	SOLID	44.39607	4.3580E+01			4.67E-03	ug/g	96.593	% Recovery	
9	SPK-PREDIG	S1009140077	S10V001791	0 0			Chloride	SOLID	8.585937	2.1522E+01			9.98E-03	ug/g	91.328	% Recovery	
9	SPK-PREDIG	S1009140077	S10V001791	0 0			Nitrite	SOLID	53.80116	5.2348E+01			0.0192	ug/g	96.568	% Recovery	
9	SPK-PREDIG	S1009140077	S10V001791	0 0			Sulfate	SOLID	66.13902	1.9142E+02			0.0187	ug/g	91.27	% Recovery	
9	SPK-PREDIG	S1009140077	S10V001791	0 0			Oxalate	SOLID	52.5876	5.2929E+01			0.0231	ug/g	100.65	% Recovery	
9	SPK-PREDIG	S1009140077	S10V001791	0 0			Bromide	SOLID	61.58817	5.9404E+01			0.058	ug/g	96.454	% Recovery	
9	SPK-PREDIG	S1009140077	S10V001791	0 0			Nitrate	SOLID	56.02602	1.2326E+02			0.0208	ug/g	92.2	% Recovery	
9	SPK-PREDIG	S1009140077	S10V001791	0 0			Phosphate	SOLID	55.82376	4.5897E+01			0.0167	ug/g	82.217	% Recovery	
Sample Sequence 10																	
10	SPK-IC	S1009140058	S10V001791	0 0			Fluoride	SOLID	59.40594	6.4585E-01			1.61E-03	ug/g	101.32	% Recovery	
10	SPK-IC	S1009140058	S10V001791	0 0			Glycolate	SOLID	369.306927	3.6336E+00			9.37E-03	ug/g	98.389	% Recovery	
10	SPK-IC	S1009140058	S10V001791	0 0			Acetate	SOLID	448.514847	4.3878E+00			6.04E-03	ug/g	97.064	% Recovery	
10	SPK-IC	S1009140058	S10V001791	0 0			Formate	SOLID	434.653461	4.4069E+00			4.67E-03	ug/g	99.762	% Recovery	
10	SPK-IC	S1009140058	S10V001791	0 0			Chloride	SOLID	84.0594051	2.2363E+00			9.98E-03	ug/g	100.76	% Recovery	
10	SPK-IC	S1009140058	S10V001791	0 0			Nitrite	SOLID	526.732668	5.2260E+00			0.0192	ug/g	98.458	% Recovery	
10	SPK-IC	S1009140058	S10V001791	0 0			Sulfate	SOLID	647.524746	1.9993E+01			0.0187	ug/g	103.24	% Recovery	

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LABCORE Completed Batch Report for Batch# 00022189

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
10	SPK-IC	S1009140058	S10V001791	0 0			Oxalate	SOLID	514.85148	5.4248E+00			0.0231	ug/g	105.37	% Recovery	
10	SPK-IC	S1009140058	S10V001791	0 0			Bromide	SOLID	602.970291	6.0343E+00			0.058	ug/g	100.08	% Recovery	
10	SPK-IC	S1009140058	S10V001791	0 0			Nitrate	SOLID	548.514846	1.2760E+01			0.0208	ug/g	100.06	% Recovery	
10	SPK-IC	S1009140058	S10V001791	0 0			Phosphate	SOLID	546.534648	5.3958E+00			0.0167	ug/g	98.727	% Recovery	
Sample Sequence 11																	
11	SAMPLE	S10V001811		0 1	W		Fluoride	SOLID	N/A	5.9424E-01			0.015945	ug/g			
11	SAMPLE	S10V001811		0 1	W		Glycolate	SOLID	N/A	<9.2800E-02			0.0928	ug/g			U
11	SAMPLE	S10V001811		0 1	W		Acetate	SOLID	N/A	1.1409E-01			0.05982	ug/g			J
11	SAMPLE	S10V001811		0 1	W		Formate	SOLID	N/A	1.9976E-01			0.046251	ug/g			J
11	SAMPLE	S10V001811		0 1	W		Chloride	SOLID	N/A	2.0683E+00			0.098841	ug/g			
11	SAMPLE	S10V001811		0 1	W		Nitrite	SOLID	N/A	<1.9016E-01			0.19016	ug/g			U
11	SAMPLE	S10V001811		0 1	W		Sulfate	SOLID	N/A	4.4791E+01			0.1852	ug/g			
11	SAMPLE	S10V001811		0 1	W		Oxalate	SOLID	N/A	<2.2878E-01			0.22878	ug/g			U
11	SAMPLE	S10V001811		0 1	W		Bromide	SOLID	N/A	<5.7443E-01			0.57443	ug/g			U
11	SAMPLE	S10V001811		0 1	W		Nitrate	SOLID	N/A	4.4942E+00			0.206	ug/g			
11	SAMPLE	S10V001811		0 1	W		Phosphate	SOLID	N/A	<1.6540E-01			0.1654	ug/g			U
Sample Sequence 12																	
12	CCV	S1009140059		0 0			Fluoride	LIQUID	.47619048	4.6008E-01			1.61E-03	ug/mL	96.617	% Recovery	
12	CCV	S1009140059		0 0			Glycolate	LIQUID	2.960317484	2.8162E+00			9.37E-03	ug/mL	95.132	% Recovery	
12	CCV	S1009140059		0 0			Acetate	LIQUID	3.595238124	3.3848E+00			6.04E-03	ug/mL	94.147	% Recovery	
12	CCV	S1009140059		0 0			Formate	LIQUID	3.484127012	3.3817E+00			4.67E-03	ug/mL	97.059	% Recovery	
12	CCV	S1009140059		0 0			Chloride	LIQUID	.6738095292	6.4201E-01			9.98E-03	ug/mL	95.281	% Recovery	
12	CCV	S1009140059		0 0			Nitrite	LIQUID	4.222222256	4.0297E+00			0.0192	ug/mL	95.439	% Recovery	
12	CCV	S1009140059		0 0			Sulfate	LIQUID	5.190476232	5.0914E+00			0.0187	ug/mL	98.092	% Recovery	
12	CCV	S1009140059		0 0			Oxalate	LIQUID	4.12698416	4.0540E+00			0.0231	ug/mL	98.233	% Recovery	
12	CCV	S1009140059		0 0			Bromide	LIQUID	4.833333372	4.6474E+00			0.058	ug/mL	96.154	% Recovery	
12	CCV	S1009140059		0 0			Nitrate	LIQUID	4.396825432	4.2365E+00			0.0208	ug/mL	96.353	% Recovery	
12	CCV	S1009140059		0 0			Phosphate	LIQUID	4.380952416	4.2090E+00			0.0167	ug/mL	96.076	% Recovery	
Sample Sequence 13																	
13	CCB	S1009140060		0 0			Fluoride	LIQUID		<1.6100E-03			1.61E-03	ug/mL			
13	CCB	S1009140060		0 0			Glycolate	LIQUID		<9.3700E-03			9.37E-03	ug/mL			
13	CCB	S1009140060		0 0			Acetate	LIQUID		<6.0400E-03			6.04E-03	ug/mL			
13	CCB	S1009140060		0 0			Formate	LIQUID		<4.6700E-03			4.67E-03	ug/mL			
13	CCB	S1009140060		0 0			Chloride	LIQUID		<9.9800E-03			9.98E-03	ug/mL			
13	CCB	S1009140060		0 0			Nitrite	LIQUID		<1.9200E-02			0.0192	ug/mL			
13	CCB	S1009140060		0 0			Sulfate	LIQUID		<1.8700E-02			0.0187	ug/mL			
13	CCB	S1009140060		0 0			Oxalate	LIQUID		<2.3100E-02			0.0231	ug/mL			
13	CCB	S1009140060		0 0			Bromide	LIQUID		<5.8000E-02			0.058	ug/mL			
13	CCB	S1009140060		0 0			Nitrate	LIQUID		<2.0800E-02			0.0208	ug/mL			
13	CCB	S1009140060		0 0			Phosphate	LIQUID		<1.6700E-02			0.0167	ug/mL			
Sample Sequence 14																	
14	BLNK-PREP	S1009140028		0 0	W		Fluoride	LIQUID		<1.6100E-03			1.61E-03	ug/mL			

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LABCORE Completed Batch Report for Batch# 00022189

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
14	BLNK-PREP	S1009140028		0 0	W		Glycolate	LIQUID		<9.3700E-03			9.37E-03	ug/mL			
14	BLNK-PREP	S1009140028		0 0	W		Acetate	LIQUID		<6.0400E-03			6.04E-03	ug/mL			
14	BLNK-PREP	S1009140028		0 0	W		Formate	LIQUID		<4.6700E-03			4.67E-03	ug/mL			
14	BLNK-PREP	S1009140028		0 0	W		Chloride	LIQUID		<9.9800E-03			9.98E-03	ug/mL			
14	BLNK-PREP	S1009140028		0 0	W		Nitrite	LIQUID		<1.9200E-02			0.0192	ug/mL			
14	BLNK-PREP	S1009140028		0 0	W		Sulfate	LIQUID		<1.8700E-02			0.0187	ug/mL			
14	BLNK-PREP	S1009140028		0 0	W		Oxalate	LIQUID		<2.3100E-02			0.0231	ug/mL			
14	BLNK-PREP	S1009140028		0 0	W		Bromide	LIQUID		<5.8000E-02			0.058	ug/mL			
14	BLNK-PREP	S1009140028		0 0	W		Nitrate	LIQUID		<2.0800E-02			0.0208	ug/mL			
14	BLNK-PREP	S1009140028		0 0	W		Phosphate	LIQUID		<1.6700E-02			0.0167	ug/mL			
Sample Sequence 15																	
15	STD-PREP	S1009140069		0 0			Fluoride	LIQUID	.6	5.9150E-01			1.61E-03	ug/mL	98.583	% Recovery	
15	STD-PREP	S1009140069		0 0			Glycolate	LIQUID	3.73	3.6544E+00			9.37E-03	ug/mL	97.972	% Recovery	
15	STD-PREP	S1009140069		0 0			Acetate	LIQUID	4.53	4.3050E+00			6.04E-03	ug/mL	95.033	% Recovery	
15	STD-PREP	S1009140069		0 0			Formate	LIQUID	4.39	4.3453E+00			4.67E-03	ug/mL	98.982	% Recovery	
15	STD-PREP	S1009140069		0 0			Chloride	LIQUID	.849	8.2429E-01			9.98E-03	ug/mL	97.09	% Recovery	
15	STD-PREP	S1009140069		0 0			Nitrite	LIQUID	5.32	5.1748E+00			0.0192	ug/mL	97.27	% Recovery	
15	STD-PREP	S1009140069		0 0			Sulfate	LIQUID	6.54	6.4965E+00			0.0187	ug/mL	99.335	% Recovery	
15	STD-PREP	S1009140069		0 0			Oxalate	LIQUID	5.2	5.1873E+00			0.0231	ug/mL	99.755	% Recovery	
15	STD-PREP	S1009140069		0 0			Bromide	LIQUID	6.09	5.9600E+00			0.058	ug/mL	97.865	% Recovery	
15	STD-PREP	S1009140069		0 0			Nitrate	LIQUID	5.54	5.4431E+00			0.0208	ug/mL	98.251	% Recovery	
15	STD-PREP	S1009140069		0 0			Phosphate	LIQUID	5.52	5.4084E+00			0.0167	ug/mL	97.979	% Recovery	
Sample Sequence 16																	
16	SAMPLE	S10V002286		0 1	W		Fluoride	SOLID	N/A	1.9613E+00			0.016073	ug/g			
16	SAMPLE	S10V002286		0 1	W		Glycolate	SOLID	N/A	<9.3541E-02			0.093541	ug/g			U
16	SAMPLE	S10V002286		0 1	W		Acetate	SOLID	N/A	1.6043E-01			0.060297	ug/g			J
16	SAMPLE	S10V002286		0 1	W		Formate	SOLID	N/A	1.6821E-01			0.046621	ug/g			J
16	SAMPLE	S10V002286		0 1	W		Chloride	SOLID	N/A	3.6312E+01			0.099631	ug/g			
16	SAMPLE	S10V002286		0 1	W		Nitrite	SOLID	N/A	9.6326E-01			0.19167	ug/g			J
16	SAMPLE	S10V002286		0 1	W		Sulfate	SOLID	N/A	1.1780E+01			0.18668	ug/g			
16	SAMPLE	S10V002286		0 1	W		Oxalate	SOLID	N/A	2.0967E+00			0.23061	ug/g			J
16	SAMPLE	S10V002286		0 1	W		Bromide	SOLID	N/A	<5.7902E-01			0.57902	ug/g			U
16	SAMPLE	S10V002286		0 1	W		Nitrate	SOLID	N/A	5.2996E+01			0.20765	ug/g			
16	SAMPLE	S10V002286		0 1	W		Phosphate	SOLID	N/A	5.6000E+00			0.16672	ug/g			
Sample Sequence 17																	
17	SAMPLE	S10V002315		0 1	W		Fluoride	SOLID	N/A	2.1036E+00			0.015925	ug/g			
17	SAMPLE	S10V002315		0 1	W		Glycolate	SOLID	N/A	<9.2681E-02			0.092681	ug/g			U
17	SAMPLE	S10V002315		0 1	W		Acetate	SOLID	N/A	2.5757E-01			0.059743	ug/g			J
17	SAMPLE	S10V002315		0 1	W		Formate	SOLID	N/A	2.3660E-01			0.046192	ug/g			J
18	SAMPLE	S10V002315		0 2	W		Chloride	SOLID	N/A	3.2824E+01			0.59228	ug/g			
17	SAMPLE	S10V002315		0 1	W		Nitrite	SOLID	N/A	1.2110E+00			0.18991	ug/g			J
17	SAMPLE	S10V002315		0 1	W		Sulfate	SOLID	N/A	1.1841E+01			0.18497	ug/g			

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LABCORE Completed Batch Report for Batch# 00022189

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
17	SAMPLE	S10V002315		0 1	W		Oxalate	SOLID	N/A	3.1428E+00			0.22849	ug/g			
17	SAMPLE	S10V002315		0 1	W		Bromide	SOLID	N/A	<5.7369E-01			0.57369	ug/g			U
17	SAMPLE	S10V002315		0 1	W		Nitrate	SOLID	N/A	5.4628E+01			0.20574	ug/g			
17	SAMPLE	S10V002315		0 1	W		Phosphate	SOLID	N/A	5.7354E+00			0.16518	ug/g			
Sample Sequence 19																	
19	DUP	S1009140029	S10V002315	0 0	W		Fluoride	SOLID	2.1036E+00	1.5758E+00			0.015909	ug/g	28.690	% RPD	
19	DUP	S1009140029	S10V002315	0 0	W		Glycolate	SOLID	<9.2681E-02	<9.2589E-02			0.092589	ug/g			
19	DUP	S1009140029	S10V002315	0 0	W		Acetate	SOLID	2.5757E-01	<5.9684E-02			0.059684	ug/g			
19	DUP	S1009140029	S10V002315	0 0	W		Formate	SOLID	2.3660E-01	<4.6146E-02			0.046146	ug/g			
20	DUP	S1009140029	S10V002315	0 1	W		Chloride	SOLID	3.2824E+01	3.4738E+01			0.5917	ug/g	5.6670	% RPD	
19	DUP	S1009140029	S10V002315	0 0	W		Nitrite	SOLID	1.2110E+00	<1.8972E-01			0.18972	ug/g			
19	DUP	S1009140029	S10V002315	0 0	W		Sulfate	SOLID	1.1841E+01	1.0532E+01			0.18478	ug/g	11.701	% RPD	
19	DUP	S1009140029	S10V002315	0 0	W		Oxalate	SOLID	3.1428E+00	5.7016E-01			0.22826	ug/g	138.58	% RPD	
19	DUP	S1009140029	S10V002315	0 0	W		Bromide	SOLID	<5.7369E-01	<5.7312E-01			0.57312	ug/g			
19	DUP	S1009140029	S10V002315	0 0	W		Nitrate	SOLID	5.4628E+01	5.5863E+01			0.20553	ug/g	2.2348	% RPD	
19	DUP	S1009140029	S10V002315	0 0	W		Phosphate	SOLID	5.7354E+00	5.4682E+00			0.16502	ug/g	4.7702	% RPD	
Sample Sequence 21																	
21	SPK-PREDIG	S1009140074	S10V002315	0 0			Fluoride	SOLID	6.11532	7.8107E+00			1.61E-03	ug/g	93.325	% Recovery	
21	SPK-PREDIG	S1009140074	S10V002315	0 0			Glycolate	SOLID	38.016906	3.5569E+01			9.37E-03	ug/g	93.56	% Recovery	
21	SPK-PREDIG	S1009140074	S10V002315	0 0			Acetate	SOLID	46.170666	4.2791E+01			6.04E-03	ug/g	92.123	% Recovery	
21	SPK-PREDIG	S1009140074	S10V002315	0 0			Formate	SOLID	44.743758	4.2332E+01			4.67E-03	ug/g	94.082	% Recovery	
22	SPK-PREDIG	S1009140074	S10V002315	0 1			Chloride	SOLID	8.6531778	4.0355E+01			0.05988	ug/g	87.032	% Recovery	
21	SPK-PREDIG	S1009140074	S10V002315	0 0			Nitrite	SOLID	54.222504	5.2330E+01			0.0192	ug/g	94.276	% Recovery	
21	SPK-PREDIG	S1009140074	S10V002315	0 0			Sulfate	SOLID	66.656988	7.5443E+01			0.0187	ug/g	95.417	% Recovery	
21	SPK-PREDIG	S1009140074	S10V002315	0 0			Oxalate	SOLID	52.99944	5.2177E+01			0.0231	ug/g	92.518	% Recovery	
21	SPK-PREDIG	S1009140074	S10V002315	0 0			Bromide	SOLID	62.070498	5.9078E+01			0.058	ug/g	95.178	% Recovery	
21	SPK-PREDIG	S1009140074	S10V002315	0 0			Nitrate	SOLID	56.464788	1.0822E+02			0.0208	ug/g	94.912	% Recovery	
21	SPK-PREDIG	S1009140074	S10V002315	0 0			Phosphate	SOLID	56.260944	4.9868E+01			0.0167	ug/g	78.443	% Recovery	
Sample Sequence 23																	
23	SPK-IC	S1009140084	S10V002315	0 0			Fluoride	SOLID	59.40594	8.0946E-01			1.61E-03	ug/g	100.46	% Recovery	
23	SPK-IC	S1009140084	S10V002315	0 0			Glycolate	SOLID	369.306927	3.6475E+00			9.37E-03	ug/g	98.767	% Recovery	
23	SPK-IC	S1009140084	S10V002315	0 0			Acetate	SOLID	448.514847	4.3090E+00			6.04E-03	ug/g	95.493	% Recovery	
23	SPK-IC	S1009140084	S10V002315	0 0			Formate	SOLID	434.653461	4.3688E+00			4.67E-03	ug/g	99.961	% Recovery	
24	SPK-IC	S1009140084	S10V002315	0 1			Chloride	SOLID	517.89	8.3549E+00			9.98E-03	ug/g	98.221	% Recovery	
23	SPK-IC	S1009140084	S10V002315	0 0			Nitrite	SOLID	526.732668	5.2271E+00			0.0192	ug/g	96.911	% Recovery	
23	SPK-IC	S1009140084	S10V002315	0 0			Sulfate	SOLID	647.524746	7.6588E+00			0.0187	ug/g	99.791	% Recovery	
23	SPK-IC	S1009140084	S10V002315	0 0			Oxalate	SOLID	514.85148	5.4854E+00			0.0231	ug/g	100.37	% Recovery	
23	SPK-IC	S1009140084	S10V002315	0 0			Bromide	SOLID	602.970291	5.9552E+00			0.058	ug/g	98.764	% Recovery	
23	SPK-IC	S1009140084	S10V002315	0 0			Nitrate	SOLID	548.514846	1.0893E+01			0.0208	ug/g	97.899	% Recovery	
23	SPK-IC	S1009140084	S10V002315	0 0			Phosphate	SOLID	546.534648	6.0351E+00			0.0167	ug/g	99.815	% Recovery	
Sample Sequence 25																	
25	SAMPLE	S10V002351		0 1	W		Fluoride	SOLID	N/A	1.6000E+00			0.016075	ug/g			

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LABCORE Completed Batch Report for Batch# 00022189

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
25	SAMPLE	S10V002351		0 1	W		Glycolate	SOLID	N/A	<9.3554E-02			0.093554	ug/g			U
25	SAMPLE	S10V002351		0 1	W		Acetate	SOLID	N/A	<6.0306E-02			0.060306	ug/g			U
25	SAMPLE	S10V002351		0 1	W		Formate	SOLID	N/A	<4.6627E-02			0.046627	ug/g			U
25	SAMPLE	S10V002351		0 1	W		Chloride	SOLID	N/A	1.8168E+01			0.099645	ug/g			
25	SAMPLE	S10V002351		0 1	W		Nitrite	SOLID	N/A	<1.9170E-01			0.1917	ug/g			U
25	SAMPLE	S10V002351		0 1	W		Sulfate	SOLID	N/A	1.9573E+01			0.18671	ug/g			
25	SAMPLE	S10V002351		0 1	W		Oxalate	SOLID	N/A	<2.3064E-01			0.23064	ug/g			U
25	SAMPLE	S10V002351		0 1	W		Bromide	SOLID	N/A	<5.7910E-01			0.5791	ug/g			U
25	SAMPLE	S10V002351		0 1	W		Nitrate	SOLID	N/A	2.3847E+01			0.20768	ug/g			
25	SAMPLE	S10V002351		0 1	W		Phosphate	SOLID	N/A	1.2714E+00			0.16674	ug/g			J
Sample Sequence 26																	
26	SAMPLE	S10V002397		0 1	W		Fluoride	SOLID	N/A	1.4526E+00			0.015823	ug/g			
26	SAMPLE	S10V002397		0 1	W		Glycolate	SOLID	N/A	<9.2088E-02			0.092088	ug/g			U
26	SAMPLE	S10V002397		0 1	W		Acetate	SOLID	N/A	3.4034E-01			0.059361	ug/g			J
26	SAMPLE	S10V002397		0 1	W		Formate	SOLID	N/A	1.8462E+00			0.045897	ug/g			J
26	SAMPLE	S10V002397		0 1	W		Chloride	SOLID	N/A	2.3922E+00			0.098084	ug/g			
26	SAMPLE	S10V002397		0 1	W		Nitrite	SOLID	N/A	1.8461E+00			0.1887	ug/g			J
26	SAMPLE	S10V002397		0 1	W		Sulfate	SOLID	N/A	9.5642E+01			0.18378	ug/g			
26	SAMPLE	S10V002397		0 1	W		Oxalate	SOLID	N/A	<2.2703E-01			0.22703	ug/g			U
26	SAMPLE	S10V002397		0 1	W		Bromide	SOLID	N/A	<5.7002E-01			0.57002	ug/g			U
26	SAMPLE	S10V002397		0 1	W		Nitrate	SOLID	N/A	1.2240E+01			0.20442	ug/g			
26	SAMPLE	S10V002397		0 1	W		Phosphate	SOLID	N/A	1.1157E+00			0.16413	ug/g			J
Sample Sequence 27																	
27	SAMPLE	S10V002416		0 1	W		Fluoride	SOLID	N/A	1.4894E+00			0.015931	ug/g			
27	SAMPLE	S10V002416		0 1	W		Glycolate	SOLID	N/A	<9.2715E-02			0.092715	ug/g			U
27	SAMPLE	S10V002416		0 1	W		Acetate	SOLID	N/A	2.7379E-01			0.059765	ug/g			J
27	SAMPLE	S10V002416		0 1	W		Formate	SOLID	N/A	3.1347E-01			0.046209	ug/g			J
27	SAMPLE	S10V002416		0 1	W		Chloride	SOLID	N/A	1.9768E+00			0.098751	ug/g			
27	SAMPLE	S10V002416		0 1	W		Nitrite	SOLID	N/A	1.3394E+00			0.18998	ug/g			J
27	SAMPLE	S10V002416		0 1	W		Sulfate	SOLID	N/A	5.0889E+01			0.18503	ug/g			
27	SAMPLE	S10V002416		0 1	W		Oxalate	SOLID	N/A	<2.2857E-01			0.22857	ug/g			U
27	SAMPLE	S10V002416		0 1	W		Bromide	SOLID	N/A	<5.7391E-01			0.57391	ug/g			U
27	SAMPLE	S10V002416		0 1	W		Nitrate	SOLID	N/A	1.2792E+01			0.20581	ug/g			
27	SAMPLE	S10V002416		0 1	W		Phosphate	SOLID	N/A	1.0065E+00			0.16525	ug/g			J
Sample Sequence 28																	
28	SAMPLE	S10V002435		0 1	W		Fluoride	SOLID	N/A	8.2798E-01			0.015909	ug/g			
28	SAMPLE	S10V002435		0 1	W		Glycolate	SOLID	N/A	<9.2591E-02			0.092591	ug/g			U
28	SAMPLE	S10V002435		0 1	W		Acetate	SOLID	N/A	<5.9685E-02			0.059685	ug/g			U
28	SAMPLE	S10V002435		0 1	W		Formate	SOLID	N/A	1.1048E-01			0.046147	ug/g			J
28	SAMPLE	S10V002435		0 1	W		Chloride	SOLID	N/A	6.4138E+00			0.098619	ug/g			
28	SAMPLE	S10V002435		0 1	W		Nitrite	SOLID	N/A	<1.8973E-01			0.18973	ug/g			U
28	SAMPLE	S10V002435		0 1	W		Sulfate	SOLID	N/A	9.4269E+01			0.18479	ug/g			

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LABCORE Completed Batch Report for Batch# 00022189

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
28	SAMPLE	S10V002435		0 1	W		Oxalate	SOLID	N/A	<2.2827E-01			0.22827	ug/g			U
28	SAMPLE	S10V002435		0 1	W		Bromide	SOLID	N/A	<5.7313E-01			0.57313	ug/g			U
28	SAMPLE	S10V002435		0 1	W		Nitrate	SOLID	N/A	1.6877E+01			0.20554	ug/g			
28	SAMPLE	S10V002435		0 1	W		Phosphate	SOLID	N/A	4.2600E-01			0.16502	ug/g			J
Sample Sequence 29																	
29	CCV	S1009140087		0 0			Fluoride	LIQUID	.47619048	4.7032E-01			1.61E-03	ug/mL	98.767	% Recovery	
29	CCV	S1009140087		0 0			Glycolate	LIQUID	2.960317484	2.8926E+00			9.37E-03	ug/mL	97.713	% Recovery	
29	CCV	S1009140087		0 0			Acetate	LIQUID	3.595238124	3.4376E+00			6.04E-03	ug/mL	95.614	% Recovery	
29	CCV	S1009140087		0 0			Formate	LIQUID	3.484127012	3.4369E+00			4.67E-03	ug/mL	98.644	% Recovery	
29	CCV	S1009140087		0 0			Chloride	LIQUID	.6738095292	6.5576E-01			9.98E-03	ug/mL	97.321	% Recovery	
29	CCV	S1009140087		0 0			Nitrite	LIQUID	4.222222256	4.1245E+00			0.0192	ug/mL	97.685	% Recovery	
29	CCV	S1009140087		0 0			Sulfate	LIQUID	5.190476232	5.1758E+00			0.0187	ug/mL	99.718	% Recovery	
29	CCV	S1009140087		0 0			Oxalate	LIQUID	4.12698416	4.1603E+00			0.0231	ug/mL	100.81	% Recovery	
29	CCV	S1009140087		0 0			Bromide	LIQUID	4.833333372	4.6902E+00			0.058	ug/mL	97.039	% Recovery	
29	CCV	S1009140087		0 0			Nitrate	LIQUID	4.396825432	4.3243E+00			0.0208	ug/mL	98.35	% Recovery	
29	CCV	S1009140087		0 0			Phosphate	LIQUID	4.380952416	4.2565E+00			0.0167	ug/mL	97.159	% Recovery	
Sample Sequence 30																	
30	CCB	S1009140085		0 0			Fluoride	LIQUID		<1.6100E-03			1.61E-03	ug/mL			
30	CCB	S1009140085		0 0			Glycolate	LIQUID		<9.3700E-03			9.37E-03	ug/mL			
30	CCB	S1009140085		0 0			Acetate	LIQUID		<6.0400E-03			6.04E-03	ug/mL			
30	CCB	S1009140085		0 0			Formate	LIQUID		<4.6700E-03			4.67E-03	ug/mL			
30	CCB	S1009140085		0 0			Chloride	LIQUID		<9.9800E-03			9.98E-03	ug/mL			
30	CCB	S1009140085		0 0			Nitrite	LIQUID		<1.9200E-02			0.0192	ug/mL			
30	CCB	S1009140085		0 0			Sulfate	LIQUID		<1.8700E-02			0.0187	ug/mL			
30	CCB	S1009140085		0 0			Oxalate	LIQUID		<2.3100E-02			0.0231	ug/mL			
30	CCB	S1009140085		0 0			Bromide	LIQUID		<5.8000E-02			0.058	ug/mL			
30	CCB	S1009140085		0 0			Nitrate	LIQUID		<2.0800E-02			0.0208	ug/mL			
30	CCB	S1009140085		0 0			Phosphate	LIQUID		<1.6700E-02			0.0167	ug/mL			
Sample Sequence 31																	
31	SAMPLE	S10V002454		0 1	W		Fluoride	SOLID	N/A	1.5602E+00			0.016003	ug/g			
31	SAMPLE	S10V002454		0 1	W		Glycolate	SOLID	N/A	<9.3134E-02			0.093134	ug/g			U
31	SAMPLE	S10V002454		0 1	W		Acetate	SOLID	N/A	<6.0035E-02			0.060035	ug/g			U
31	SAMPLE	S10V002454		0 1	W		Formate	SOLID	N/A	1.6331E-01			0.046418	ug/g			J
31	SAMPLE	S10V002454		0 1	W		Chloride	SOLID	N/A	2.1806E+00			0.099197	ug/g			
31	SAMPLE	S10V002454		0 1	W		Nitrite	SOLID	N/A	8.4188E-01			0.19084	ug/g			J
31	SAMPLE	S10V002454		0 1	W		Sulfate	SOLID	N/A	1.0914E+02			0.18587	ug/g			
31	SAMPLE	S10V002454		0 1	W		Oxalate	SOLID	N/A	<2.2960E-01			0.2296	ug/g			U
31	SAMPLE	S10V002454		0 1	W		Bromide	SOLID	N/A	<5.7649E-01			0.57649	ug/g			U
31	SAMPLE	S10V002454		0 1	W		Nitrate	SOLID	N/A	9.3441E+00			0.20674	ug/g			
31	SAMPLE	S10V002454		0 1	W		Phosphate	SOLID	N/A	8.3363E-01			0.16599	ug/g			J
Sample Sequence 32																	
32	SAMPLE	S10V002473		0 1	W		Fluoride	SOLID	N/A	7.3867E-01			0.016034	ug/g			

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LABCORE Completed Batch Report for Batch# 00022189

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
32	SAMPLE	S10V002473		0 1	W		Glycolate	SOLID	N/A	<9.3317E-02			0.093317	ug/g			U
32	SAMPLE	S10V002473		0 1	W		Acetate	SOLID	N/A	2.0217E-01			0.060153	ug/g			J
32	SAMPLE	S10V002473		0 1	W		Formate	SOLID	N/A	2.0426E-01			0.046509	ug/g			J
32	SAMPLE	S10V002473		0 1	W		Chloride	SOLID	N/A	9.7542E+00			0.099392	ug/g			
32	SAMPLE	S10V002473		0 1	W		Nitrite	SOLID	N/A	1.2366E+00			0.19122	ug/g			J
32	SAMPLE	S10V002473		0 1	W		Sulfate	SOLID	N/A	9.6722E+01			0.18624	ug/g			
32	SAMPLE	S10V002473		0 1	W		Oxalate	SOLID	N/A	<2.3006E-01			0.23006	ug/g			U
32	SAMPLE	S10V002473		0 1	W		Bromide	SOLID	N/A	<5.7763E-01			0.57763	ug/g			U
32	SAMPLE	S10V002473		0 1	W		Nitrate	SOLID	N/A	1.9155E+01			0.20715	ug/g			
32	SAMPLE	S10V002473		0 1	W		Phosphate	SOLID	N/A	<1.6632E-01			0.16632	ug/g			U
Sample Sequence 33																	
33	CCV	S1009140088		0 0			Fluoride	LIQUID	.47619048	4.6806E-01			1.61E-03	ug/mL	98.293	% Recovery	
33	CCV	S1009140088		0 0			Glycolate	LIQUID	2.960317484	2.8648E+00			9.37E-03	ug/mL	96.772	% Recovery	
33	CCV	S1009140088		0 0			Acetate	LIQUID	3.595238124	3.4654E+00			6.04E-03	ug/mL	96.39	% Recovery	
33	CCV	S1009140088		0 0			Formate	LIQUID	3.484127012	3.4601E+00			4.67E-03	ug/mL	99.31	% Recovery	
33	CCV	S1009140088		0 0			Chloride	LIQUID	.6738095292	6.5567E-01			9.98E-03	ug/mL	97.308	% Recovery	
33	CCV	S1009140088		0 0			Nitrite	LIQUID	4.222222256	4.1040E+00			0.0192	ug/mL	97.2	% Recovery	
33	CCV	S1009140088		0 0			Sulfate	LIQUID	5.190476232	5.1798E+00			0.0187	ug/mL	99.795	% Recovery	
33	CCV	S1009140088		0 0			Oxalate	LIQUID	4.12698416	4.1374E+00			0.0231	ug/mL	100.25	% Recovery	
33	CCV	S1009140088		0 0			Bromide	LIQUID	4.833333372	4.7035E+00			0.058	ug/mL	97.314	% Recovery	
33	CCV	S1009140088		0 0			Nitrate	LIQUID	4.396825432	4.3381E+00			0.0208	ug/mL	98.664	% Recovery	
33	CCV	S1009140088		0 0			Phosphate	LIQUID	4.380952416	4.2651E+00			0.0167	ug/mL	97.355	% Recovery	
Sample Sequence 34																	
34	CCB	S1009140086		0 0			Fluoride	LIQUID		<1.6100E-03			1.61E-03	ug/mL			
34	CCB	S1009140086		0 0			Glycolate	LIQUID		<9.3700E-03			9.37E-03	ug/mL			
34	CCB	S1009140086		0 0			Acetate	LIQUID		<6.0400E-03			6.04E-03	ug/mL			
34	CCB	S1009140086		0 0			Formate	LIQUID		<4.6700E-03			4.67E-03	ug/mL			
34	CCB	S1009140086		0 0			Chloride	LIQUID		<9.9800E-03			9.98E-03	ug/mL			
34	CCB	S1009140086		0 0			Nitrite	LIQUID		<1.9200E-02			0.0192	ug/mL			
34	CCB	S1009140086		0 0			Sulfate	LIQUID		<1.8700E-02			0.0187	ug/mL			
34	CCB	S1009140086		0 0			Oxalate	LIQUID		<2.3100E-02			0.0231	ug/mL			
34	CCB	S1009140086		0 0			Bromide	LIQUID		<5.8000E-02			0.058	ug/mL			
34	CCB	S1009140086		0 0			Nitrate	LIQUID		<2.0800E-02			0.0208	ug/mL			
34	CCB	S1009140086		0 0			Phosphate	LIQUID		<1.6700E-02			0.0167	ug/mL			
Sample Sequence 35																	
35	CCV	S1009150025		0 0			Fluoride	LIQUID	.47619048	4.6799E-01			1.61E-03	ug/mL	98.278	% Recovery	
35	CCV	S1009150025		0 0			Glycolate	LIQUID	2.960317484	2.8746E+00			9.37E-03	ug/mL	97.103	% Recovery	
35	CCV	S1009150025		0 0			Acetate	LIQUID	3.595238124	3.4466E+00			6.04E-03	ug/mL	95.865	% Recovery	
35	CCV	S1009150025		0 0			Formate	LIQUID	3.484127012	3.4473E+00			4.67E-03	ug/mL	98.942	% Recovery	
35	CCV	S1009150025		0 0			Chloride	LIQUID	.6738095292	6.6659E-01			9.98E-03	ug/mL	98.929	% Recovery	
35	CCV	S1009150025		0 0			Nitrite	LIQUID	4.222222256	4.1383E+00			0.0192	ug/mL	98.012	% Recovery	
35	CCV	S1009150025		0 0			Sulfate	LIQUID	5.190476232	5.1682E+00			0.0187	ug/mL	99.57	% Recovery	

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LABCORE Completed Batch Report for Batch# 00022189

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
35	CCV	S1009150025		0 0			Oxalate	LIQUID	4.12698416	4.1163E+00			0.0231	ug/mL	99.741	% Recovery	
35	CCV	S1009150025		0 0			Bromide	LIQUID	4.833333372	4.6734E+00			0.058	ug/mL	96.69	% Recovery	
35	CCV	S1009150025		0 0			Nitrate	LIQUID	4.396825432	4.2694E+00			0.0208	ug/mL	97.103	% Recovery	
35	CCV	S1009150025		0 0			Phosphate	LIQUID	4.380952416	4.2492E+00			0.0167	ug/mL	96.994	% Recovery	
Sample Sequence 36																	
36	CCB	S1009150024		0 0			Fluoride	LIQUID		<1.6100E-03			1.61E-03	ug/mL			
36	CCB	S1009150024		0 0			Glycolate	LIQUID		<9.3700E-03			9.37E-03	ug/mL			
36	CCB	S1009150024		0 0			Acetate	LIQUID		<6.0400E-03			6.04E-03	ug/mL			
36	CCB	S1009150024		0 0			Formate	LIQUID		<4.6700E-03			4.67E-03	ug/mL			
36	CCB	S1009150024		0 0			Chloride	LIQUID		<9.9800E-03			9.98E-03	ug/mL			
36	CCB	S1009150024		0 0			Nitrite	LIQUID		<1.9200E-02			0.0192	ug/mL			
36	CCB	S1009150024		0 0			Sulfate	LIQUID		<1.8700E-02			0.0187	ug/mL			
36	CCB	S1009150024		0 0			Oxalate	LIQUID		<2.3100E-02			0.0231	ug/mL			
36	CCB	S1009150024		0 0			Bromide	LIQUID		<5.8000E-02			0.058	ug/mL			
36	CCB	S1009150024		0 0			Nitrate	LIQUID		<2.0800E-02			0.0208	ug/mL			
36	CCB	S1009150024		0 0			Phosphate	LIQUID		<1.6700E-02			0.0167	ug/mL			
Sample Sequence 37																	
37	LLS	S1009150026		0 0			Fluoride	LIQUID	.02985072	2.3220E-02			1.61E-03	ug/mL	77.787	% Recovery	
37	LLS	S1009150026		0 0			Glycolate	LIQUID	.185571976	1.3201E-01			9.37E-03	ug/mL	71.137	% Recovery	
37	LLS	S1009150026		0 0			Acetate	LIQUID	.225372936	1.8064E-01			6.04E-03	ug/mL	80.152	% Recovery	
37	LLS	S1009150026		0 0			Formate	LIQUID	.218407768	1.8013E-01			4.67E-03	ug/mL	82.474	% Recovery	
37	LLS	S1009150026		0 0			Chloride	LIQUID	.0422387688	3.8260E-02			9.98E-03	ug/mL	90.58	% Recovery	
37	LLS	S1009150026		0 0			Nitrite	LIQUID	.264676384	2.3107E-01			0.0192	ug/mL	87.303	% Recovery	
37	LLS	S1009150026		0 0			Sulfate	LIQUID	.325372848	2.9631E-01			0.0187	ug/mL	91.068	% Recovery	
37	LLS	S1009150026		0 0			Oxalate	LIQUID	.25870624	2.3087E-01			0.0231	ug/mL	89.24	% Recovery	
37	LLS	S1009150026		0 0			Bromide	LIQUID	.302984808	2.4943E-01			0.058	ug/mL	82.324	% Recovery	
37	LLS	S1009150026		0 0			Nitrate	LIQUID	.275621648	2.3292E-01			0.0208	ug/mL	84.507	% Recovery	
37	LLS	S1009150026		0 0			Phosphate	LIQUID	.274626624	2.3191E-01			0.0167	ug/mL	84.446	% Recovery	
Sample Sequence 38																	
38	CCV	S1009150028		0 0			Fluoride	LIQUID	.47619048	4.6658E-01			1.61E-03	ug/mL	97.982	% Recovery	
38	CCV	S1009150028		0 0			Glycolate	LIQUID	2.960317484	2.8730E+00			9.37E-03	ug/mL	97.051	% Recovery	
38	CCV	S1009150028		0 0			Acetate	LIQUID	3.595238124	3.4253E+00			6.04E-03	ug/mL	95.273	% Recovery	
38	CCV	S1009150028		0 0			Formate	LIQUID	3.484127012	3.4225E+00			4.67E-03	ug/mL	98.232	% Recovery	
38	CCV	S1009150028		0 0			Chloride	LIQUID	.6738095292	6.6445E-01			9.98E-03	ug/mL	98.611	% Recovery	
38	CCV	S1009150028		0 0			Nitrite	LIQUID	4.222222256	4.0857E+00			0.0192	ug/mL	96.767	% Recovery	
38	CCV	S1009150028		0 0			Sulfate	LIQUID	5.190476232	5.1590E+00			0.0187	ug/mL	99.394	% Recovery	
38	CCV	S1009150028		0 0			Oxalate	LIQUID	4.12698416	4.1190E+00			0.0231	ug/mL	99.806	% Recovery	
38	CCV	S1009150028		0 0			Bromide	LIQUID	4.833333372	4.6993E+00			0.058	ug/mL	97.227	% Recovery	
38	CCV	S1009150028		0 0			Nitrate	LIQUID	4.396825432	4.2943E+00			0.0208	ug/mL	97.667	% Recovery	
38	CCV	S1009150028		0 0			Phosphate	LIQUID	4.380952416	4.2646E+00			0.0167	ug/mL	97.345	% Recovery	
Sample Sequence 39																	
39	CCB	S1009150027		0 0			Fluoride	LIQUID		<1.6100E-03			1.61E-03	ug/mL			

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LABCORE Completed Batch Report for Batch# 00022189

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
39	CCB	S1009150027		0 0			Glycolate	LIQUID		<9.3700E-03			9.37E-03	ug/mL			
39	CCB	S1009150027		0 0			Acetate	LIQUID		<6.0400E-03			6.04E-03	ug/mL			
39	CCB	S1009150027		0 0			Formate	LIQUID		<4.6700E-03			4.67E-03	ug/mL			
39	CCB	S1009150027		0 0			Chloride	LIQUID		<9.9800E-03			9.98E-03	ug/mL			
39	CCB	S1009150027		0 0			Nitrite	LIQUID		<1.9200E-02			0.0192	ug/mL			
39	CCB	S1009150027		0 0			Sulfate	LIQUID		<1.8700E-02			0.0187	ug/mL			
39	CCB	S1009150027		0 0			Oxalate	LIQUID		<2.3100E-02			0.0231	ug/mL			
39	CCB	S1009150027		0 0			Bromide	LIQUID		<5.8000E-02			0.058	ug/mL			
39	CCB	S1009150027		0 0			Nitrate	LIQUID		<2.0800E-02			0.0208	ug/mL			
39	CCB	S1009150027		0 0			Phosphate	LIQUID		<1.6700E-02			0.0167	ug/mL			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00022189

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# 00022189

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1009140055	CCV				
2	S1009140056	CCB				
3	S1009140057	LLS				
4	S1009140024	BLNK-PREP				
5	S1009140068	STD-PREP				
6	S10V001771	SAMPLE		20100556	B26CD0	C Farm WMC 2010-2
7	S10V001791	SAMPLE		20100556	B26CD2	C Farm WMC 2010-2
8	S1009140025	DUP	S10V001791			
9	S1009140077	SPK-PREDIG	S10V001791			
10	S1009140058	SPK-IC	S10V001791			
11	S10V001811	SAMPLE		20100556	B26CD4	C Farm WMC 2010-2
12	S1009140059	CCV				
13	S1009140060	CCB				
14	S1009140028	BLNK-PREP				
15	S1009140069	STD-PREP				
16	S10V002286	SAMPLE		20100660	B26JL0	C Farm WMC 2010-2
17	S10V002315	SAMPLE		20100660	B26JL1	C Farm WMC 2010-2
18	S10V002315	SAMPLE		20100660	B26JL1	C Farm WMC 2010-2
19	S1009140029	DUP	S10V002315			
20	S1009140029	DUP	S10V002315			
21	S1009140074	SPK-PREDIG	S10V002315			
22	S1009140074	SPK-PREDIG	S10V002315			
23	S1009140084	SPK-IC	S10V002315			
24	S1009140084	SPK-IC	S10V002315			
25	S10V002351	SAMPLE		20100660	B26C47	C Farm WMC 2010-2
26	S10V002397	SAMPLE		20100660	B26C51	C Farm WMC 2010-2
27	S10V002416	SAMPLE		20100660	B26C53	C Farm WMC 2010-2
28	S10V002435	SAMPLE		20100660	B26C55	C Farm WMC 2010-2
29	S1009140087	CCV				
30	S1009140085	CCB				
31	S10V002454	SAMPLE		20100660	B26C57	C Farm WMC 2010-2
32	S10V002473	SAMPLE		20100660	B26C59	C Farm WMC 2010-2
33	S1009140088	CCV				
34	S1009140086	CCB				
35	S1009150025	CCV				

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

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LABCORE Completed Batch Report for Batch# 00022189

36	S1009150024	CCB
37	S1009150026	LLS
38	S1009150028	CCV
39	S1009150027	CCB

LABCORE Completed Batch Report for Batch# 00021732

Analyst: LaPlant, Kelsey

Book#: 26N29D, 27N29D

Instrument: IC-5 (IC-NH4)

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

Specification: C Farm WMC 2010-2

Prep Batch: 00021702

Batch Comment:

C Farm WMC 2010-2/BY Barrier 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	S1008300063		0 0			Ammonium	LIQUID	3.00990096	2.9225E+00			0.012	ug/mL	97.097	% Recovery	
Sample Sequence 2																	
2	CCB	S1008300064		0 0			Ammonium	LIQUID		<1.2000E-02			0.012	ug/mL			
Sample Sequence 3																	
3	LLS	S1008300065		0 0			Ammonium	LIQUID	.119168	1.0586E-01			0.012	ug/mL	88.833	% Recovery	
Sample Sequence 4																	
4	BLNK-PREP	S1008300067		0 0			Ammonium	LIQUID		2.7880E-02			0.012	ug/mL			
Sample Sequence 5																	
5	LCS	S1008300066		0 0			Ammonium	LIQUID	6.08	6.3028E+00			0.012	ug/mL	103.67	% Recovery	
Sample Sequence 8																	
8	SAMPLE	S10V001895		0 0	S		Ammonium	SOLID	N/A	5.9447E+00			0.46747	ug/g			
Sample Sequence 9																	
9	SAMPLE	S10V001878		0 0	S		Ammonium	SOLID	N/A	6.2176E+00			0.46875	ug/g			
Sample Sequence 10																	
10	CCV	S1008300073		0 0			Ammonium	LIQUID	3.00990096	2.9312E+00			0.012	ug/mL	97.384	% Recovery	
Sample Sequence 11																	
11	CCB	S1008300074		0 0			Ammonium	LIQUID		<1.2000E-02			0.012	ug/mL			
Sample Sequence 13																	
13	DUP	S1008300068	S10V002203	0 0			Ammonium	SOLID					0.012	ug/g	2.8172	% RPD	
Sample Sequence 14																	
14	SPK-PREDIG	S1008300069	S10V002203	0 0			Ammonium	SOLID					0.01212	ug/g	98.086	% Recovery	
Sample Sequence 15																	
15	SPK-IC	S1008300071	S10V002203	0 0			Ammonium	SOLID					0.012	ug/g	99.747	% Recovery	
Sample Sequence 16																	
16	SAMPLE	S10V002475		0 0	S		Ammonium	SOLID	N/A	1.6024E+00			0.47714	ug/g			BJ
Sample Sequence 17																	
17	SAMPLE	S10V002456		0 0	S		Ammonium	SOLID	N/A	1.8560E+00			0.46711	ug/g			BJ
Sample Sequence 18																	
18	CCV	S1008300076		0 0			Ammonium	LIQUID	3.00990096	2.9347E+00			0.012	ug/mL	97.501	% Recovery	
Sample Sequence 19																	
19	CCB	S1008300075		0 0			Ammonium	LIQUID		<1.2000E-02			0.012	ug/mL			

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

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

LABCORE Completed Batch Report for Batch# 00021732

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00021732

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# 00021732

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1008300063	CCV				
2	S1008300064	CCB				
3	S1008300065	LLS				
4	S1008300067	BLNK-PREP				
5	S1008300066	LCS				
8	S10V001895	SAMPLE		20100584	B26JK9	C Farm WMC 2010-2
9	S10V001878	SAMPLE		20100584	B26JK8	C Farm WMC 2010-2
10	S1008300073	CCV				
11	S1008300074	CCB				
13	S1008300068	DUP	S10V002203			
14	S1008300069	SPK-PREDIG	S10V002203			
15	S1008300071	SPK-IC	S10V002203			
16	S10V002475	SAMPLE		20100660	B26C59	C Farm WMC 2010-2
17	S10V002456	SAMPLE		20100660	B26C57	C Farm WMC 2010-2
18	S1008300076	CCV				
19	S1008300075	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# 00021436

Analyst: Boisoneau, Ryan **Book#:** 27N29D

Instrument: IC-5 (IC-NH4)

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

Specification: C Farm WMC 2010-2

Prep Batch: 00021434

Batch Comment:

NH4 DIST C-FARM WMC 2010-2. RJB

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 1																	
1	CCV	S1008190006		0 0			Ammonium	LIQUID	3.00990096	2.9304E+00			0.012	ug/mL	97.359	% Recovery	
Sample Sequence 2																	
2	CCB	S1008190007		0 0			Ammonium	LIQUID		<1.2000E-02			0.012	ug/mL			
Sample Sequence 3																	
3	LLS	S1008190008		0 0			Ammonium	LIQUID	.11921664	1.1123E-01			0.012	ug/mL	93.301	% Recovery	
Sample Sequence 4																	
4	BLNK-PREP	S1008190002		0 0	S		Ammonium	LIQUID		4.8650E-02			0.012	ug/mL			
Sample Sequence 5																	
5	LCS	S1008190001		0 0	S		Ammonium	LIQUID	304	3.0724E+02			0.6	ug/mL	101.06	% Recovery	
Sample Sequence 6																	
6	SAMPLE	S10V002290		0 0	S		Ammonium	SOLID	N/A	1.0492E+01			0.47733	ug/g			
Sample Sequence 7																	
7	DUP	S1008190003	S10V002290	0 0	S		Ammonium	SOLID	1.0492E+01	1.3076E+01			0.47281	ug/g	21.928	% RPD	
Sample Sequence 8																	
8	SPK-PREDIG	S1008190004	S10V002290	0 0	S		Ammonium	SOLID	119.8368	1.2865E+02			0.47792	ug/g	98.603	% Recovery	
Sample Sequence 9																	
9	SPK-IC	S1008190010	S10V002290	0 0			Ammonium	SOLID	307.04	3.1515E+00			0.012	ug/g	94.99	% Recovery	
Sample Sequence 10																	
10	SAMPLE	S10V002317		0 0	S		Ammonium	SOLID	N/A	2.2805E+01			0.48	ug/g			
Sample Sequence 11																	
11	CCV	S1008190012		0 0			Ammonium	LIQUID	3.00990096	2.9442E+00			0.012	ug/mL	97.818	% Recovery	
Sample Sequence 12																	
12	CCB	S1008190013		0 0			Ammonium	LIQUID		<1.2000E-02			0.012	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# 00021436

Final Page for Batch# 00021436

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# 00021436

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1008190006	CCV				
2	S1008190007	CCB				
3	S1008190008	LLS				
4	S1008190002	BLNK-PREP				
5	S1008190001	LCS				
6	S10V002290	SAMPLE		20100660	B26JL0	C Farm WMC 2010-2
7	S1008190003	DUP	S10V002290			
8	S1008190004	SPK-PREDIG	S10V002290			
9	S1008190010	SPK-IC	S10V002290			
10	S10V002317	SAMPLE		20100660	B26JL1	C Farm WMC 2010-2
11	S1008190012	CCV				
12	S1008190013	CCB				

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

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

Date: 21 June 2011
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: WMA C
Subject: Radiochemical - Sample Data Group (SDG) 20100660

INTRODUCTION

This memorandum presents the results of data validation for SDG 20100660 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
B26C59	8/24/2010	Soil	C	See note 1
B26JL0	8/17/2010	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.

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 results for samples B26C59 and B26JL0 were non-detects and should be qualified as estimates and flagged "UJ."

Carrier/Tracer Recovery Factors

All carrier/tracer recovery factors were acceptable with the following exception. The Ni-63 carrier recovery for sample B26JL0 was >105%. The Ni-63 result for sample B26JL0 was a non-detect and should not be qualified.

- **Precision**

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

and have associated results <5X the 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 20100660 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

A minor deficiency leading to qualification of sample results as estimates was due to lack of LCS analysis for Se-79. 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: 20100660	Reviewer: AQA	Project: WMA C	Page 1 of 1
Analyte(s)	**DV Flag**	**Samples Affected**	**Reason**
Se-79	UJ	B26C59, B26JL0	Lack of LCS data

Comments: None

Appendix 3

Annotated Laboratory Reports

Data Summary Report

Sample Group: 20100660
Core Number: C7682
Customer Sample ID: B26C59
Sample Depth: 88-90

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002467			%WATERA	%WATER-APD	%	n/a	n/a	4.150	n/a	n/a	n/a	n/a	0.01000	n/a	
S10V002467			57-12-5	Cyanide	ug/g	105	<0.0370	<2.58	n/a	n/a	n/a	n/a	2.58	n/a	U
S10V002467			7439-97-6	Mercury	ug/g	87.7	<1.00E-04	<9.63E-03	n/a	n/a	n/a	n/a	9.63E-03	n/a	U
S10V002467			PH	pH	unitless	n/a	n/a	8.59	n/a	n/a	n/a	n/a	0.0100	n/a	
S10V002467			12597-04-5	Sulfide	ug/g	96.1	<0.180	8.04	n/a	n/a	n/a	n/a	7.10	n/a	B
S10V002468			13966-00-2	Potassium-40	uCi/g	n/a	n/a	1.88E-05	1.76E-05	n/a	n/a	n/a	7.75E-06	28.59	
S10V002468			10198-40-0	Cobalt-60	uCi/g	98.2	<3.92E-07	<3.95E-07	<3.81E-07	n/a	n/a	n/a	3.95E-07	n/a	U
S10V002468			14234-35-6	Antimony-125	uCi/g	n/a	<1.02E-06	<1.05E-06	<1.02E-06	n/a	n/a	n/a	1.05E-06	n/a	U
S10V002468			10045-97-3	Cesium-137	uCi/g	100	<5.19E-07	<5.86E-07	<5.37E-07	n/a	n/a	n/a	5.86E-07	n/a	U
S10V002468			14683-23-9	Europium-152	uCi/g	n/a	<1.88E-06	<1.92E-06	<1.99E-06	n/a	n/a	n/a	1.92E-06	n/a	U
S10V002468			15585-10-1	Europium-154	uCi/g	n/a	<1.08E-06	<1.38E-06	<1.19E-06	n/a	n/a	n/a	1.38E-06	n/a	U
S10V002468			14391-16-3	Europium-155	uCi/g	n/a	<9.28E-07	<1.03E-06	<1.02E-06	n/a	n/a	n/a	1.03E-06	n/a	U
S10V002468			14274-82-9	Thorium-228	uCi/g	n/a	<2.19E-05	<2.43E-05	<2.43E-05	n/a	n/a	n/a	2.43E-05	n/a	U
S10V002468			15065-10-8	Thorium-234	uCi/g	n/a	<1.82E-05	<2.01E-05	<1.87E-05	n/a	n/a	n/a	2.01E-05	n/a	U
S10V002468			15046-84-1	Iodine-129	uCi/g	113	<1.93E-07	<1.65E-07	n/a	n/a	n/a	n/a	1.65E-07	n/a	U
S10V002469		WV	14133-76-7	Technetium-99	ug/g	110	<3.00E-06	<3.02E-06	n/a	n/a	n/a	n/a	3.02E-06	n/a	U
S10V002470		W	14762-75-5	Carbon-14	uCi/g	92.4	<1.33E-07	<1.31E-06	n/a	n/a	n/a	n/a	1.31E-06	n/a	U
S10V002470		W	10028-17-8	Tritium	uCi/g	94.7	<4.95E-06	2.68E-06	n/a	n/a	n/a	n/a	2.50E-06	164.945	
S10V002471		A	7440-36-0	Antimony	ug/g	99.9	<2.00E-04	0.170	n/a	n/a	n/a	n/a	9.84E-03	n/a	
S10V002472		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	60.8	<77.4	<76.5	n/a	n/a	n/a	n/a	76.5	n/a	U
S10V002472		O	95-50-1	1,2-Dichlorobenzene	ug/kg	n/a	<101	<99.5	n/a	n/a	n/a	n/a	99.5	n/a	U
S10V002472		O	121-14-2	2,4-Dinitrotoluene	ug/kg	80.2	<38.1	<37.7	n/a	n/a	n/a	n/a	37.7	n/a	U
S10V002472		O	95-95-4	2,4,5-Trichlorophenol	ug/kg	n/a	<44.0	<43.5	n/a	n/a	n/a	n/a	43.5	n/a	U
S10V002472		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
S10V002472		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
S10V002472		O	88-75-5	2-Nitrophenol	ug/kg	n/a	<53.7	<53.1	n/a	n/a	n/a	n/a	53.1	n/a	U
S10V002472		O	65794-96-9	3 &4 Methylphenol	ug/kg	n/a	<51.4	<50.8	n/a	n/a	n/a	n/a	50.8	n/a	U
S10V002472		O	83-32-9	Acenaphthene	ug/kg	68.8	<17.6	<17.4	n/a	n/a	n/a	n/a	17.4	n/a	U
S10V002472		O	56-55-3	Benzo(a)anthracene	ug/kg	n/a	<37.8	<37.4	n/a	n/a	n/a	n/a	37.4	n/a	U

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
J - Estimated
B - Blank Contamination
X - Comment

LS
6-21-2011

M - RPD Outside Range
C - Blank Contamination
B - Estimated
N - MS/MSD Outside Range

Data Summary Report

Sample Group: 20100660
Core Number: C7682
Customer Sample ID: B26C59
Sample Depth: 88-90

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002474		A	7440-24-6	Strontium	ug/g	102	<3.00E-03	34.0	n/a	n/a	n/a	n/a	0.248	n/a	
S10V002474		A	7440-32-6	Titanium	ug/g	107	<5.00E-03	561	n/a	n/a	n/a	n/a	0.413	n/a	
S10V002474		A	7440-62-2	Vanadium	ug/g	100	<5.00E-03	25.8	n/a	n/a	n/a	n/a	0.413	n/a	
S10V002474		A	7440-65-5	Yttrium	ug/g	93.7	<2.00E-03	4.91	n/a	n/a	n/a	n/a	0.165	n/a	
S10V002474		A	7440-66-6	Zinc	ug/g	96.7	<5.00E-03	33.0	n/a	n/a	n/a	n/a	0.413	n/a	
S10V002474		A	7440-67-7	Zirconium	ug/g	105	<5.00E-03	5.24	n/a	n/a	n/a	n/a	0.413	n/a	N
S10V002474		A	14269-63-7	Thorium-230	ug/g	n/a	5.21E-06	8.71E-05	n/a	n/a	n/a	n/a	2.81E-05	n/a	B
S10V002474		A	TH-232	Thorium-232	ug/g	104	<2.00E-04	4.01	n/a	n/a	n/a	n/a	2.00E-03	n/a	
S10V002474		A	13968-55-3	Uranium-233	ug/g	n/a	<4.00E-06	2.11E-04	n/a	n/a	n/a	n/a	4.01E-05	n/a	
S10V002474		A	13966-29-5	Uranium-234	ug/g	n/a	<2.00E-06	3.77E-05	n/a	n/a	n/a	n/a	2.00E-05	n/a	
S10V002474		A	15117-96-1	Uranium-235	ug/g	94.8	<4.00E-06	3.41E-03	n/a	n/a	n/a	n/a	4.01E-05	n/a	
S10V002474		A	13982-70-2	Uranium-236	ug/g	n/a	<1.60E-06	2.19E-05	n/a	n/a	n/a	n/a	1.60E-05	n/a	B
S10V002474		A	13994-20-2	Neptunium-237	ug/g	102	<4.00E-05	<4.01E-04	n/a	n/a	n/a	n/a	4.01E-04	n/a	U
S10V002474		A	U-238	Uranium-238	ug/g	104	<2.00E-04	0.513	n/a	n/a	n/a	n/a	2.00E-03	n/a	
S10V002475		S	14798-03-9	Ammonium	ug/g	104	0.0279	1.60	n/a	n/a	n/a	n/a	0.477	n/a	CB
S10V002476		A	14133-76-7	Technetium-99	ug/g	109	<3.00E-05	<2.97E-04	n/a	n/a	n/a	n/a	2.97E-04	n/a	U
S10V002476		A	SN-117	Tin-117	ug/g	102	<1.00E-03	<9.90E-03	n/a	n/a	n/a	n/a	9.90E-03	n/a	U
S10V002476		A	15832-50-5	Tin-126	ug/g	n/a	<2.00E-05	4.55E-04	n/a	n/a	n/a	n/a	1.98E-04	n/a	B
S10V002477		E	CM-243/244	Curium-243/244	uCi/g	n/a	<2.19E-07	<2.43E-07	<1.67E-07	n/a	n/a	n/a	2.43E-07	n/a	U
S10V002477		E	14596-10-2	Americium-241	uCi/g	103	<5.46E-07	<6.09E-07	<4.16E-07	n/a	n/a	n/a	6.09E-07	n/a	U
S10V002477		E	15510-73-3	Curium-242	uCi/g	n/a	<2.19E-07	<2.43E-07	<1.67E-07	n/a	n/a	n/a	2.44E-07	n/a	U
S10V002477		E	PU-239/240	Plutonium-239/240	uCi/g	98.9	<5.46E-07	<4.67E-07	<2.98E-07	n/a	n/a	n/a	4.67E-07	n/a	U
S10V002477		E	13981-16-3	Plutonium-238	uCi/g	n/a	<5.46E-07	<4.67E-07	<2.98E-07	n/a	n/a	n/a	4.67E-07	n/a	U
S10V002478		E	SR-89/90	Strontium-89/90	uCi/g	101	<2.09E-07	<7.13E-07	<5.62E-07	n/a	n/a	n/a	7.13E-07	n/a	U
S10V002479		E	13981-37-8	Nickel-63	uCi/g	90.8	<3.89E-06	<5.10E-06	<4.89E-06	n/a	n/a	n/a	5.10E-06	n/a	U
S10V002479		E	15758-45-9	Selenium-79 UJ	uCi/g	n/a	<2.73E-06	<2.45E-06	<4.03E-06	n/a	n/a	n/a	2.45E-06	n/a	U

LS
6-21-2011

NA = Not Analyzed, ND = Not Detected

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

Data Summary Report

Sample Group: 20100660
Core Number: C7682
Customer Sample ID: B26JL0
Sample Depth: Surface

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002280			%WATERA	%WATER-APD	%	n/a	n/a	4.880	n/a	n/a	n/a	n/a	0.01000	n/a	
S10V002280			57-12-5	Cyanide	ug/g	96.5	<0.0370	<2.66	<2.65	n/a	n/a	74.4	2.66	n/a	UN
S10V002280			7439-97-6	Mercury	ug/g	100	<1.00E-04	<9.16E-03	n/a	n/a	n/a	101	9.16E-03	n/a	U
S10V002280			PH	pH	unitless	n/a	n/a	9.37	n/a	n/a	n/a	n/a	0.0100	n/a	
S10V002280			12597-04-5	Sulfide	ug/g	95.5	<0.180	10.2	10.4	10.3	1.85	97.2	7.12	n/a	B
S10V002281			13966-00-2	Potassium-40	uCi/g	n/a	n/a	2.00E-05	n/a	n/a	n/a	n/a	7.73E-06	26.95	
S10V002281			10198-40-0	Cobalt-60	uCi/g	98.2	<3.92E-07	<4.11E-07	n/a	n/a	n/a	n/a	4.11E-07	n/a	U
S10V002281			14234-35-6	Antimony-125	uCi/g	n/a	<1.02E-06	<9.85E-07	n/a	n/a	n/a	n/a	9.85E-07	n/a	U
S10V002281			10045-97-3	Cesium-137	uCi/g	100	<5.19E-07	<5.66E-07	n/a	n/a	n/a	n/a	5.66E-07	n/a	U
S10V002281			14683-23-9	Europium-152	uCi/g	n/a	<1.88E-06	<1.90E-06	n/a	n/a	n/a	n/a	1.90E-06	n/a	U
S10V002281			15585-10-1	Europium-154	uCi/g	n/a	<1.08E-06	<1.22E-06	n/a	n/a	n/a	n/a	1.22E-06	n/a	U
S10V002281			14391-16-3	Europium-155	uCi/g	n/a	<9.28E-07	<1.03E-06	n/a	n/a	n/a	n/a	1.03E-06	n/a	U
S10V002281			14274-82-9	Thorium-228	uCi/g	n/a	<2.19E-05	<2.48E-05	n/a	n/a	n/a	n/a	2.48E-05	n/a	U
S10V002281			15065-10-8	Thorium-234	uCi/g	n/a	<1.82E-05	<1.97E-05	n/a	n/a	n/a	n/a	1.97E-05	n/a	U
S10V002281			15046-84-1	Iodine-129	uCi/g	111	<1.83E-07	<1.55E-07	n/a	n/a	n/a	n/a	1.55E-07	n/a	U
S10V002282		WV	14133-76-7	Technetium-99	ug/g	110	<3.00E-06	<2.95E-06	n/a	n/a	n/a	n/a	2.95E-06	n/a	U
S10V002283		W	14762-75-5	Carbon-14	uCi/g	92.4	<1.33E-07	<1.39E-06	n/a	n/a	n/a	n/a	1.39E-06	n/a	U
S10V002283		W	10028-17-8	Tritium	uCi/g	94.7	<4.95E-06	<4.62E-06	n/a	n/a	n/a	n/a	4.62E-06	n/a	U
S10V002284		A	7440-36-0	Antimony	ug/g	99.9	<2.00E-04	0.207	0.191	0.199	8.07	81.1	9.43E-03	n/a	
S10V002285		O	120-82-1	1,2,4-Trichlorobenzene	ug/kg	65.7	<77.4	<77.4	n/a	n/a	n/a	n/a	77.4	n/a	U
S10V002285		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
S10V002285		O	121-14-2	2,4-Dinitrotoluene	ug/kg	89.9	<38.1	<38.1	n/a	n/a	n/a	n/a	38.1	n/a	U
S10V002285		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
S10V002285		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
S10V002285		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
S10V002285		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
S10V002285		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
S10V002285		O	83-32-9	Acenaphthene	ug/kg	75.0	<17.6	<17.6	n/a	n/a	n/a	n/a	17.6	n/a	U
S10V002285		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

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

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6-21-2011

Data Summary Report

Sample Group: 20100660
Core Number: C7682
Customer Sample ID: B26JL0
Sample Depth: Surface

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S10V002288		A	7440-24-6	Strontium	ug/g	102	<3.00E-03	25.4	27.2	26.3	6.53	98.6	0.248	n/a	
S10V002288		A	7440-32-6	Titanium	ug/g	107	<5.00E-03	635	653	644	2.67	397	0.413	n/a	
S10V002288		A	7440-62-2	Vanadium	ug/g	100	<5.00E-03	25.2	27.6	26.4	9.02	104	0.413	n/a	
S10V002288		A	7440-65-5	Yttrium	ug/g	93.7	<2.00E-03	8.09	8.00	8.04	1.14	96.5	0.165	n/a	
S10V002288		A	7440-66-6	Zinc	ug/g	96.7	<5.00E-03	34.4	36.5	35.5	5.90	99.6	0.413	n/a	
S10V002288		A	7440-67-7	Zirconium	ug/g	105	<5.00E-03	9.31	8.86	9.08	4.98	50.4	0.413	n/a	N
S10V002288		A	14269-63-7	Thorium-230	ug/g	n/a	5.21E-06	<2.81E-05	n/a	n/a	n/a	n/a	2.81E-05	n/a	U
S10V002288		A	TH-232	Thorium-232	ug/g	104	<2.00E-04	3.43	n/a	n/a	n/a	n/a	2.01E-03	n/a	
S10V002288		A	13968-55-3	Uranium-233	ug/g	n/a	<4.00E-06	1.88E-04	n/a	n/a	n/a	n/a	4.01E-05	n/a	
S10V002288		A	13966-29-5	Uranium-234	ug/g	n/a	<2.00E-06	<2.01E-05	n/a	n/a	n/a	n/a	2.01E-05	n/a	U
S10V002288		A	15117-96-1	Uranium-235	ug/g	94.8	<4.00E-06	3.01E-03	n/a	n/a	n/a	n/a	4.01E-05	n/a	
S10V002288		A	13982-70-2	Uranium-236	ug/g	n/a	<1.60E-06	<1.60E-05	n/a	n/a	n/a	n/a	1.60E-05	n/a	U
S10V002288		A	13994-20-2	Neptunium-237	ug/g	102	<4.00E-05	<4.01E-04	n/a	n/a	n/a	n/a	4.01E-04	n/a	U
S10V002288		A	U-238	Uranium-238	ug/g	104	<2.00E-04	0.446	n/a	n/a	n/a	n/a	2.01E-03	n/a	
S10V002290		S	14798-03-9	Ammonium	ug/g	101	0.0486	10.5	13.1	11.8	21.9	98.6	0.477	n/a	
S10V002291		A	14133-76-7	Technetium-99	ug/g	109	<3.00E-05	<3.00E-04	n/a	n/a	n/a	n/a	3.00E-04	n/a	U
S10V002291		A	SN-117	Tin-117	ug/g	102	<1.00E-03	0.0110	n/a	n/a	n/a	n/a	0.0100	n/a	
S10V002291		A	15832-50-5	Tin-126	ug/g	n/a	<2.00E-05	4.11E-04	n/a	n/a	n/a	n/a	2.00E-04	n/a	B
S10V002294		E	CM-243/244	Curium-243/244	uCi/g	n/a	<2.19E-07	<1.70E-07	n/a	n/a	n/a	n/a	1.70E-07	n/a	U
S10V002294		E	14596-10-2	Americium-241	uCi/g	103	<5.46E-07	<4.24E-07	n/a	n/a	n/a	n/a	4.24E-07	n/a	U
S10V002294		E	15510-73-3	Curium-242	uCi/g	n/a	<2.19E-07	<1.70E-07	n/a	n/a	n/a	n/a	1.70E-07	n/a	U
S10V002294		E	PU-239/240	Plutonium-239/240	uCi/g	98.9	<5.46E-07	<2.98E-07	n/a	n/a	n/a	n/a	2.98E-07	n/a	U
S10V002294		E	13981-16-3	Plutonium-238	uCi/g	n/a	<5.46E-07	<2.98E-07	n/a	n/a	n/a	n/a	2.98E-07	n/a	U
S10V002301		E	SR-89/90	Strontium-89/90	uCi/g	101	<2.09E-07	<6.20E-07	n/a	n/a	n/a	n/a	6.20E-07	n/a	U
S10V002303		E	13981-37-8	Nickel-63	uCi/g	90.8	<3.89E-06	<4.65E-06	n/a	n/a	n/a	n/a	4.65E-06	n/a	U
S10V002303		E	15758-45-9	Selenium-79 UJ	uCi/g	n/a	<2.73E-06	<1.97E-06	n/a	n/a	n/a	n/a	1.97E-06	n/a	U

LS
6-21-2011

NA = Not Analyzed, ND = Not Detected

U - Less Than Detection Limit
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X - Comment
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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 C7682 IN SUPPORT OF RCRA SOIL CHARACTERIZATION OF THE VADOSE ZONE

1.0 INTRODUCTION

This final report presents the results for the samples taken from Waste Management Area C between August 17, 2010 and August 25, 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 QC Results
Attachment 5	Tentatively Identified Compounds (TIC) for Organic Analyses
Attachment 6	Analytical Batch and Laboratory Sample Identification Number Index
Attachment 7	Geological Report
Attachment 8	Characterization Change Notices (CCN) and Correspondence
Attachment 9	Receipt Paperwork
Appendix A	Analytical Report for Analysis Performed at the Waste Sampling and Characterization Facility (WSCF) - Metals Analysis

2.0 SAMPLE RECEIPT AND BREAKDOWN

2.1 SAMPLE RECEIPT

A total of eight core intervals and two surface grab samples from core hole C7682 along with nine field blanks, six trip blanks, and one equipment blank were received by the 222-S Laboratory between August 17, 2010 and August 25, 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 8).

In order to facilitate shipping, the 222-S Laboratory personnel store the field blank sample containers designated for offsite laboratories in a small refrigerator in the sample receipt area, which is outside the laboratory's radiological contamination area. This refrigerator exceeded its lower temperature range, and one of the three 1-liter sample containers for polychlorinated biphenyl analysis and one of the two 1-liter sample containers for pesticides and the monobutyl and dibutyl phosphate analysis froze and cracked. This resulted in the monobutyl and dibutyl phosphate analysis not being performed for the equipment blank. The issue with the refrigerator freezing samples has been resolved.

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 7. 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 and was combined with interval I003 (see Attachment 2 and Attachment 9). The sample material recovered from I002 was used for the VOA sample liners, and shoe samples from interval I003 were used to make the composite sample.

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%.

"X" for comment on VOA, see Section 3.4.1, Batch 21533.

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, liner composite samples, and the equipment blank. 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 the current laboratory procedure (lachet micro-distillation) is reporting.

Batches 21785 and 21829: There were no notable quality control (QC) issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batches 22013 and 22014: The MS for these batches exceed the ±25% at 43% and 74%. These samples were batched with samples from a separate vadose project for which the MSs were within the required range. Since the MS for the C Farm sample failed twice, it is the laboratory's opinion that there is a matrix interference. All affected sample results have been flagged with an "N". For batch 22013 the LLS was recovered outside the ±30% limit at 28% recovery. This could indicate a low bias for results near the LLS level. All sample results in this batch were below the MDL.

3.2.2 Sulfide

Sulfide analysis by distillation and ion selective electrode was performed on the grab samples, liner composite samples, and the equipment blank. 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 solid 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, liner composite samples, and the equipment blank. 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 sample compositing was performed. The sampling to analysis time varied from 1 to 34 days for the solid samples (see Attachment 3) and 15 hours for the liquid sample. There was 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 holding 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, liner composite samples, and the equipment blank. 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, liner composite samples, and the equipment blank. 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.

Batch 21436: 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 21540: Ammonium was detected in the preparation blanks at a level below the quantitation limit and above the MDL. Ammonium was also detected in all but one of the samples below the quantitation limit and less than 5 times the level of the blank; therefore, these results have been flagged with a “C”. Ammonium was also detected in one sample above the quantitation limit but at more than 5 times the level of the blank; therefore, this result has not been flagged with a “C”.

Batch 21732: Ammonium was detected in the preparation blanks at a level below the quantitation limit and above the MDL. Ammonium was also detected the samples above the quantitation limit and less than 5 times the level of the blank; therefore, these results have been flagged with a “C”.

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 at a similar level; therefore, the result has been flagged with a “C”. The RPD was above the ±30% requirement. However, since the result was below the quantitation limit this criterion did not apply.

3.2.6 Ion Chromatography – Anions and Small Organic Acids

Ion chromatography analysis was performed on all grab samples, liner composite samples, and the equipment blank. 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.

Fluoride was detected in the equipment blank above the quantitation limit. Since fluoride is commonly found in drinking water, the laboratory believes the most likely source of the fluoride was probably the water used by field personnel to make the equipment blank.

Batch 21524: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batch 22189: The RPD for oxalate exceeded the ±30% requirement in the FSAP at 139%. The laboratory believes this is likely due to sample nonhomogeneity. Since the result for the duplicate was below the quantitation limit, reanalysis was not required and no flag has been applied. The high sample result for oxalate is anomalous for vadose soil.

Batch 22897: The RPD for sulfate exceeded the ±30% requirement in the FSAP at 34%. The laboratory believes this is likely due to sample nonhomogeneity. This was discussed with the client, and the laboratory was instructed to report the result with this narration (see Attachment 8). The RPDs for nitrite and oxalate exceeded the ±30% requirement in the FSAP. Since the results for both analytes were below the quantitation limit, this criteria does not apply. A low level of nitrite was detected in the preparation blank, and the result has been flagged with a "C". Since both blank and sample results were below the quantitation limit, reanalysis was not required.

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, liner composite samples, and the equipment blank. 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 22570: The interference check standard-A (ICSA) produced positive results for arsenic, cadmium, selenium, manganese, and nickel. Since the sample results for these elements were below the MDL and the interference check sample AB (ICSAB) recoveries were within the required limit, the data usability was not affected. The initial low level standard (LLS) recovery for potassium was above the ±30% limit at 150%. Since the sample result for potassium was below the MDL, the data usability was not affected.

Batch 24239: The ICSA produced positive results for manganese. However, in the ICSAB, manganese was recovered at 98%, and there appears to be no positive interference at this concentration. Since the sample concentration for manganese is near the ICSAB concentration, the data usability was not affected. 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. Cobalt was detected in the preparation blank at slightly above the MDL. One sample result for cobalt was less than 5 times the blank result and has been flagged with "C". Since both the blank and sample results were below the quantitation limit, reanalysis was not required. The remaining 8 sample results were more than 5 times the blank result. The MS recoveries for aluminum, calcium, iron, magnesium, potassium, sodium, 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.

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, liner composite samples, and the equipment blank. The ICP/MS ^{126}Sn and ^{99}Tc analysis was performed on the same basic 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 performed 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 solid sample results for ^{126}Sn were above the MDL and below the quantitation limit. 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. 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 24429: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met.

Batch 23853: There were no notable issues with this batch, and all QC requirements in the QAPP were met. However, the laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples from another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

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.

Batch 23162: There were no notable issues with this batch, and all QC requirements in the QAPP were met. However, the laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples from another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

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 24022: The closing low level standard (LLS) for ^{235}U and ^{238}U exceeded the ±30% limit at 17% and 35%. The sample results for these isotopes were below the MDL. This could indicate a low bias for results near the LLS. However, assuming a 90% low bias, the adjusted results would still be below the quantitation limit. The closing continuing calibration blank (CCB) result for ^{237}Np was slightly above the MDL. The sample result for this isotope was below the MDL.

Batch 23864: The preparation blank and CCB results for ^{230}Th and ^{236}U were slightly above the MDL. Some of the samples had similar results that should be considered equivalent to the blank. The affected results have been flagged with a "B". The laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples for another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

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. Due to an extended room outage at the 222-S

Laboratory, samples were sent to the WSCF Laboratory by WRPS for analysis. Table 2 lists the samples and analytes that were analyzed and reported by WSCF for C7682. The WSCF report is included in Appendix A of this report, and these results will be placed in the Hanford Environmental Information System. The WSCF report is included in its entirety, but not all results pertain to this report. 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. All samples were analyzed within the holding time.

Table 2. ICPMS Analysis Performed at the WSCF Laboratory

Client Sample No.	Sample Depth	ICP/MS Analysis Performed at WSCF
B26JL0	Surface	Arsenic, Cadmium, Lead, Selenium, Silver, Thallium
B26JL1	Surface Dup	Arsenic, Cadmium, Lead, Selenium, Silver, Thallium
B26C47	5-7ft	Selenium, Silver, Arsenic
B26C51	12-14ft	Selenium, Silver, Arsenic
B26C53	14-16ft	Selenium, Silver, Arsenic
B26C55	18-20ft	Selenium, Silver, Arsenic
B26C57	47-47ft	Selenium, Silver, Arsenic
B26C61	122-124ft	Selenium, Silver, Arsenic

Batch 22376: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met. This batch only reported antimony.

Batch 24036: The laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples for another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4. The serial dilution for lead exceeded the ±10% requirement at +24%. This would indicate a low bias.

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, liner composite samples, and the equipment blank. 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, liner composite samples, and the equipment blank. 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 these batches, 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, liner composite samples, and directly on the equipment blank. 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.

Batch 22818: The preparation blank demonstrated a positive result below the quantitation limit. This result had a very large counting uncertainty and was below the target detection limit. The sample result was below the MDA, and therefore, the data usability was not affected.

Batch 23378: There were no notable issues with the batch, and all QC requirements in the FSAP, SAP, and QAPP were met. However, the laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples for another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

3.3.4 Selenium-79

The ^{79}Se analysis by LSC was performed on the grab samples, liner composite samples, and the equipment blank. 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 23910: The carrier recovery for one sample was below the 30% level at 26%; however, even with the reduced sensitivity, the sample MDA was below the target detection. The sample result was below the MDA, and therefore, reanalysis was not performed.

3.3.5 Carbon-14

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

Batch 22686: There were no notable issues with this batch, and all QC requirements in the FSAP, SAP, and QAPP were met. However, the laboratory failed to include MS and duplicate QC samples for core hole C7682. This fails to meet the QC requirements in the SAP and FSAP since all of this core's solid samples were in this batch. This batch did include MS and duplicate QC samples for another C Farm core, C7676, whose recoveries and RPDs met the SAP and FSAP requirements. This was discussed with the client (see Attachment 8), and the laboratory was allowed to report these results and has included the QC sample results in Attachment 4.

3.3.6 Nickel-63

The ^{63}Ni analysis by LSC was performed on the grab samples, liner composite samples, and the equipment blank. 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 these batches, 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 all grab samples, liner composite samples, and the equipment blank. 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, liner composite samples, and the equipment blank. 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, liner composite samples, and the equipment blank. 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, six trip blanks, and one equipment blank 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 except for one met the required holding time. The equipment blank sample, B26PF, was analyzed 4 days past the holding time, due to an oversight in holding time tracking. 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 8). Isobutanol, another poor purger, was reported as a semivolatile organic compound.

Seven 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 source of chloroform may be the water used by sampling personnel to make the various field blanks.

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.

Batch 21533: The method blank results for toluene and styrene were above the MDL but below the quantitation limit. All of the samples contained toluene and most contained styrene, and all of which have been flagged with at "B". Since the blank results were below the quantitation limit, reanalysis was not required. Carbon disulfide was detected in the method blank below the quantitation limit but was not detected in the samples. The continuing calibration verification standard (CCV) demonstrated a % difference (%D) for chloro-methane of -26%, which exceeds the ±20% limit. This could indicate a slight low bias for this compound; however, the raw response for this compound's monitor ions was well below the MDL. The %D for 1-butanol in the CCV exceeded the ±20% limit at +29%. Since 1-butanol was not detected in the samples, the usability of the data was not affected.

The internal standards for one sample, B26JM1 (S10V002306), were recovered extremely low, ranging from -89% to -90%. This was not discovered until November 7, 2010, well after the holding time had expired. Therefore, no reanalysis was performed and the results have been flagged with an "X". Examination of the raw response numbers indicated that approximately 5 to 6 times less sample was transferred to the column for this sample than others in the batch. This effectively raises the MDLs for this sample's results by a factor of 5. Since the quantitation limit is 10 times the MDL, it is unlikely that any results above the quantitation limit were missed. Additionally, the surrogate recoveries were within the required ranges, indicating that enough internal standard was recovered to make meaningful adjustments to the raw instrument responses.

Batch 21601: The method blank result for toluene was above the MDL but below the quantitation limit. Since all toluene sample results in the batch were below the MDL, the data usability was not affected.

Batch 21716: The method blank result for toluene was above the MDL but below the quantitation limit. Since all toluene results in the batch were below the MDL, the data usability was not affected. The internal standards for MSD for sample B26CY5 (S10V002245) were recovered extremely low, ranging from -94% to -95%. The spike and surrogate compound recoveries were within the required ranges, indicating that enough internal standard was recovered to make meaningful adjustments to the raw instrument responses for the surrogate and spike compounds. Since the MSD is only used to verify the RPD between the MS and MSD, which it did, reanalysis was not required.

Batch 21718: The method blank result for toluene was above the MDL but below the quantitation limit. One of the samples in this batch contained toluene at a similar level and has been flagged with at "B".

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

Batch 23317: The method blank result for toluene was above the MDL but below the quantitation limit. Since the toluene result for the sample was below the MDL, the data usability was not affected. The %D for 1-butanol in the CCV exceeded the ±20% limit at +29%. Since 1-butanol was not detected in the sample, the usability of the data was not affected.

3.4.2 Semivolatile Organic Analysis

The semivolatile organic analysis (SVOA) by GC/MS was performed on methylene chloride extractions of all grab samples, liner composite samples, and the equipment blank. 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. There were no notable issues with these batches, and all QC requirements in the FSAP, SAP, and QAPP were met.

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 3 lists the analytical procedures used for analysis of the Area C samples.

Table 3. Analytical Procedures

Analysis	Preparation Method	Analysis Procedure
Inorganic Analyses		
Cyanide (soil)	LA-695-103, Rev. J-0 (SW-846 9010C)	LA-695-103, Rev. J-0 (SW-846 9014)
Cyanide (water)	LA-695-102, Rev. L-0 (SW-846 9010C)	LA-695-102, Rev. L-0 (SW-846 9014)

Analysis	Preparation Method	Analysis Procedure
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)
pH (water)	LA-212-106, Rev. H-0-A (SW-846 9040C)	LA-212-106, Rev. H-0-A (SW-846 9040C)
Mercury – Cold Vapor Atomic Absorption	LA-325-110, Rev. A-0 (SW-846 7471A) (solid)	LA-325-110, Rev. A-0 (SW-846 7471A) (solid)
	LA-325-106, Rev. G-0 (SW-846 7470A) (liquid)	LA-325-106, Rev. G-0 (SW-846 7470A) (liquid)
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-506-102, Rev. F-1
Metals – ICP/MS	LA-505-163, Rev. G-0 (SW-846 3050B)	LA-506-102, Rev. F-1 (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
^{90}Sr – Separation/Beta counting (liquid)		LA-220-104, Rev. I-0
^{3}H – LSC	LA-504-101, Rev. M-0 (solid)	LA-218-111, Rev. G-0
^{14}C – LSC	LA-504-101, Rev. M-0 (solid)	LA-348-104, Rev. I-0
^{79}Se – Separation/LSC	LA-544-101, Rev. F-0 (solid)	LA-365-132, Rev. I-0
^{63}Ni – Separation/LSC	LA-544-101, Rev. F-0 (solid)	LA-285-102, Rev. E-0
^{129}I – Separation/GEA (soil)	LA-378-105, Rev. D-0	LA-378-105, Rev. D-0
^{129}I – Separation/GEA (water)	LA-378-103, Rev. D-0	LA-378-103, Rev. K-0
^{241}Am, $^{243/244,\ 242}$Cm – Separation/AEA	LA-544-101, Rev. F-0 (solid)	LA-953-104, Rev. H-1
$^{239/240,\ 238}$Pu – Separation/AEA	LA-544-101, Rev. F-0 (solid)	LA-953-104, Rev. H-1
Organic Analyses		
VOC – GC/MS	Direct	LA-523-118, Rev. H-O (SW-846 8260B)

Analysis	Preparation Method	Analysis Procedure
SVOC – GC/MS	LA-523-138, Rev. G-0 (SW-846 3540C) (solid) LA-523-115, Rev. H-0 (SW-846 3520C) (liquid)	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	V10-003-171	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8P	DATA TURNAROUND
Dan Harris	TEMPLETON, AM	373-5589	BERLIN, PC	AIR QUALITY ☐	75 Days / 75 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**		
C7682 I007	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	88' - 90'	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~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	
B26C59	SOIL	8-24-10	1030	—

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
Dan Harris Dan Harris	8-24-10 1130	RAtlad RASteele	8.24.10 1130
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

OV 6/PK

GRP # 20100660
SAM # 510U00 2464
2465
2466

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			V10-003-171	PAGE 2 OF 2
COLLECTOR Dan 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 C7682 I007	**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** 88'-90'	**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	V10-003-259	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8P	DATA TURNAROUND
Ekstrom / Campbell	TEMPLETON, AM	373-5589	BERLIN, PC	AIR QUALITY ☐	75 Days / 75 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**		
C7682 Surface	WMA C Sampling for CMS		V10-003		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
TFVS-09-003	TFV2-10-000004	Surface	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~4C
HOLDING TIME	14/40 Days
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B26JL0	SOIL	8/17/10	0930	✓

S10V002280

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
RDLhs BCEkstrom	8/17/10 1100	RHSteele RHSteele	8.17.10 1100	0°C
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	2225-20100660
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			V10-003-259	PAGE 2 OF 2
COLLECTOR Ekstrom / Campbell	COMPANY CONTACT TEMPLETON, AM	TELEPHONE NO. 373-5589	PROJECT COORDINATOR BERLIN, PC	PRICE CODE 8P	DATA TURNAROUND
SAMPLING LOCATION C7682 Surface	PROJECT DESIGNATION WMA C Sampling for CMS		SAF NO. V10-003	AIR QUALITY ☐	75 Days / 75 Days
ICE CHEST NO. TFVS-09-003	FIELD LOGBOOK NO. TFVZ-10-000004	ACTUAL SAMPLE DEPTH Surface	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: VSR11-047		
VALIDATOR: Carl Schloesslin		LAB: 222-S Lab		DATE: 6-21-2011	
			SDG: 20100660		
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 B26C59 and B26JL0					

1. Completeness ..... ☐ N/A

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

Comments:

None

2. Initial Calibration (Levels D, E) ..... ☒ N/A

Instruments/detectors calibrated? ..... Yes No N/A

Initial calibration acceptable? ..... Yes No N/A

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

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

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

Comments:

3. Continuing Calibration (Levels D, E)..... ☒ N/A

Calibration checked within required frequency? ..... Yes No N/A

Calibration check acceptable? ..... Yes No N/A

Calibration check standards traceable? ..... Yes No N/A

Calibration check standards expired? ..... Yes No N/A

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

Comments:

4. Background Counts (Levels D, E) ..... ☒ N/A

Background Counts checked within required frequency? ..... Yes No N/A

Background Counts acceptable? ..... Yes No N/A

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

Comments:

5. Blanks (Levels B, C, D, E) ☐ N/A

Method blank analyzed within required frequency? (Yes) No N/A

Method blank results acceptable? (Yes) No N/A

Analytes detected in method blank? Yes (No) N/A

Field blank(s) analyzed? Yes No (N/A)

Field blank results acceptable? Yes No (N/A)

Analytes detected in field blank(s)? Yes No (N/A)

Transcription/Calculation Errors? (Levels D, E) Yes No (N/A)

Comments:

None

6. Laboratory Control Samples or Blank Spike Samples (Levels C, D, E) ☐ N/A

LCS /BSS analyzed within required frequency? Yes (No) N/A

LCS/BSS recoveries acceptable? (Yes) No N/A

LCS/BSS traceable? (Levels D,E) Yes No (N/A)

LCS/BSS expired? (Levels D,E) Yes No (N/A)

LCS/BSS levels correct? (Levels D,E) Yes No (N/A)

Transcription/Calculation Errors? (Levels D, E) Yes No (N/A)

Comments:

No LCS performed for Se-79.

7. Chemical Carrier Recovery (Levels C, D, E) ..... ☐ N/A

Chemical carrier added? ..... (Yes) No N/A

Chemical recovery acceptable? ..... Yes (No) N/A

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

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

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

Comments:

Sample B26JL0 Ni-63 carrier recovery = 109%

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# 00022049

Analyst: Lai, Sue **Book#:** 120B64

Instrument: GEA02 B-1A

Method: GEA, LA-548-121 Rev/Mod I-0

Specification: C Farm WMC 2010-2

Prep Batch:

Batch Comment:

C-Farm WMC 2010-1 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	S1009090038		0 0			Cobalt-60	LIQUID	.00539	5.2950E-03		2.95	9.06E-05	uCi/mL	98.237	% Recovery	
1	STD	S1009090038		0 0			Cesium-137	LIQUID	.00547	5.4800E-03		4.79	1.02E-04	uCi/mL	100.18	% Recovery	
Sample Sequence 2																	
2	BLNK	S1009090039		0 0			Cobalt-60	SOLID		<3.9200E-07			3.92E-07	uCi/g			
2	BLNK	S1009090039		0 0			Antimony-125	SOLID		<1.0200E-06			1.02E-06	uCi/g			
2	BLNK	S1009090039		0 0			Cesium-137	SOLID		<5.1900E-07			5.19E-07	uCi/g			
2	BLNK	S1009090039		0 0			Europium-152	SOLID		<1.8800E-06			1.88E-06	uCi/g			
2	BLNK	S1009090039		0 0			Europium-154	SOLID		<1.0800E-06			1.08E-06	uCi/g			
2	BLNK	S1009090039		0 0			Europium-155	SOLID		<9.2800E-07			9.28E-07	uCi/g			
2	BLNK	S1009090039		0 0			Thorium-228	SOLID		<2.1900E-05			2.19E-05	uCi/g			
2	BLNK	S1009090039		0 0			Thorium-234	SOLID		<1.8200E-05			1.82E-05	uCi/g			
Sample Sequence 3																	
3	SAMPLE	S10V002281		0 0			Cobalt-60	SOLID	N/A	<4.1100E-07			4.11E-07	uCi/g			U
3	SAMPLE	S10V002281		0 0			Antimony-125	SOLID	N/A	<9.8500E-07			9.85E-07	uCi/g			U
3	SAMPLE	S10V002281		0 0			Cesium-137	SOLID	N/A	<5.6600E-07			5.66E-07	uCi/g			U
3	SAMPLE	S10V002281		0 0			Europium-152	SOLID	N/A	<1.9000E-06			1.90E-06	uCi/g			U
3	SAMPLE	S10V002281		0 0			Europium-154	SOLID	N/A	<1.2200E-06			1.22E-06	uCi/g			U
3	SAMPLE	S10V002281		0 0			Europium-155	SOLID	N/A	<1.0300E-06			1.03E-06	uCi/g			U
3	SAMPLE	S10V002281		0 0			Thorium-228	SOLID	N/A	<2.4800E-05			2.48E-05	uCi/g			U
3	SAMPLE	S10V002281		0 0			Thorium-234	SOLID	N/A	<1.9700E-05			1.97E-05	uCi/g			U
3	SAMPLE	S10V002281		0 0			Potassium-40	SOLID	N/A	2.0020E-05		26.95	7.73E-06	uCi/g			
Sample Sequence 4																	
4	SAMPLE	S10V002310		0 0			Cobalt-60	SOLID	N/A	<4.4600E-07			4.46E-07	uCi/g			U
4	SAMPLE	S10V002310		0 0			Antimony-125	SOLID	N/A	<1.1700E-06			1.17E-06	uCi/g			U
4	SAMPLE	S10V002310		0 0			Cesium-137	SOLID	N/A	<6.4400E-07			6.44E-07	uCi/g			U
4	SAMPLE	S10V002310		0 0			Europium-152	SOLID	N/A	<2.0300E-06			2.03E-06	uCi/g			U
4	SAMPLE	S10V002310		0 0			Europium-154	SOLID	N/A	<1.2900E-06			1.29E-06	uCi/g			U
4	SAMPLE	S10V002310		0 0			Europium-155	SOLID	N/A	<1.1500E-06			1.15E-06	uCi/g			U
4	SAMPLE	S10V002310		0 0			Thorium-228	SOLID	N/A	<2.7300E-05			2.73E-05	uCi/g			U
4	SAMPLE	S10V002310		0 0			Thorium-234	SOLID	N/A	<2.1100E-05			2.11E-05	uCi/g			U
4	SAMPLE	S10V002310		0 0			Potassium-40	SOLID	N/A	1.5280E-05		39.31	9.16E-06	uCi/g			J

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

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

LABCORE Completed Batch Report for Batch# 00022049

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
Sample Sequence 5																	
5	SAMPLE	S10V002341		0 0			Cobalt-60	SOLID	N/A	<4.0300E-07			4.03E-07	uCi/g			U
5	SAMPLE	S10V002341		0 0			Antimony-125	SOLID	N/A	<9.9600E-07			9.96E-07	uCi/g			U
5	SAMPLE	S10V002341		0 0			Cesium-137	SOLID	N/A	<5.3900E-07			5.39E-07	uCi/g			U
5	SAMPLE	S10V002341		0 0			Europium-152	SOLID	N/A	<1.9100E-06			1.91E-06	uCi/g			U
5	SAMPLE	S10V002341		0 0			Europium-154	SOLID	N/A	<1.2400E-06			1.24E-06	uCi/g			U
5	SAMPLE	S10V002341		0 0			Europium-155	SOLID	N/A	<1.0300E-06			1.03E-06	uCi/g			U
5	SAMPLE	S10V002341		0 0			Thorium-228	SOLID	N/A	<2.5100E-05			2.51E-05	uCi/g			U
5	SAMPLE	S10V002341		0 0			Thorium-234	SOLID	N/A	<2.0500E-05			2.05E-05	uCi/g			U
5	SAMPLE	S10V002341		0 0			Potassium-40	SOLID	N/A	1.3420E-05		40.09	8.22E-06	uCi/g			J
Sample Sequence 6																	
6	SAMPLE	S10V002392		0 0			Cobalt-60	SOLID	N/A	<3.6600E-07			3.66E-07	uCi/g			U
6	SAMPLE	S10V002392		0 0			Antimony-125	SOLID	N/A	<1.0300E-06			1.03E-06	uCi/g			U
6	SAMPLE	S10V002392		0 0			Cesium-137	SOLID	N/A	<5.2600E-07			5.26E-07	uCi/g			U
6	SAMPLE	S10V002392		0 0			Europium-152	SOLID	N/A	<2.0000E-06			2.00E-06	uCi/g			U
6	SAMPLE	S10V002392		0 0			Europium-154	SOLID	N/A	<1.2900E-06			1.29E-06	uCi/g			U
6	SAMPLE	S10V002392		0 0			Europium-155	SOLID	N/A	<9.8700E-07			9.87E-07	uCi/g			U
6	SAMPLE	S10V002392		0 0			Thorium-228	SOLID	N/A	<2.5400E-05			2.54E-05	uCi/g			U
6	SAMPLE	S10V002392		0 0			Thorium-234	SOLID	N/A	<1.9400E-05			1.94E-05	uCi/g			U
6	SAMPLE	S10V002392		0 0			Potassium-40	SOLID	N/A	1.1700E-05		43.25	7.76E-06	uCi/g			J
Sample Sequence 7																	
7	SAMPLE	S10V002411		0 0			Cobalt-60	SOLID	N/A	<4.1300E-07			4.13E-07	uCi/g			U
7	SAMPLE	S10V002411		0 0			Antimony-125	SOLID	N/A	<1.0200E-06			1.02E-06	uCi/g			U
7	SAMPLE	S10V002411		0 0			Cesium-137	SOLID	N/A	<5.3300E-07			5.33E-07	uCi/g			U
7	SAMPLE	S10V002411		0 0			Europium-152	SOLID	N/A	<1.8100E-06			1.81E-06	uCi/g			U
7	SAMPLE	S10V002411		0 0			Europium-154	SOLID	N/A	<1.3400E-06			1.34E-06	uCi/g			U
7	SAMPLE	S10V002411		0 0			Europium-155	SOLID	N/A	<1.0100E-06			1.01E-06	uCi/g			U
7	SAMPLE	S10V002411		0 0			Thorium-228	SOLID	N/A	<2.4700E-05			2.47E-05	uCi/g			U
7	SAMPLE	S10V002411		0 0			Thorium-234	SOLID	N/A	<1.9600E-05			1.96E-05	uCi/g			U
Sample Sequence 8																	
8	SAMPLE	S10V002430		0 0			Cobalt-60	SOLID	N/A	<3.9500E-07			3.95E-07	uCi/g			U
8	SAMPLE	S10V002430		0 0			Antimony-125	SOLID	N/A	<9.8300E-07			9.83E-07	uCi/g			U
8	SAMPLE	S10V002430		0 0			Cesium-137	SOLID	N/A	<5.1300E-07			5.13E-07	uCi/g			U
8	SAMPLE	S10V002430		0 0			Europium-152	SOLID	N/A	<1.7400E-06			1.74E-06	uCi/g			U
8	SAMPLE	S10V002430		0 0			Europium-154	SOLID	N/A	<1.2100E-06			1.21E-06	uCi/g			U
8	SAMPLE	S10V002430		0 0			Europium-155	SOLID	N/A	<1.0000E-06			1.00E-06	uCi/g			U
8	SAMPLE	S10V002430		0 0			Thorium-228	SOLID	N/A	<2.3600E-05			2.36E-05	uCi/g			U
8	SAMPLE	S10V002430		0 0			Thorium-234	SOLID	N/A	<1.8600E-05			1.86E-05	uCi/g			U
Sample Sequence 9																	
9	SAMPLE	S10V002449		0 0			Cobalt-60	SOLID	N/A	<4.1300E-07			4.13E-07	uCi/g			U
9	SAMPLE	S10V002449		0 0			Antimony-125	SOLID	N/A	<9.7300E-07			9.73E-07	uCi/g			U
9	SAMPLE	S10V002449		0 0			Cesium-137	SOLID	N/A	<5.4900E-07			5.49E-07	uCi/g			U

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00022049

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
9	SAMPLE	S10V002449		0 0			Europium-152	SOLID	N/A	<1.9600E-06			1.96E-06	uCi/g			U
9	SAMPLE	S10V002449		0 0			Europium-154	SOLID	N/A	<1.2000E-06			1.20E-06	uCi/g			U
9	SAMPLE	S10V002449		0 0			Europium-155	SOLID	N/A	<9.8100E-07			9.81E-07	uCi/g			U
9	SAMPLE	S10V002449		0 0			Thorium-228	SOLID	N/A	<2.3900E-05			2.39E-05	uCi/g			U
9	SAMPLE	S10V002449		0 0			Thorium-234	SOLID	N/A	<1.8800E-05			1.88E-05	uCi/g			U
9	SAMPLE	S10V002449		0 0			Potassium-40	SOLID	N/A	1.0720E-05		48.28	8.06E-06	uCi/g			J
Sample Sequence 10																	
10	SAMPLE	S10V002468		0 0			Cobalt-60	SOLID	N/A	<3.9500E-07			3.95E-07	uCi/g			U
10	SAMPLE	S10V002468		0 0			Antimony-125	SOLID	N/A	<1.0500E-06			1.05E-06	uCi/g			U
10	SAMPLE	S10V002468		0 0			Cesium-137	SOLID	N/A	<5.8600E-07			5.86E-07	uCi/g			U
10	SAMPLE	S10V002468		0 0			Europium-152	SOLID	N/A	<1.9200E-06			1.92E-06	uCi/g			U
10	SAMPLE	S10V002468		0 0			Europium-154	SOLID	N/A	<1.3800E-06			1.38E-06	uCi/g			U
10	SAMPLE	S10V002468		0 0			Europium-155	SOLID	N/A	<1.0300E-06			1.03E-06	uCi/g			U
10	SAMPLE	S10V002468		0 0			Thorium-228	SOLID	N/A	<2.4300E-05			2.43E-05	uCi/g			U
10	SAMPLE	S10V002468		0 0			Thorium-234	SOLID	N/A	<2.0100E-05			2.01E-05	uCi/g			U
10	SAMPLE	S10V002468		0 0			Potassium-40	SOLID	N/A	1.8790E-05		28.59	7.75E-06	uCi/g			
Sample Sequence 11																	
11	DUP	S1009090040	S10V002468	0 0			Cobalt-60	SOLID	<3.9500E-07	<3.8100E-07			3.81E-07	uCi/g			
11	DUP	S1009090040	S10V002468	0 0			Antimony-125	SOLID	<1.0500E-06	<1.0200E-06			1.02E-06	uCi/g			
11	DUP	S1009090040	S10V002468	0 0			Cesium-137	SOLID	<5.8600E-07	<5.3700E-07			5.37E-07	uCi/g			
11	DUP	S1009090040	S10V002468	0 0			Europium-152	SOLID	<1.9200E-06	<1.9900E-06			1.99E-06	uCi/g			
11	DUP	S1009090040	S10V002468	0 0			Europium-154	SOLID	<1.3800E-06	<1.1900E-06			1.19E-06	uCi/g			
11	DUP	S1009090040	S10V002468	0 0			Europium-155	SOLID	<1.0300E-06	<1.0200E-06			1.02E-06	uCi/g			
11	DUP	S1009090040	S10V002468	0 0			Thorium-228	SOLID	<2.4300E-05	<2.4300E-05			2.43E-05	uCi/g			
11	DUP	S1009090040	S10V002468	0 0			Thorium-234	SOLID	<2.0100E-05	<1.8700E-05			1.87E-05	uCi/g			
11	DUP	S1009090040	S10V002468	0 0			Potassium-40	SOLID	1.8790E-05	1.7560E-05		30.85	7.97E-06	uCi/g			
Sample Sequence 12																	
12	SAMPLE	S10V002487		0 0			Cobalt-60	SOLID	N/A	<4.1300E-07			4.13E-07	uCi/g			U
12	SAMPLE	S10V002487		0 0			Antimony-125	SOLID	N/A	<1.0100E-06			1.01E-06	uCi/g			U
12	SAMPLE	S10V002487		0 0			Cesium-137	SOLID	N/A	<5.3900E-07			5.39E-07	uCi/g			U
12	SAMPLE	S10V002487		0 0			Europium-152	SOLID	N/A	<1.8000E-06			1.80E-06	uCi/g			U
12	SAMPLE	S10V002487		0 0			Europium-154	SOLID	N/A	<1.3500E-06			1.35E-06	uCi/g			U
12	SAMPLE	S10V002487		0 0			Europium-155	SOLID	N/A	<1.0100E-06			1.01E-06	uCi/g			U
12	SAMPLE	S10V002487		0 0			Thorium-228	SOLID	N/A	<2.5000E-05			2.50E-05	uCi/g			U
12	SAMPLE	S10V002487		0 0			Thorium-234	SOLID	N/A	<1.9100E-05			1.91E-05	uCi/g			U
12	SAMPLE	S10V002487		0 0			Potassium-40	SOLID	N/A	1.2430E-05		43.16	8.26E-06	uCi/g			J

Comments Section:

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

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LABCORE Completed Batch Report for Batch# 00022049

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00022049

Reviewer Signature **Date**

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LABCORE Completed Batch Report for Batch# 00022049

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1009090038	STD				
2	S1009090039	BLNK				
3	S10V002281	SAMPLE		20100660	B26JL0	C Farm WMC 2010-2
4	S10V002310	SAMPLE		20100660	B26JL1	C Farm WMC 2010-2
5	S10V002341	SAMPLE		20100660	B26C47	C Farm WMC 2010-2
6	S10V002392	SAMPLE		20100660	B26C51	C Farm WMC 2010-2
7	S10V002411	SAMPLE		20100660	B26C53	C Farm WMC 2010-2
8	S10V002430	SAMPLE		20100660	B26C55	C Farm WMC 2010-2
9	S10V002449	SAMPLE		20100660	B26C57	C Farm WMC 2010-2
10	S10V002468	SAMPLE		20100660	B26C59	C Farm WMC 2010-2
11	S1009090040	DUP	S10V002468			
12	S10V002487	SAMPLE		20100660	B26C61	C Farm WMC 2010-2

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

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LABCORE Completed Batch Report for Batch# 00023880

Analyst: Fabre, Martha **Book#:** 120B64

Instrument: A/B Detector 13 B-1A

Method: STRONTIUM-90, LA-220-101 Rev/Mod I-0

Specification: C Farm WMC 2010-2

Prep Batch: 00023861

Batch Comment:

C Farm WMC 2010-2 Grp 660 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	S1011050167		0 0			Strontium-89/90	LIQUID	.000692062355839992	7.0176E-04		2.628	1.78E-06	uCi/mL	101.4	% Recovery	
1	STD	S1011050167		0 0			Strontium-C	LIQUID		77.423				% Recovery	N/A		
Sample Sequence 2																	
2	BLNK-PREP	S1011050095		0 0	E		Strontium-89/90	SOLID		<2.0896E-07			2.09E-07	uCi/g			
2	BLNK-PREP	S1011050095		0 0	E		Strontium-C	SOLID		65.934				% Recovery			
Sample Sequence 3																	
3	SAMPLE	S10V002301		0 0	E		Strontium-89/90	SOLID	N/A	<6.1959E-07			6.20E-07	uCi/g			U
3	SAMPLE	S10V002301		0 0	E		Strontium-C	SOLID		77.323				% Recovery			
Sample Sequence 4																	
4	SAMPLE	S10V002324		0 0	E		Strontium-89/90	SOLID	N/A	<2.0492E-07			2.05E-07	uCi/g			U
4	SAMPLE	S10V002324		0 0	E		Strontium-C	SOLID		65.934				% Recovery			
Sample Sequence 5																	
5	SAMPLE	S10V002356		0 0	E		Strontium-89/90	SOLID	N/A	<1.8212E-07			1.82E-07	uCi/g			U
5	SAMPLE	S10V002356		0 0	E		Strontium-C	SOLID		74.426				% Recovery			
Sample Sequence 6																	
6	SAMPLE	S10V002402		0 0	E		Strontium-89/90	SOLID	N/A	<1.8825E-07			1.88E-07	uCi/g			U
6	SAMPLE	S10V002402		0 0	E		Strontium-C	SOLID		72.727				% Recovery			
Sample Sequence 7																	
7	SAMPLE	S10V002421		0 0	E		Strontium-89/90	SOLID	N/A	<1.8384E-07			1.84E-07	uCi/g			U
7	SAMPLE	S10V002421		0 0	E		Strontium-C	SOLID		73.826				% Recovery			
Sample Sequence 8																	
8	SAMPLE	S10V002440		0 0	E		Strontium-89/90	SOLID	N/A	<1.9151E-07			1.92E-07	uCi/g			U
8	SAMPLE	S10V002440		0 0	E		Strontium-C	SOLID		71.029				% Recovery			
Sample Sequence 9																	
9	SAMPLE	S10V002459		0 0	E		Strontium-89/90	SOLID	N/A	<1.8783E-07			1.88E-07	uCi/g			U
9	SAMPLE	S10V002459		0 0	E		Strontium-C	SOLID		72.428				% Recovery			
Sample Sequence 10																	
10	SAMPLE	S10V002478		0 0	E		Strontium-89/90	SOLID	N/A	<7.1332E-07			7.13E-07	uCi/g			U
10	SAMPLE	S10V002478		0 0	E		Strontium-C	SOLID		68.332				% Recovery			
Sample Sequence 11																	
11	DUP	S1011050096	S10V002478	0 0	E		Strontium-89/90	SOLID	<7.1332E-07	<5.6201E-07			5.62E-07	uCi/g			
11	DUP	S1011050096	S10V002478	0 0	E		Strontium-C	SOLID	68.332	68.831				% Recovery			

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LABCORE Completed Batch Report for Batch# 00023880

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	S10V002497		0 0	E		Strontium-89/90	SOLID	N/A	<6.5135E-07			6.51E-07	uCi/g			U
12	SAMPLE	S10V002497		0 0	E		Strontium-C	SOLID		59.84				% Recovery			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00023880

Reviewer Signature **Date**

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LABCORE Completed Batch Report for Batch# 00023880

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1011050167	STD				
2	S1011050095	BLNK-PREP				
3	S10V002301	SAMPLE		20100660	B26JL0	C Farm WMC 2010-2
4	S10V002324	SAMPLE		20100660	B26JL1	C Farm WMC 2010-2
5	S10V002356	SAMPLE		20100660	B26C47	C Farm WMC 2010-2
6	S10V002402	SAMPLE		20100660	B26C51	C Farm WMC 2010-2
7	S10V002421	SAMPLE		20100660	B26C53	C Farm WMC 2010-2
8	S10V002440	SAMPLE		20100660	B26C55	C Farm WMC 2010-2
9	S10V002459	SAMPLE		20100660	B26C57	C Farm WMC 2010-2
10	S10V002478	SAMPLE		20100660	B26C59	C Farm WMC 2010-2
11	S1011050096	DUP	S10V002478			
12	S10V002497	SAMPLE		20100660	B26C61	C Farm WMC 2010-2

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

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LABCORE Completed Batch Report for Batch# 00023378

Analyst: Casey, Adam **Book#:** 135B64

Instrument: LSC2 LS6000 B-1A

Method: TRITIUM-LARGE VOLUME, LA-218-111 Rev/Mod G-0

Specification: C Farm WMC 2010-2

Prep Batch: 00021906

Batch Comment:

C-Farm Grp 660 for Large Volume 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	S1010200106		0 0			Tritium	LIQUID	.0000214014822387116	2.0257E-05		2.887	2.50E-07	uCi/mL	94.653	% Recovery	
Sample Sequence 2																	
2	BLNK-PREP	S1009020043		0 0	W		Tritium	LIQUID		<4.9500E-06			4.95E-06	uCi/g			
Sample Sequence 3																	
3	SAMPLE	S10V001768		0 0	W		Tritium	SOLID	N/A	<4.5900E-06			4.59E-06	uCi/g			U
Sample Sequence 4																	
4	DUP	S1009020044	S10V001768	0 0	W		Tritium	SOLID	<4.5900E-06	<4.4300E-06			4.43E-06	uCi/g			
Sample Sequence 5																	
5	SPK	S1010200107	S10V001768	0 0			Tritium	SOLID	.0000214014822387116	2.0767E-05		4.586352999	2.52E-07	uCi/g	97.034	% Recovery	
Sample Sequence 6																	
6	SAMPLE	S10V001788		0 0	W		Tritium	SOLID	N/A	3.7700E-06		98.763	2.50E-06	uCi/g			J
Sample Sequence 7																	
7	SAMPLE	S10V001808		0 0	W		Tritium	SOLID	N/A	<4.9200E-06			4.92E-06	uCi/g			U
Sample Sequence 8																	
8	SAMPLE	S10V002283		0 0	W		Tritium	SOLID	N/A	<4.6200E-06			4.62E-06	uCi/g			U
Sample Sequence 9																	
9	SAMPLE	S10V002312		0 0	W		Tritium	SOLID	N/A	2.9100E-06		167.854	2.51E-06	uCi/g			J
Sample Sequence 10																	
10	SAMPLE	S10V002345		0 0	W		Tritium	SOLID	N/A	<4.0300E-06			4.03E-06	uCi/g			U
Sample Sequence 11																	
11	SAMPLE	S10V002394		0 0	W		Tritium	SOLID	N/A	2.9300E-06		151.808	2.50E-06	uCi/g			J
Sample Sequence 12																	
12	SAMPLE	S10V002413		0 0	W		Tritium	SOLID	N/A	5.0600E-06		74.014	2.49E-06	uCi/g			J
Sample Sequence 13																	
13	SAMPLE	S10V002432		0 0	W		Tritium	SOLID	N/A	<3.8400E-06			3.84E-06	uCi/g			U
Sample Sequence 14																	
14	SAMPLE	S10V002451		0 0	W		Tritium	SOLID	N/A	<4.2800E-06			4.28E-06	uCi/g			U
Sample Sequence 15																	
15	SAMPLE	S10V002470		0 0	W		Tritium	SOLID	N/A	2.6800E-06		164.945	2.50E-06	uCi/g			J
Sample Sequence 16																	
16	SAMPLE	S10V002489		0 0	W		Tritium	SOLID	N/A	<4.4300E-06			4.43E-06	uCi/g			U

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LABCORE Completed Batch Report for Batch# 00023378

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00023378

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# 00023378

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1010200106	STD				
2	S1009020043	BLNK-PREP				
3	S10V001768	SAMPLE		20100556	B26CD0	C Farm WMC 2010-2
4	S1009020044	DUP	S10V001768			
5	S1010200107	SPK	S10V001768			
6	S10V001788	SAMPLE		20100556	B26CD2	C Farm WMC 2010-2
7	S10V001808	SAMPLE		20100556	B26CD4	C Farm WMC 2010-2
8	S10V002283	SAMPLE		20100660	B26JL0	C Farm WMC 2010-2
9	S10V002312	SAMPLE		20100660	B26JL1	C Farm WMC 2010-2
10	S10V002345	SAMPLE		20100660	B26C47	C Farm WMC 2010-2
11	S10V002394	SAMPLE		20100660	B26C51	C Farm WMC 2010-2
12	S10V002413	SAMPLE		20100660	B26C53	C Farm WMC 2010-2
13	S10V002432	SAMPLE		20100660	B26C55	C Farm WMC 2010-2
14	S10V002451	SAMPLE		20100660	B26C57	C Farm WMC 2010-2
15	S10V002470	SAMPLE		20100660	B26C59	C Farm WMC 2010-2
16	S10V002489	SAMPLE		20100660	B26C61	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# 00023910

Analyst: LaPlant, Gary

Book#:

Instrument: LSC2 LS6000 B-1A

Method: SELENIUM-79, LA-365-132 Rev/Mod I-0

Specification: C Farm WMC 2010-2

Prep Batch: 00023863

Batch Comment:

C Farm WMC 2010-2 grp 660 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	S1011050099		0 0	E		Selenium-79	SOLID		<2.7300E-06			2.73E-06	uCi/g			
1	BLNK-PREP	S1011050099		0 0	E		Selenium-C	SOLID		19.911				% Recovery			
Sample Sequence 2																	
2	SAMPLE	S10V002303		0 0	E		Selenium-79	SOLID	N/A	<1.9700E-06			1.97E-06	uCi/g			U
2	SAMPLE	S10V002303		0 0	E		Selenium-C	SOLID		27.627				% Recovery			
Sample Sequence 3																	
3	SAMPLE	S10V002325		0 0	E		Selenium-79	SOLID	N/A	<1.3800E-06			1.38E-06	uCi/g			U
3	SAMPLE	S10V002325		0 0	E		Selenium-C	SOLID		38.578				% Recovery			
Sample Sequence 4																	
4	SAMPLE	S10V002357		0 0	E		Selenium-79	SOLID	N/A	<2.6400E-06			2.64E-06	uCi/g			U
4	SAMPLE	S10V002357		0 0	E		Selenium-C	SOLID		19.414				% Recovery			
Sample Sequence 5																	
5	SAMPLE	S10V002403		0 0	E		Selenium-79	SOLID	N/A	<2.9900E-06			2.99E-06	uCi/g			U
5	SAMPLE	S10V002403		0 0	E		Selenium-C	SOLID		17.422				% Recovery			
Sample Sequence 6																	
6	SAMPLE	S10V002422		0 0	E		Selenium-79	SOLID	N/A	<2.1500E-06			2.15E-06	uCi/g			U
6	SAMPLE	S10V002422		0 0	E		Selenium-C	SOLID		23.396				% Recovery			
Sample Sequence 7																	
7	SAMPLE	S10V002441		0 0	E		Selenium-79	SOLID	N/A	<4.3100E-06			4.31E-06	uCi/g			U
7	SAMPLE	S10V002441		0 0	E		Selenium-C	SOLID		20.658				% Recovery			
Sample Sequence 8																	
8	SAMPLE	S10V002460		0 0	E		Selenium-79	SOLID	N/A	<1.7000E-06			1.70E-06	uCi/g			U
8	SAMPLE	S10V002460		0 0	E		Selenium-C	SOLID		29.618				% Recovery			
Sample Sequence 9																	
9	SAMPLE	S10V002479		0 0	E		Selenium-79	SOLID	N/A	<2.4500E-06			2.45E-06	uCi/g			U
9	SAMPLE	S10V002479		0 0	E		Selenium-C	SOLID		20.907				% Recovery			
Sample Sequence 10																	
10	DUP	S1011050100	S10V002479	0 0	E		Selenium-79	SOLID	<2.4500E-06	<4.0300E-06			4.03E-06	uCi/g			
10	DUP	S1011050100	S10V002479	0 0	E		Selenium-C	SOLID	20.907	19.663				% Recovery			
Sample Sequence 11																	
11	SAMPLE	S10V002498		0 0	E		Selenium-79	SOLID	N/A	<5.0900E-06			5.09E-06	uCi/g			U
11	SAMPLE	S10V002498		0 0	E		Selenium-C	SOLID		13.191				% 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# 00023910

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00023910

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# 00023910

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1011050099	BLNK-PREP				
2	S10V002303	SAMPLE		20100660	B26JL0	C Farm WMC 2010-2
3	S10V002325	SAMPLE		20100660	B26JL1	C Farm WMC 2010-2
4	S10V002357	SAMPLE		20100660	B26C47	C Farm WMC 2010-2
5	S10V002403	SAMPLE		20100660	B26C51	C Farm WMC 2010-2
6	S10V002422	SAMPLE		20100660	B26C53	C Farm WMC 2010-2
7	S10V002441	SAMPLE		20100660	B26C55	C Farm WMC 2010-2
8	S10V002460	SAMPLE		20100660	B26C57	C Farm WMC 2010-2
9	S10V002479	SAMPLE		20100660	B26C59	C Farm WMC 2010-2
10	S1011050100	DUP	S10V002479			
11	S10V002498	SAMPLE		20100660	B26C61	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# 00022686

Analyst: Lai, Sue **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: 00021906

Batch Comment:

C Farm 2010-2 Gps 20100556, 660 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	S1009290098		0 0			Carbon-14	LIQUID	.00120818440662818	1.1160E-03		0.627	1.31E-06	uCi/mL	92.373	% Recovery	
Sample Sequence 2																	
2	BLNK-PREP	S1009020043		0 0	W		Carbon-14	LIQUID		<1.3300E-07			1.33E-07	uCi/g			
Sample Sequence 3																	
3	SAMPLE	S10V001768		0 0	W		Carbon-14	SOLID	N/A	<1.3500E-06			1.35E-06	uCi/g			U
Sample Sequence 4																	
4	DUP	S1009020044	S10V001768	0 0	W		Carbon-14	SOLID	<1.3500E-06	<1.3400E-06			1.34E-06	uCi/g			
Sample Sequence 5																	
5	SPK	S1009290099	S10V001768	0 0			Carbon-14	SOLID	.00120818440662818	1.1441E-03		0.606	1.28E-06	uCi/g	94.699	% Recovery	
Sample Sequence 6																	
6	SAMPLE	S10V001788		0 0	W		Carbon-14	SOLID	N/A	<1.3300E-06			1.33E-06	uCi/g			U
Sample Sequence 7																	
7	SAMPLE	S10V001808		0 0	W		Carbon-14	SOLID	N/A	<1.9300E-06			1.93E-06	uCi/g			U
Sample Sequence 8																	
8	SAMPLE	S10V002283		0 0	W		Carbon-14	SOLID	N/A	<1.3900E-06			1.39E-06	uCi/g			U
Sample Sequence 9																	
9	SAMPLE	S10V002312		0 0	W		Carbon-14	SOLID	N/A	<1.3200E-06			1.32E-06	uCi/g			U
Sample Sequence 10																	
10	SAMPLE	S10V002345		0 0	W		Carbon-14	SOLID	N/A	3.4900E-06		27.16	1.30E-06	uCi/g			
Sample Sequence 11																	
11	SAMPLE	S10V002394		0 0	W		Carbon-14	SOLID	N/A	<1.3100E-06			1.31E-06	uCi/g			U
Sample Sequence 12																	
12	SAMPLE	S10V002413		0 0	W		Carbon-14	SOLID	N/A	<2.5400E-06			2.54E-06	uCi/g			U
Sample Sequence 13																	
13	SAMPLE	S10V002432		0 0	W		Carbon-14	SOLID	N/A	<1.3600E-06			1.36E-06	uCi/g			U
Sample Sequence 14																	
14	SAMPLE	S10V002451		0 0	W		Carbon-14	SOLID	N/A	<1.3200E-06			1.32E-06	uCi/g			U
Sample Sequence 15																	
15	SAMPLE	S10V002470		0 0	W		Carbon-14	SOLID	N/A	<1.3100E-06			1.31E-06	uCi/g			U
Sample Sequence 16																	
16	SAMPLE	S10V002489		0 0	W		Carbon-14	SOLID	N/A	<1.3400E-06			1.35E-06	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# 00022686

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00022686

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# 00022686

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1009290098	STD				
2	S1009020043	BLNK-PREP				
3	S10V001768	SAMPLE		20100556	B26CD0	C Farm WMC 2010-2
4	S1009020044	DUP	S10V001768			
5	S1009290099	SPK	S10V001768			
6	S10V001788	SAMPLE		20100556	B26CD2	C Farm WMC 2010-2
7	S10V001808	SAMPLE		20100556	B26CD4	C Farm WMC 2010-2
8	S10V002283	SAMPLE		20100660	B26JL0	C Farm WMC 2010-2
9	S10V002312	SAMPLE		20100660	B26JL1	C Farm WMC 2010-2
10	S10V002345	SAMPLE		20100660	B26C47	C Farm WMC 2010-2
11	S10V002394	SAMPLE		20100660	B26C51	C Farm WMC 2010-2
12	S10V002413	SAMPLE		20100660	B26C53	C Farm WMC 2010-2
13	S10V002432	SAMPLE		20100660	B26C55	C Farm WMC 2010-2
14	S10V002451	SAMPLE		20100660	B26C57	C Farm WMC 2010-2
15	S10V002470	SAMPLE		20100660	B26C59	C Farm WMC 2010-2
16	S10V002489	SAMPLE		20100660	B26C61	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# 00023911

Analyst: Fabre, Martha **Book#:** 51B64

Instrument: LSC2 LS6000 B-1A

Method: NICKEL-63, LA-285-102 Rev/Mod E-0

Specification: C Farm WMC 2010-2

Prep Batch: 00023863

Batch Comment:

C Farm WMC 2010-2 Grp 660 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	S1011080059		0 0			Nickel-63	LIQUID	.00358	3.2503E-03		0.32	5.86E-06	uCi/mL	90.791	% Recovery	
1	STD	S1011080059		0 0			Nickel-C	LIQUID		85.791				% Recovery	N/A		
Sample Sequence 2																	
2	BLNK-PREP	S1011050099		0 0	E		Nickel-63	SOLID		<3.8900E-06			3.89E-06	uCi/g			
2	BLNK-PREP	S1011050099		0 0	E		Nickel-C	SOLID		64.806				% Recovery			
Sample Sequence 3																	
3	SAMPLE	S10V002303		0 0	E		Nickel-63	SOLID	N/A	<4.6500E-06			4.65E-06	uCi/g			U
3	SAMPLE	S10V002303		0 0	E		Nickel-C	SOLID		54.319				% Recovery			
Sample Sequence 4																	
4	SAMPLE	S10V002325		0 0	E		Nickel-63	SOLID	N/A	<7.6800E-06			7.68E-06	uCi/g			U
4	SAMPLE	S10V002325		0 0	E		Nickel-C	SOLID		31.787				% Recovery			
Sample Sequence 5																	
5	SAMPLE	S10V002357		0 0	E		Nickel-63	SOLID	N/A	<4.3200E-06			4.32E-06	uCi/g			U
5	SAMPLE	S10V002357		0 0	E		Nickel-C	SOLID		54.818				% Recovery			
Sample Sequence 6																	
6	SAMPLE	S10V002403		0 0	E		Nickel-63	SOLID	N/A	<5.7300E-06			5.73E-06	uCi/g			U
6	SAMPLE	S10V002403		0 0	E		Nickel-C	SOLID		42.157				% Recovery			
Sample Sequence 7																	
7	SAMPLE	S10V002422		0 0	E		Nickel-63	SOLID	N/A	<5.5000E-06			5.50E-06	uCi/g			U
7	SAMPLE	S10V002422		0 0	E		Nickel-C	SOLID		42.162				% Recovery			
Sample Sequence 8																	
8	SAMPLE	S10V002441		0 0	E		Nickel-63	SOLID	N/A	<5.6800E-06			5.68E-06	uCi/g			U
8	SAMPLE	S10V002441		0 0	E		Nickel-C	SOLID		43.375				% Recovery			
Sample Sequence 9																	
9	SAMPLE	S10V002460		0 0	E		Nickel-63	SOLID	N/A	<3.6100E-06			3.61E-06	uCi/g			U
9	SAMPLE	S10V002460		0 0	E		Nickel-C	SOLID		64.294				% Recovery			
Sample Sequence 10																	
10	SAMPLE	S10V002479		0 0	E		Nickel-63	SOLID	N/A	<5.1000E-06			5.10E-06	uCi/g			U
10	SAMPLE	S10V002479		0 0	E		Nickel-C	SOLID		46.426				% Recovery			
Sample Sequence 11																	
11	DUP	S1011050100	S10V002479	0 0	E		Nickel-63	SOLID	<5.1000E-06	<4.8900E-06			4.89E-06	uCi/g			
11	DUP	S1011050100	S10V002479	0 0	E		Nickel-C	SOLID	46.426	48.757				% 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# 00023911

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
12	SAMPLE	S10V002498		0 0	E		Nickel-63	SOLID	N/A	<5.8900E-06			5.89E-06	uCi/g			U
12	SAMPLE	S10V002498		0 0	E		Nickel-C	SOLID		42.634				% Recovery			

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00023911

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# 00023911

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1011080059	STD				
2	S1011050099	BLNK-PREP				
3	S10V002303	SAMPLE		20100660	B26JL0	C Farm WMC 2010-2
4	S10V002325	SAMPLE		20100660	B26JL1	C Farm WMC 2010-2
5	S10V002357	SAMPLE		20100660	B26C47	C Farm WMC 2010-2
6	S10V002403	SAMPLE		20100660	B26C51	C Farm WMC 2010-2
7	S10V002422	SAMPLE		20100660	B26C53	C Farm WMC 2010-2
8	S10V002441	SAMPLE		20100660	B26C55	C Farm WMC 2010-2
9	S10V002460	SAMPLE		20100660	B26C57	C Farm WMC 2010-2
10	S10V002479	SAMPLE		20100660	B26C59	C Farm WMC 2010-2
11	S1011050100	DUP	S10V002479			
12	S10V002498	SAMPLE		20100660	B26C61	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# 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	.00319699978398196	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

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# 00023600

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
11	SAMPLE	S10V002281		0 0			Iodine-C	SOLID		80.754				% Recovery			
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.

* = Rejected Analyte
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.

* = Rejected Analyte
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

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
11	SAMPLE	S10V002507		0 0			Iodine-C	SOLID		74.189				% Recovery			
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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N, A = Non-reported Analyte

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.

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LABCORE Completed Batch Report for Batch# 00023879

Analyst: Fabre, Martha **Book#:** 120B64

Instrument: A/B Detector 16 B-1F

Method: AMERICIUM, LA-953-104 Rev/Mod H-1

Specification: C Farm WMC 2010-2

Prep Batch: 00023862

Batch Comment:

C Farm WMC 2010-2 Grp 660 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	S1011050165		0 0			Americium-241	LIQUID	.00013691468 5512702	1.4109E-04		6.26	1.72E-05	uCi/mL	103.05	% Recovery	
1	STD	S1011050165		0 0			Americium-243T	LIQUID		70.338				% Recovery	N/A		
Sample Sequence 2																	
2	BLNK-PREP	S1011050097		0 0	E		Curium-243/244	SOLID		<2.1854E-07			2.19E-07	uCi/g			
2	BLNK-PREP	S1011050097		0 0	E		Americium-241	SOLID		<5.4636E-07			5.46E-07	uCi/g			
2	BLNK-PREP	S1011050097		0 0	E		Americium-243T	SOLID		64.464				% Recovery			
2	BLNK-PREP	S1011050097		0 0	E		Curium-242	SOLID		<2.1854E-07			2.19E-07	uCi/g			
Sample Sequence 3																	
3	SAMPLE	S10V002294		0 0	E		Curium-243/244	SOLID	N/A	<1.6977E-07			1.70E-07	uCi/g			U
3	SAMPLE	S10V002294		0 0	E		Americium-241	SOLID	N/A	<4.2442E-07			4.24E-07	uCi/g			U
3	SAMPLE	S10V002294		0 0	E		Americium-243T	SOLID		78.051				% Recovery			
3	SAMPLE	S10V002294		0 0	E		Curium-242	SOLID	N/A	<1.6977E-07			1.70E-07	uCi/g			U
Sample Sequence 4																	
4	SAMPLE	S10V002323		0 0	E		Curium-243/244	SOLID	N/A	<1.9589E-07			1.96E-07	uCi/g			U
4	SAMPLE	S10V002323		0 0	E		Americium-241	SOLID	N/A	<4.8972E-07			4.90E-07	uCi/g			U
4	SAMPLE	S10V002323		0 0	E		Americium-243T	SOLID		66.134				% Recovery			
4	SAMPLE	S10V002323		0 0	E		Curium-242	SOLID	N/A	<1.9589E-07			1.96E-07	uCi/g			U
Sample Sequence 5																	
5	SAMPLE	S10V002355		0 0	E		Curium-243/244	SOLID	N/A	<1.8395E-07			1.84E-07	uCi/g			U
5	SAMPLE	S10V002355		0 0	E		Americium-241	SOLID	N/A	<4.5988E-07			4.60E-07	uCi/g			U
5	SAMPLE	S10V002355		0 0	E		Americium-243T	SOLID		79.238				% Recovery			
5	SAMPLE	S10V002355		0 0	E		Curium-242	SOLID	N/A	<1.8395E-07			1.84E-07	uCi/g			U
Sample Sequence 6																	
6	SAMPLE	S10V002401		0 0	E		Curium-243/244	SOLID	N/A	<2.3442E-07			2.34E-07	uCi/g			U
6	SAMPLE	S10V002401		0 0	E		Americium-241	SOLID	N/A	<5.8604E-07			5.86E-07	uCi/g			U
6	SAMPLE	S10V002401		0 0	E		Americium-243T	SOLID		76.176				% Recovery			
6	SAMPLE	S10V002401		0 0	E		Curium-242	SOLID	N/A	<2.3442E-07			2.34E-07	uCi/g			U
Sample Sequence 7																	
7	SAMPLE	S10V002420		0 0	E		Curium-243/244	SOLID	N/A	<1.9797E-07			1.98E-07	uCi/g			U
7	SAMPLE	S10V002420		0 0	E		Americium-241	SOLID	N/A	<4.9491E-07			4.95E-07	uCi/g			U
7	SAMPLE	S10V002420		0 0	E		Americium-243T	SOLID		82.331				% Recovery			

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LABCORE Completed Batch Report for Batch# 00023879

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
7	SAMPLE	S10V002420		0 0	E		Curium-242	SOLID	N/A	<1.9797E-07			1.98E-07	uCi/g			U
Sample Sequence 8																	
8	SAMPLE	S10V002439		0 0	E		Curium-243/244	SOLID	N/A	<2.5171E-07			2.52E-07	uCi/g			U
8	SAMPLE	S10V002439		0 0	E		Americium-241	SOLID	N/A	<6.2928E-07			6.29E-07	uCi/g			U
8	SAMPLE	S10V002439		0 0	E		Americium-243T	SOLID		68.261				% Recovery			
8	SAMPLE	S10V002439		0 0	E		Curium-242	SOLID	N/A	<2.5171E-07			2.52E-07	uCi/g			U
Sample Sequence 9																	
9	SAMPLE	S10V002458		0 0	E		Curium-243/244	SOLID	N/A	<1.9762E-07			1.98E-07	uCi/g			U
9	SAMPLE	S10V002458		0 0	E		Americium-241	SOLID	N/A	<4.9405E-07			4.94E-07	uCi/g			U
9	SAMPLE	S10V002458		0 0	E		Americium-243T	SOLID		83.944				% Recovery			
9	SAMPLE	S10V002458		0 0	E		Curium-242	SOLID	N/A	<1.9762E-07			1.98E-07	uCi/g			U
Sample Sequence 10																	
10	SAMPLE	S10V002477		0 0	E		Curium-243/244	SOLID	N/A	<2.4349E-07			2.43E-07	uCi/g			U
10	SAMPLE	S10V002477		0 0	E		Americium-241	SOLID	N/A	<6.0873E-07			6.09E-07	uCi/g			U
10	SAMPLE	S10V002477		0 0	E		Americium-243T	SOLID		59.77				% Recovery			
10	SAMPLE	S10V002477		0 0	E		Curium-242	SOLID	N/A	<2.4349E-07			2.44E-07	uCi/g			U
Sample Sequence 11																	
11	DUP	S1011050098	S10V002477	0 0	E		Curium-243/244	SOLID	<2.4349E-07	<1.6651E-07			1.67E-07	uCi/g			
11	DUP	S1011050098	S10V002477	0 0	E		Americium-241	SOLID	<6.0873E-07	<4.1627E-07			4.16E-07	uCi/g			
11	DUP	S1011050098	S10V002477	0 0	E		Americium-243T	SOLID	59.77	87.255				% Recovery	47.71	% Recovery	
11	DUP	S1011050098	S10V002477	0 0	E		Curium-242	SOLID	<2.4349E-07	<1.6651E-07			1.67E-07	uCi/g			
Sample Sequence 12																	
12	SAMPLE	S10V002496		0 0	E		Curium-243/244	SOLID	N/A	<2.4320E-07			2.43E-07	uCi/g			U
12	SAMPLE	S10V002496		0 0	E		Americium-241	SOLID	N/A	<6.0800E-07			6.08E-07	uCi/g			U
12	SAMPLE	S10V002496		0 0	E		Americium-243T	SOLID		69.426				% Recovery			
12	SAMPLE	S10V002496		0 0	E		Curium-242	SOLID	N/A	<2.4320E-07			2.43E-07	uCi/g			U

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00023879

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LABCORE Completed Batch Report for Batch# 00023879

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1011050165	STD				
2	S1011050097	BLNK-PREP				
3	S10V002294	SAMPLE		20100660	B26JL0	C Farm WMC 2010-2
4	S10V002323	SAMPLE		20100660	B26JL1	C Farm WMC 2010-2
5	S10V002355	SAMPLE		20100660	B26C47	C Farm WMC 2010-2
6	S10V002401	SAMPLE		20100660	B26C51	C Farm WMC 2010-2
7	S10V002420	SAMPLE		20100660	B26C53	C Farm WMC 2010-2
8	S10V002439	SAMPLE		20100660	B26C55	C Farm WMC 2010-2
9	S10V002458	SAMPLE		20100660	B26C57	C Farm WMC 2010-2
10	S10V002477	SAMPLE		20100660	B26C59	C Farm WMC 2010-2
11	S1011050098	DUP	S10V002477			
12	S10V002496	SAMPLE		20100660	B26C61	C Farm WMC 2010-2

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

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LABCORE Completed Batch Report for Batch# 00023878

Analyst: Fabre, Martha **Book#:** 120B64

Instrument: A/B Detector 23 B-1A

Method: PLUTONIUM, LA-953-104 Rev/Mod H-1

Specification: C Farm WMC 2010-2

Prep Batch: 00023862

Batch Comment:

C Farm WMC 2010-2 for Grp660 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	S1011050163		0 0			Pu-239/240	LIQUID	.00014199842 4642049	1.4041E-04		5.68	7.84E-06	uCi/mL	98.88	% Recovery	
1	STD	S1011050163		0 0			Plutonium-236T	LIQUID		90.554				% Recovery	N/A		
Sample Sequence 2																	
2	BLNK-PREP	S1011050097		0 0	E		Pu-239/240	SOLID		<5.4617E-07			5.46E-07	uCi/g			
2	BLNK-PREP	S1011050097		0 0	E		Plutonium-236T	SOLID		40.894				% Recovery			
2	BLNK-PREP	S1011050097		0 0	E		Plutonium-238	SOLID		<5.4617E-07			5.46E-07	uCi/g			
Sample Sequence 3																	
3	SAMPLE	S10V002294		0 0	E		Pu-239/240	SOLID	N/A	<2.9754E-07			2.98E-07	uCi/g			U
3	SAMPLE	S10V002294		0 0	E		Plutonium-236T	SOLID		74.031				% Recovery			
3	SAMPLE	S10V002294		0 0	E		Plutonium-238	SOLID	N/A	<2.9754E-07			2.98E-07	uCi/g			U
Sample Sequence 4																	
4	SAMPLE	S10V002323		0 0	E		Pu-239/240	SOLID	N/A	<2.5937E-07			2.59E-07	uCi/g			U
4	SAMPLE	S10V002323		0 0	E		Plutonium-236T	SOLID		79.591				% Recovery			
4	SAMPLE	S10V002323		0 0	E		Plutonium-238	SOLID	N/A	<2.5937E-07			2.59E-07	uCi/g			U
Sample Sequence 5																	
5	SAMPLE	S10V002355		0 0	E		Pu-239/240	SOLID	N/A	<2.9192E-07			2.92E-07	uCi/g			U
5	SAMPLE	S10V002355		0 0	E		Plutonium-236T	SOLID		80.978				% Recovery			
5	SAMPLE	S10V002355		0 0	E		Plutonium-238	SOLID	N/A	<2.9192E-07			2.92E-07	uCi/g			U
Sample Sequence 6																	
6	SAMPLE	S10V002401		0 0	E		Pu-239/240	SOLID	N/A	<3.5393E-07			3.54E-07	uCi/g			U
6	SAMPLE	S10V002401		0 0	E		Plutonium-236T	SOLID		81.09				% Recovery			
6	SAMPLE	S10V002401		0 0	E		Plutonium-238	SOLID	N/A	<3.5393E-07			3.54E-07	uCi/g			U
Sample Sequence 7																	
7	SAMPLE	S10V002420		0 0	E		Pu-239/240	SOLID	N/A	<3.3056E-07			3.31E-07	uCi/g			U
7	SAMPLE	S10V002420		0 0	E		Plutonium-236T	SOLID		78.06				% Recovery			
7	SAMPLE	S10V002420		0 0	E		Plutonium-238	SOLID	N/A	<3.3056E-07			3.31E-07	uCi/g			U
Sample Sequence 8																	
8	SAMPLE	S10V002439		0 0	E		Pu-239/240	SOLID	N/A	<3.1766E-07			3.18E-07	uCi/g			U
8	SAMPLE	S10V002439		0 0	E		Plutonium-236T	SOLID		91.188				% Recovery			
8	SAMPLE	S10V002439		0 0	E		Plutonium-238	SOLID	N/A	<3.1766E-07			3.18E-07	uCi/g			U
Sample Sequence 9																	
9	SAMPLE	S10V002458		0 0	E		Pu-239/240	SOLID	N/A	<3.9923E-07			3.99E-07	uCi/g			U

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N, A = Non-reported Analyte

LABCORE Completed Batch Report for Batch# 00023878

Seq	Type	Sample#	Assoc. Sample	RepR	A	*	Test	Matrix	Actual	Found	Blank	CTR	Limit (DL/RL/UL)	Unit	Yield	Yield Unit	Flags
9	SAMPLE	S10V002458		0 0	E		Plutonium-236T	SOLID		72.152				% Recovery			
9	SAMPLE	S10V002458		0 0	E		Plutonium-238	SOLID	N/A	<3.9923E-07			3.99E-07	uCi/g			U
Sample Sequence 10																	
10	SAMPLE	S10V002477		0 0	E		Pu-239/240	SOLID	N/A	<4.6721E-07			4.67E-07	uCi/g			U
10	SAMPLE	S10V002477		0 0	E		Plutonium-236T	SOLID		52.296				% Recovery			
10	SAMPLE	S10V002477		0 0	E		Plutonium-238	SOLID	N/A	<4.6721E-07			4.67E-07	uCi/g			U
Sample Sequence 11																	
11	DUP	S1011050098	S10V002477	0 0	E		Pu-239/240	SOLID	<4.6721E-07	<2.9839E-07			2.98E-07	uCi/g			
11	DUP	S1011050098	S10V002477	0 0	E		Plutonium-236T	SOLID	52.296	82.005				% Recovery			
11	DUP	S1011050098	S10V002477	0 0	E		Plutonium-238	SOLID	<4.6721E-07	<2.9839E-07			2.98E-07	uCi/g			
Sample Sequence 12																	
12	SAMPLE	S10V002496		0 0	E		Pu-239/240	SOLID	N/A	<4.0948E-07			4.09E-07	uCi/g			U
12	SAMPLE	S10V002496		0 0	E		Plutonium-236T	SOLID		67.58				% Recovery			
12	SAMPLE	S10V002496		0 0	E		Plutonium-238	SOLID	N/A	<4.0948E-07			4.09E-07	uCi/g			U

Comments Section:

Data Flagger Status:
Flagging Completed

Final Page for Batch# 00023878

Reviewer Signature **Date**

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LABCORE Completed Batch Report for Batch# 00023878

Seq	Sample#	QC Type	Assoc. Sample	Sample Group	Customer Id	Specification
1	S1011050163	STD				
2	S1011050097	BLNK-PREP				
3	S10V002294	SAMPLE		20100660	B26JL0	C Farm WMC 2010-2
4	S10V002323	SAMPLE		20100660	B26JL1	C Farm WMC 2010-2
5	S10V002355	SAMPLE		20100660	B26C47	C Farm WMC 2010-2
6	S10V002401	SAMPLE		20100660	B26C51	C Farm WMC 2010-2
7	S10V002420	SAMPLE		20100660	B26C53	C Farm WMC 2010-2
8	S10V002439	SAMPLE		20100660	B26C55	C Farm WMC 2010-2
9	S10V002458	SAMPLE		20100660	B26C57	C Farm WMC 2010-2
10	S10V002477	SAMPLE		20100660	B26C59	C Farm WMC 2010-2
11	S1011050098	DUP	S10V002477			
12	S10V002496	SAMPLE		20100660	B26C61	C Farm WMC 2010-2

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