ENVIRONMENTAL STANDARDS

Setting the Standards for Innovative Environmental Solutions

QUALITY ASSURANCE REVIEW

OF THE OU-4B AND OU-5 SOIL SAMPLES

COLLECTED ON DECEMBER 16, 17, AND 18, 2019

AT THE ANACONDA COPPER MINE SITE

IN YERINGTON, NEVADA

March 26, 2020

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1.0 Introduction

This quality assurance (QA) review is based upon a rigorous examination of all data generated from the analyses of the OU-4b and OU-5 soil samples that were collected by Wood Environment & Infrastructure Solutions, Inc., on December 16, 17, and 18, 2019, at the Anaconda Copper Mine Site in Yerington, Nevada. These samples were analyzed by Eurofins TestAmerica, in St. Louis, Missouri. The samples and analyses included in this QA review are specified on Table 1.

This review has been performed with guidance from the "National Functional Guidelines for Inorganic Data Review" (US EPA, 2/94). This document is not entirely applicable to the type of analyses and analytical protocols performed on the samples evaluated in this QA review, but it has been used with professional judgment to aid the data reviewer in the interpretation of the quality control (QC) analysis results and in the overall evaluation of the sample data deliverables. It should also be noted that results affected by blank contamination will be designated with a "UJ" qualifier (not the "U" qualifier typically used when following the National Functional Guidelines) in order to be consistent with historical project validation protocols.

The reported analytical results are presented as a summary of the data in Section 2. Data were examined to determine the usability of the analytical results and the compliance relative to the requirements specified in the published analytical methods and the Site-Wide Quality Assurance Project Plan Anaconda Copper Mine Site Yerington, Nevada, Update Version 5.1 (September 5, 2018). Qualifier codes have been placed next to results to enable the data user to quickly assess the qualitative and/or quantitative reliability of any result. This critical QA review identifies data quality issues for specific samples and specific evaluation criteria. The data qualifications allow the data's end-user to best understand the usability of the analytical results. Data not qualified in this report should be considered valid based on the QC criteria that have been reviewed. Details of this QA review are presented in Section 1 of this report. This report was prepared to provide a critical review of the laboratory analyses and reported analytical results. Rigorous QA reviews of laboratory-generated data routinely identify various problems associated with analytical measurements, even from the most experienced and capable laboratories.

TABLE 1

SAMPLES INCLUDED IN THIS QUALITY ASSURANCE REVIEW

Field Sample Identification	Laboratory Sample Identification	SDG	Matrix	Date Sample Collected	Parameter(s) Examined
WRSB235_0-0.5	160-36789-1	160-36789-1	Soil	12/16/19	^{226}Ra, ^{228}Ra, Th, U
WRSB235_0.5-3	160-36789-2	160-36789-1	Soil	12/16/19	^{226}Ra, ^{228}Ra, Th, U
WRSB235_3-6	160-36789-3	160-36789-1	Soil	12/16/19	^{226}Ra, ^{228}Ra, Th, U
WRSB235_6-15	160-36789-4	160-36789-1	Soil	12/16/19	^{226}Ra, ^{228}Ra, Th, U
WRSB235_6-15DUP (Laboratory Duplicate)	160-36789-4DUP	160-36789-1	Soil	12/16/19	^{226}Ra, ^{228}Ra
WRSB217_0-0.5	160-36789-5	160-36789-1	Soil	12/17/19	^{226}Ra, ^{228}Ra, Th, U
WRSB217-FD_0-0.5 (Field Duplicate of WRSB217_0-0.5)	160-36789-6	160-36789-1	Soil	12/17/19	^{226}Ra, ^{228}Ra, Th, U
WRSB217_0.5-3	160-36789-7	160-36789-1	Soil	12/17/19	^{226}Ra, ^{228}Ra, Th, U
WRSB217_3-6	160-36789-8	160-36789-1	Soil	12/17/19	^{226}Ra, ^{228}Ra, Th, U
WRSB217_6-15	160-36789-9	160-36789-1	Soil	12/17/19	^{226}Ra, ^{228}Ra, Th, U
WRSB218_0-0.5	160-36789-10	160-36789-1	Soil	12/17/19	^{226}Ra, ^{228}Ra, Th, U
WRSB218_0.5-3	160-36789-11	160-36789-1	Soil	12/17/19	^{226}Ra, ^{228}Ra, Th, U
WRSB218-FD_0.5-3 (Field Duplicate of WRSB218_0.5-3)	160-36789-12	160-36789-1	Soil	12/17/19	^{226}Ra, ^{228}Ra, Th, U
WRSB218_3-6	160-36789-13	160-36789-1	Soil	12/17/19	^{226}Ra, ^{228}Ra, Th, U
WRSB218_3-6MS (Matrix Spike)	160-36789-13MS	160-36789-1	Soil	12/17/19	Th, U
WRSB218_3-6MSD (Matrix Spike Duplicate)	160-36789-13MSD	160-36789-1	Soil	12/17/19	Th, U
WRSB218_3-6DUP (Laboratory Duplicate)	160-36789-13DUP	160-36789-1	Soil	12/17/19	^{226}Ra, ^{228}Ra, Th, U
WRSB218_6-15	160-36789-14	160-36789-1	Soil	12/17/19	^{226}Ra, ^{228}Ra, Th, U
WRSB229_0-0.5	160-36789-15	160-36789-1	Soil	12/18/19	^{226}Ra, ^{228}Ra, Th, U
WRSB229_0.5-3	160-36789-16	160-36789-1	Soil	12/18/19	^{226}Ra, ^{228}Ra, Th, U
WRSB229_3-6	160-36789-17	160-36789-1	Soil	12/18/19	^{226}Ra, ^{228}Ra, Th, U
WRSB229_6-15	160-36789-18	160-36789-1	Soil	12/18/19	^{226}Ra, ^{228}Ra, Th, U
WRSB211_0-0.5	160-36789-19	160-36789-1	Soil	12/18/19	^{226}Ra, ^{228}Ra, Th, U

TABLE 1 (Cont.)

Field Sample Identification	Laboratory Sample Identification	SDG	Matrix	Date Sample Collected	Parameter(s) Examined
WRSB211_0.5-3	160-36789-20	160-36789-1	Soil	12/18/19	^{226}Ra, ^{228}Ra, Th, U
WRSB211_3-6	160-36789-21	160-36789-1	Soil	12/18/19	^{226}Ra, ^{228}Ra, Th, U
WRSB211-FD_3-6 (Field Duplicate of WRSB211_3-6)	160-36789-22	160-36789-1	Soil	12/18/19	^{226}Ra, ^{228}Ra, Th, U
WRSB211_6-15	160-36789-23	160-36789-1	Soil	12/18/19	^{226}Ra, ^{228}Ra, Th, U
WRSB209_0-0.5	160-36789-24	160-36789-1	Soil	12/18/19	^{226}Ra, ^{228}Ra, Th, U
WRSB209_0.5-3	160-36789-25	160-36789-1	Soil	12/18/19	^{226}Ra, ^{228}Ra, Th, U
WRSB209_3-6	160-36789-26	160-36789-1	Soil	12/18/19	^{226}Ra, ^{228}Ra, Th, U
WRSB209_3-6MS (Matrix Spike)	160-36789-26MS	160-36789-1	Soil	12/18/19	Th, U
WRSB209_3-6MSD (Matrix Spike Duplicate)	160-36789-26MSD	160-36789-1	Soil	12/18/19	Th, U
WRSB209_3-6DUP (Laboratory Duplicate)	160-36789-26DUP	160-36789-1	Soil	12/18/19	^{226}Ra, ^{228}Ra, Th, U
WRSB209_6-15	160-36789-27	160-36789-1	Soil	12/18/19	^{226}Ra, ^{228}Ra, Th, U
WRSB210_0-0.5	160-36789-28	160-36789-1	Soil	12/18/19	^{226}Ra, ^{228}Ra, Th, U
WRSB210_0.5-3	160-36789-29	160-36789-1	Soil	12/18/19	^{226}Ra, ^{228}Ra, Th, U
WRSB210_3-6	160-36789-30	160-36789-1	Soil	12/18/19	^{226}Ra, ^{228}Ra, Th, U
WRSB210_6-15	160-36789-31	160-36789-1	Soil	12/18/19	^{226}Ra, ^{228}Ra, Th, U

NOTES:

^{226}Ra - Radium-226 by US EPA Method 901.1.
^{228}Ra - Radium-228 by US EPA Method 901.1.
Th - Total Thorium by SW-846 Method 6020A.
U - Total Uranium by SW-846 Method 6020A.

2.0 Findings

Complete support documentation for this inorganic and radiological QA review is presented in Section 8.0 of this report.

A. Inorganic Analyses

Thirty-seven samples (including QC samples) were analyzed for total thorium and total uranium by SW-846 Method 6020A. The findings offered in this report for this fraction are based on the items on the following table:

Item Reviewed	Acceptable	Acceptable with Qualification	Not Acceptable
Holding Times	√		
Blank Analysis Results	√		
LCS Results	√		
MS/MSD Results	√		
Laboratory Duplicate Precision	√		
Serial Dilution Analysis		√	
Detection Limits/Sensitivity	√		
Calibrations	√		
RL Standard Recoveries	√		
Internal Standard Recoveries	√		
Field Duplicate Precision	√		
Analytical Sequence	√		
Sample Preparation	√		
Quantitation of Positive Results	√		
Evaluation of Raw Data	√		

Serial Dilution Analysis: Poor precision (the percent difference [%D] was > 10% when the original sample result was > 50× the method detection limit [MDL]) was observed for total thorium and/or uranium in associated serial dilution analyses. The positive results for total thorium in all samples and the positive results for total uranium in samples WRSB211_3-6, WRSB211-FD_3-6, WRSB211_6-15, WRSB209_0-0.5, WRSB209_0.5-3, WRSB209_3-6, WRSB209_6-15, WRSB210_0-0.5, WRSB210_0.5-3, WRSB210_3-6, and WRSB210_6-15 should be considered estimated and have been flagged “J” on the data tables.

B. Radiological Analyses

Thirty-four samples (including QC samples) were analyzed for radium-226 and radium-228 by US EPA Method 901.1. The findings offered in this report for this fraction are based on the items on the following table:

Item Reviewed	Acceptable	Acceptable with Qualification	Not Acceptable
Holding Times	√		
Blank Results	√		
LCS Recoveries	√		
Laboratory Duplicate Precision	√		
Efficiency Checks	√		
Background Checks	√		
FWHM Resolution Checks	√		
Centroid Checks	√		
Field Duplicate Precision		√	
Sample Preparation		√	
Quantitation of Results		√	
Evaluation of Raw Data	√		

Field Duplicate Precision: Acceptable precision was not observed (replicate error ratio [RER] was > 2) between the results for radium-228 in sample WRSB218_0.5-3 and its field duplicate, sample WRSB218-FD_0.5-3. The positive results for radium-228 in these samples should be considered estimated and have been flagged "J" on the data tables.

Sample Preparation: Insufficient aliquot was available for sample WRSB235_6-15 to fill the appropriate geometry calibrated for the radium-226 analysis by gamma spectroscopy. The use of a different geometry could potentially bias this result low due to potential loss of radon into the headspace of the geometry container. The positive result for radium-226 in sample WRSB235_6-15 should be considered estimated and has been flagged "J" on the data tables.

Quantitation of Results: All positive results reported at concentrations greater than the method MDL, but less than the reporting limit (RL), were qualified as estimated and have been flagged "J" on the data tables.

3.0 Qualifier Summary

A. Inorganic Analyses

Analyte(s)	SDG(s)	Sample(s)	Validation Qualifier(s)	Reason(s) for Qualification
total uranium	160-36789-1	WRSB211_3-6, WRSB211-FD_3-6, WRSB211_6-15,WRSB209_0-0.5, WRSB209_0.5-3, WRSB209_3-6, WRSB209_6-15,WRSB210_0-0.5, WRSB210_0.5-3, WRSB210_3-6, and WRSB210_6-15	J	G – Serial dilution imprecision

Analyte(s)	SDG(s)	Sample(s)	Validation Qualifier(s)	Reason(s) for Qualification
total thorium	160-36789-1	All samples	J	G – Serial dilution imprecision

B. Radiological Analyses

Analyte(s)	SDG(s)	Sample(s)	Validation Qualifier(s)	Reason(s) for Qualification
radium-228	160-36789-1	WRSB218_0.5-3 and WRSB218-FD_0.5-3	J	8 – Field duplicate imprecision
radium-226	160-36789-1	WRSB235_6-15	J	9L – Potential loss of radon due to geometry headspace

All positive results reported between the MDL and RL have been flagged "J." (Valid Reason Code: T)

4.0 Overall Assessment

Based on this QA review, the results for total thorium in all samples and for total uranium in several samples were qualified as estimated due to serial dilution imprecision. One radium-226 was qualified as estimated due to potential loss of radon due to geometry headspace. Two radium-228 results were qualified as estimated due to field duplicate imprecision. In addition, one radium-226 result was qualified as estimated because the positive result was reported between the MDL and the RL.

5.0 Inorganic and Radiological Data Qualifiers and Valid Reason Codes

Inorganic and Radiological Data Qualifiers

U Analyte not detected at the detection limit concentration.

J Reported value is an estimated concentration.

UJ Analyte not detected at an estimated detection limit concentration.

R These data were rejected and were not used for any purposes.

UR The analyte was not detected. The detection limit is unreliable and may be representative of a false negative. These data were rejected and are not usable for any purpose.

Valid Reason Codes

1	Holding time violation
2	Method blank contamination
3	Surrogate recovery
4	Matrix spike/matrix spike duplicate recovery
5	Matrix spike/matrix spike duplicate precision outside limits
6	Laboratory control sample recovery
7	Field blank contamination
8	Field duplicate precision outside of limits
9	Other deficiencies (including cooler temperature)
A	Absence of supporting QC
S	ICV, CCV, or column performance check problem
Y	Initial and continuing calibration blank problem
M	Interference check samples problem
O	Post-digestion spike outside of QC criteria
F	MSA correlation coefficient < 0.995, or MSA not done
G	Serial dilution problem
K	DFTPP or BFB tuning problem
Q	Initial calibration problem
X	Internal standard recovery problem
V	Second-source standard calibration verification problem
L	Low bias
Z	Retention time problem
N	Counting time error (radionuclide chemistry)
W	Detector instability (radionuclide chemistry)
C	Co-elution of compounds
E	Value exceeds linear calibration range
I	Interferences present during analysis
T	Trace-level compound, poor quantitation
P	Dual-column precision outside of limits
B	LCS/LCSD precision outside limits
D	Lab Dup/Rep precision outside limits
H	High bias

6.0 Signatures

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7.0 ANALYTICAL RESULTS

Yerington
SDG: 160-36789-1

					Lab Sample	160-36789-1						160-36789-10					
					Field Sample	WRSB235_0-0.5						WRSB218_0-0.5					
					Collect Date	12/16/2019 2:37:00 PM						12/17/2019 2:32:00 PM					
					Type	N						N					
					Parent												
Method	**CAS Number**	**Chemical Name**	**TD**	**Test Type**	**Units**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**
901.1_RA	13982-63-3	Radium-226	T	INITIAL	PCI/G	1.81		0.252	1.00	0.378	Y	1.73		0.124	1.00	0.270	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	2.03		0.284	1.00	0.375	Y	2.03		0.189	1.00	0.334	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	11	J/G	0.091	0.20		Y	7.7	J/G	0.087	0.19		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	1.8		0.041	0.10		Y	1.1		0.039	0.097		Y

					Lab Sample	160-36789-11						160-36789-12					
					Field Sample	WRSB218_0.5-3						WRSB218-FD_0.5-3					
					Collect Date	12/17/2019 2:41:00 PM						12/17/2019 2:50:00 PM					
					Type	N						N					
					Parent												
Method	**CAS Number**	**Chemical Name**	**TD**	**Test Type**	**Units**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**
901.1_RA	13982-63-3	Radium-226	T	INITIAL	PCI/G	1.63		0.226	1.00	0.330	Y	1.48		0.154	1.00	0.282	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	2.04	J/8	0.184	1.00	0.420	Y	1.33	J/8	0.588	1.00	0.417	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	8.0	J/G	0.091	0.20		Y	7.9	J/G	0.084	0.19		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	1.2		0.041	0.10		Y	1.2		0.038	0.094		Y

					Lab Sample	160-36789-13						160-36789-14					
					Field Sample	WRSB218_3-6						WRSB218_6-15					
					Collect Date	12/17/2019 3:04:00 PM						12/17/2019 3:07:00 PM					
					Type	N						N					
					Parent												
Method	**CAS Number**	**Chemical Name**	**TD**	**Test Type**	**Units**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**
901.1_RA	13982-63-3	Radium-226	T	INITIAL	PCI/G	1.48		0.209	1.00	0.310	Y	1.72		0.179	1.00	0.312	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	2.13		0.307	1.00	0.439	Y	2.05		0.239	1.00	0.389	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	9.4	J/G	0.082	0.18		Y	8.4	J/G	0.088	0.20		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	1.4		0.036	0.091		Y	1.4		0.039	0.098		Y

					Lab Sample	160-36789-15						160-36789-16					
					Field Sample	WRSB229_0-0.5						WRSB229_0.5-3					
					Collect Date	12/18/2019 9:19:00 AM						12/18/2019 9:27:00 AM					
					Type	N						N					
					Parent												
Method	**CAS Number**	**Chemical Name**	**TD**	**Test Type**	**Units**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**
901.1_RA	13982-63-3	Radium-226	T	INITIAL	PCI/G	1.63		0.145	1.00	0.281	Y	1.40		0.154	1.00	0.275	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	1.21		0.0837	1.00	0.263	Y	1.27		0.182	1.00	0.327	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	8.9	J/G	0.094	0.21		Y	7.6	J/G	0.090	0.20		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	3.6		0.042	0.10		Y	3.7		0.040	0.10		Y

					Lab Sample	160-36789-17						160-36789-18					
					Field Sample	WRSB229_3-6						WRSB229_6-15					
					Collect Date	12/18/2019 9:39:00 AM						12/18/2019 9:47:00 AM					
					Type	N						N					
					Parent												
Method	**CAS Number**	**Chemical Name**	**TD**	**Test Type**	**Units**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**
901.1_RA	13982-63-3	Radium-226	T	INITIAL	PCI/G	1.49		0.204	1.00	0.300	Y	1.65		0.212	1.00	0.343	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	1.01		0.100	1.00	0.254	Y	1.24		0.256	1.00	0.360	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	12	J/G	0.087	0.19		Y	11	J/G	0.084	0.19		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	2.1		0.039	0.096		Y	2.7		0.038	0.094		Y

					Lab Sample	160-36789-19						160-36789-2					
					Field Sample	WRSB211_0-0.5						WRSB235_0.5-3					
					Collect Date	12/18/2019 10:41:00 AM						12/16/2019 2:50:00 PM					
					Type	N						N					
					Parent												
Method	**CAS Number**	**Chemical Name**	**TD**	**Test Type**	**Units**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**
901.1_RA	13982-63-3	Radium-226	T	INITIAL	PCI/G	2.12		0.203	1.00	0.380	Y	1.40		0.218	1.00	0.271	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	2.17		0.232	1.00	0.389	Y	1.82		0.216	1.00	0.372	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	9.8	J/G	0.084	0.19		Y	10	J/G	0.084	0.19		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	2.4		0.037	0.093		Y	1.5		0.037	0.094		Y

					Lab Sample	160-36789-20						160-36789-21					
					Field Sample	WRSB211_0.5-3						WRSB211_3-6					
					Collect Date	12/18/2019 10:48:00 AM						12/18/2019 10:59:00 AM					
					Type	N						N					
					Parent												
Method	**CAS Number**	**Chemical Name**	**TD**	**Test Type**	**Units**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**
901.1_RA	13982-63-3	Radium-226	T	INITIAL	PCI/G	1.89		0.200	1.00	0.297	Y	1.88		0.210	1.00	0.342	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	2.05		0.0777	1.00	0.359	Y	2.17		0.223	1.00	0.367	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	9.7	J/G	0.085	0.19		Y	11	J/G	0.093	0.21		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	2.0		0.038	0.095		Y	2.1	J/G	0.041	0.10		Y

					Lab Sample	160-36789-22						160-36789-23					
					Field Sample	WRSB211-FD_3-6						WRSB211_6-15					
					Collect Date	12/18/2019 11:03:00 AM						12/18/2019 11:07:00 AM					
					Type	N						N					
					Parent												
Method	**CAS Number**	**Chemical Name**	**TD**	**Test Type**	**Units**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**
901.1_RA	13982-63-3	Radium-226	T	INITIAL	PCI/G	1.72		0.214	1.00	0.300	Y	2.17		0.190	1.00	0.360	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	2.16		0.235	1.00	0.427	Y	1.69		0.375	1.00	0.428	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	9.8	J/G	0.090	0.20		Y	11	J/G	0.085	0.19		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	2.0	J/G	0.040	0.10		Y	2.6	J/G	0.038	0.094		Y

					Lab Sample	160-36789-24						160-36789-25					
					Field Sample	WRSB209_0-0.5						WRSB209_0.5-3					
					Collect Date	12/18/2019 12:10:00 PM						12/18/2019 12:15:00 PM					
					Type	N						N					
					Parent												
Method	**CAS Number**	**Chemical Name**	**TD**	**Test Type**	**Units**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**
901.1_RA	13982-63-3	Radium-226	T	INITIAL	PCI/G	1.76		0.133	1.00	0.286	Y	2.19		0.151	1.00	0.347	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	1.59		0.254	1.00	0.320	Y	1.83		0.234	1.00	0.343	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	6.4	J/G	0.087	0.19		Y	9.4	J/G	0.086	0.19		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	1.5	J/G	0.039	0.096		Y	3.2	J/G	0.038	0.096		Y

					Lab Sample	160-36789-26						160-36789-27					
					Field Sample	WRSB209_3-6						WRSB209_6-15					
					Collect Date	12/18/2019 12:52:00 PM						12/18/2019 1:07:00 PM					
					Type	N						N					
					Parent												
Method	**CAS Number**	**Chemical Name**	**TD**	**Test Type**	**Units**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**
901.1_RA	13982-63-3	Radium-226	T	INITIAL	PCI/G	3.66		0.212	1.00	0.500	Y	3.49		0.283	1.00	0.490	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	1.42		0.207	1.00	0.350	Y	1.63		0.257	1.00	0.332	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	8.1	J/G	0.091	0.20		Y	11	J/G	0.088	0.19		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	10	J/G	0.040	0.10		Y	12	J/G	0.039	0.097		Y

					Lab Sample	160-36789-28						160-36789-29					
					Field Sample	WRSB210_0-0.5						WRSB210_0.5-3					
					Collect Date	12/18/2019 2:05:00 PM						12/18/2019 2:12:00 PM					
					Type	N						N					
					Parent												
Method	**CAS Number**	**Chemical Name**	**TD**	**Test Type**	**Units**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**
901.1_RA	13982-63-3	Radium-226	T	INITIAL	PCI/G	1.14		0.131	1.00	0.223	Y	0.905	J/T	0.179	1.00	0.233	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	1.29		0.140	1.00	0.243	Y	1.03		0.214	1.00	0.280	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	9.3	J/G	0.090	0.20		Y	6.7	J/G	0.087	0.19		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	1.2	J/G	0.040	0.10		Y	1.1	J/G	0.039	0.097		Y

					Lab Sample	160-36789-3						160-36789-30					
					Field Sample	WRSB235_3-6						WRSB210_3-6					
					Collect Date	12/16/2019 3:01:00 PM						12/18/2019 2:22:00 PM					
					Type	N						N					
					Parent												
Method	**CAS Number**	**Chemical Name**	**TD**	**Test Type**	**Units**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**
901.1_RA	13982-63-3	Radium-226	T	INITIAL	PCI/G	1.43		0.129	1.00	0.241	Y	1.15		0.124	1.00	0.224	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	1.68		0.166	1.00	0.300	Y	1.12		0.171	1.00	0.281	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	7.4	J/G	0.091	0.20		Y	6.3	J/G	0.087	0.19		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	1.1		0.041	0.10		Y	2.1	J/G	0.039	0.096		Y

					Lab Sample	160-36789-31						160-36789-4					
					Field Sample	WRSB210_6-15						WRSB235_6-15					
					Collect Date	12/18/2019 2:36:00 PM						12/16/2019 3:05:00 PM					
					Type	N						N					
					Parent												
Method	**CAS Number**	**Chemical Name**	**TD**	**Test Type**	**Units**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**
901.1_RA	13982-63-3	Radium-226	T	INITIAL	PCI/G	1.41		0.0930	1.00	0.221	Y	1.63	J/9L	0.205	1.00	0.315	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	1.09		0.137	1.00	0.238	Y	2.03		0.206	1.00	0.336	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	6.9	J/G	0.089	0.20		Y	6.4	J/G	0.090	0.20		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	2.7	J/G	0.039	0.099		Y	1.1		0.040	0.10		Y

					Lab Sample	160-36789-5						160-36789-6					
					Field Sample	WRSB217_0-0.5						WRSB217-FD_0-0.5					
					Collect Date	12/17/2019 8:42:00 AM						12/17/2019 8:47:00 AM					
					Type	N						N					
					Parent												
Method	**CAS Number**	**Chemical Name**	**TD**	**Test Type**	**Units**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**
901.1_RA	13982-63-3	Radium-226	T	INITIAL	PCI/G	1.23		0.150	1.00	0.245	Y	1.21		0.181	1.00	0.261	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	1.51		0.147	1.00	0.298	Y	1.16		0.331	1.00	0.395	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	5.4	J/G	0.081	0.18		Y	6.6	J/G	0.087	0.19		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	1.0		0.036	0.091		Y	1.3		0.039	0.097		Y

					Lab Sample	160-36789-7						160-36789-8					
					Field Sample	WRSB217_0.5-3						WRSB217_3-6					
					Collect Date	12/17/2019 8:53:00 AM						12/17/2019 9:04:00 AM					
					Type	N						N					
					Parent												
Method	**CAS Number**	**Chemical Name**	**TD**	**Test Type**	**Units**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**	**Result**	**Qual/ Reason**	**MDL**	**RDL**	**Uncert**	**Detect Flag**
901.1_RA	13982-63-3	Radium-226	T	INITIAL	PCI/G	1.07		0.155	1.00	0.238	Y	1.28		0.149	1.00	0.250	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	1.15		0.155	1.00	0.246	Y	1.37		0.235	1.00	0.298	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	4.6	J/G	0.087	0.19		Y	6.3	J/G	0.089	0.20		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	1.0		0.039	0.097		Y	1.1		0.040	0.099		Y

Lab Sample	160-36789-9
Field Sample	WRSB217_6-15
Collect Date	12/17/2019 9:09:00 AM
Type	N
Parent	

Method	CAS Number	Chemical Name	TD	Test Type	Units	Result	Qual/ Reason	MDL	RDL	Uncert	Detect Flag
901.1_RA	13982-63-3	Radium-226	T	INITIAL	PCI/G	1.36		0.173	1.00	0.263	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	1.36		0.219	1.00	0.295	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	6.8	J/G	0.081	0.18		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	1.2		0.036	0.090		Y

8.0 SUPPORTING DOCUMENTATION

Konstadina Vlahogiani

From: Awalt, Jayna <Jayna.Awalt@testamericainc.com>
Sent: Friday, March 20, 2020 12:53 PM
To: Konstadina Vlahogiani
Cc: Lombardi, Lynda
Subject: RE: ACMS Yerington OU-4b_OU-5 Soil Sampling - request for 160-36789-1

Can you reject the level IV in Sharepoint?

Jayna Awalt

Phone: 314-298-8566

E-mail: jayna.awalt@testamericainc.com
www.EurofinsUS.com | www.TestAmericainc.com

From: Konstadina Vlahogiani [mailto:dvlahogi@envstd.com]
Sent: Friday, March 20, 2020 11:06 AM
To: Awalt, Jayna
Cc: Lombardi, Lynda
Subject: ACMS Yerington OU-4b_OU-5 Soil Sampling - request for 160-36789-1

EXTERNAL EMAIL*

Hi Jayna,

In job 160-36789-1, the method 901.1 daily checks from 1/20/2020 for detector GV12 are not provided in the Level 4 report. Please check.

Thanks

Dina

Konstadina Vlahogiani
Senior Technical Chemist
Environmental Standards, Inc.
1140 Valley Forge Road • PO Box 810 • Valley Forge, PA 19482
610.935.5577 x 405 • www.envstd.com • kvlahogiani@envstd.com

Emergency Response Quality Assurance Hotline: 855.374.7272

ENVIRONMENTAL STANDARDS

INORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name: ARCO Yerington
Sample Collection Dates: 12/16-18/19
Job Number: 20115675.GW20
Project Manager: Dina
Laboratory: TA St. Louis

Reviewed by: BE
Approved by:
Completion Date:

Applicable Sample No's ( )

Refer to Table 1 in the Quality Assurance Review

Deliverable:
CLP (Full) ( )
Level IV (Full) ( )
Limited (x)
Other:

Sample No.	Lab Control No.
160-36789-1	

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail Check (√) if Yes or Footnote Letter for Comments Below					Problems Identified Check (√) if Yes or Footnote Letter for Comments Below					Support Documentation Attachments Check (√) if Yes or Footnote Letter for Comments Below				
	Metals					Metals					Metals				
Holding Times	x										x				
Blank Analysis Results	x										x				
Matrix Spike (Predigestion) Results	x										x				
Duplicate Analysis: (x) Field (x) Lab	x										x				
Quantitation of Results	x										x				
Detection Limit/Sensitivity	x										x				
Initial Calibrations	x										x				
Continuing Calibrations	x										x				
Laboratory Control Standard (LCS)	x										x				
ICP Linear Range Analysis	x										x				
ICP Interference Checks	x										x				
ICP Serial Dilutions	x					x					x				
ICP Post-Digestion Spike	x										x				
GFAA Post Digestion Spikes															
GFAA Duplicate Injections															
ICP Multiple Exposures															
GFAA Standard Additions															
CRDL Standards	x										x				
Condition on Receipt	x										x				
Percent Solids	x										x				
Others: Total vs. Dissolved Metals															

Comments:

EVALUATION OF INORGANIC FIELD DUPLICATE SAMPLE ANALYSIS PRECISION

Units see below	PRECISION OBJECTIVES*	
	Analyte > or = 5 X RL	RPD < or = 40
	Analyte < 5 X RL	Difference ≤ RL × 2

* Enter the project-specific or default acceptance criteria

ANALYTE	Units	WRSB217_0-0.5 Analyte Concentration	Qual	RL	WRSB217-FD_0-0.5 Analyte Concentration	Qual	RL	Difference	RPD	Notes
Thorium	MG/KG	5.4		0.18	6.6		0.19	NA	20.0%	IN
Uranium	MG/KG	1		0.09	1.3		0.10	NA	26.1%	IN
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
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								NA	#DIV/0!	#DIV/0!

NOTES:

Qual) Column to enter J, U, U*, or B

RPD) Relative Percent Difference

RL) Reporting Limit

J) The analyte concentration should be considered estimated.

U) The analyte was not-detected in the sample. The numerical value of the EDL will be used for comparison purposes.

U* or B) The result was blank qualified. The numerical value will be used for comparison purposes.

NA) The RPD or Difference is not applicable.

1) Both results are > or = 5 X RL and RPD over acceptance limit, flag positive results "J".

2) At least one of the results is < 5 X RL and difference is over acceptance limit, flag positive results "J" and "not-detected" r

Comments:

EVALUATION OF INORGANIC FIELD DUPLICATE SAMPLE ANALYSIS PRECISION

Units see below	PRECISION OBJECTIVES*	
	Analyte > or = 5 X RL	RPD < or = 40
	Analyte < 5 X RL	Difference ≤ RL × 2

* Enter the project-specific or default acceptance criteria

ANALYTE	Units	WRSB218_0.5-3 Analyte Concentration	Qual	RL	WRSB218-FD_0.5-3 Analyte Concentration	Qual	RL	Difference	RPD	Notes
Thorium	MG/KG	8		0.2	7.9		0.19	NA	1.3%	IN
Uranium	MG/KG	1.2		0.10	1.2		0.09	NA	0.0%	IN
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
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								NA	#DIV/0!	#DIV/0!

NOTES:

Qual) Column to enter J, U, U*, or B

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J) The analyte concentration should be considered estimated.

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1) Both results are > or = 5 X RL and RPD over acceptance limit, flag positive results "J".

2) At least one of the results is < 5 X RL and difference is over acceptance limit, flag positive results "J" and "not-detected" r

Comments:

EVALUATION OF INORGANIC FIELD DUPLICATE SAMPLE ANALYSIS PRECISION

Units see below	PRECISION OBJECTIVES*	
	Analyte > or = 5 X RL	RPD < or = 40
	Analyte < 5 X RL	Difference ≤ RL × 2

* Enter the project-specific or default acceptance criteria

ANALYTE	Units	WRSB211_3-6 Analyte Concentration	Qual	RL	WRSB211-FD_3-6 Analyte Concentration	Qual	RL	Difference	RPD	Notes
Thorium	MG/KG	11		0.21	9.8		0.20	NA	11.5%	IN
Uranium	MG/KG	2.1		0.10	2		0.10	NA	4.9%	IN
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
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								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!

NOTES:

Qual) Column to enter J, U, U*, or B

RPD) Relative Percent Difference

RL) Reporting Limit

J) The analyte concentration should be considered estimated.

U) The analyte was not-detected in the sample. The numerical value of the EDL will be used for comparison purposes.

U* or B) The result was blank qualified. The numerical value will be used for comparison purposes.

NA) The RPD or Difference is not applicable.

1) Both results are > or = 5 X RL and RPD over acceptance limit, flag positive results "J".

2) At least one of the results is < 5 X RL and difference is over acceptance limit, flag positive results "J" and "not-detected" r

Comments:

ENVIRONMENTAL STANDARDS

BLANK ANALYSIS RESULTS FOR INORGANIC PARAMETERS

	Blank Type									
	Method									
Matrix (Aq., S.)	ICB	CCB	Prep.	Trip	Equip	Field	Blank Sample Number	Contaminant	Concentration (µg/L)	Qualification limit (5×)
							All blanks	none		0
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Aq = Aqueous; S = Solid

Notes:

ENVIRONMENTAL STANDARDS

RADIOLOGICAL ANALYSIS SUPPORT DOCUMENTATION

ESI project name:	Yerington	Reviewed by:	BJE
Sample Collection Dates:	12/16-18/19	Approved by:	
Job Number:	20115675.GW20	Completion Date:	
Project Manager:	KV		
Laboratory:	TA St. Louis		

Applicable Sample No's (X) — Refer to Table 1 in the Quality Assurance Review

Deliverable:			Sample No.	Lab Control No.
	Level IV (Full)	( )	160-36789-1	
	Limited	(X)		
	Other:			

The following table indicates criteria that were examined, the identified problems, and support documentation attachments

	Criteria Examined in Detail Check (√) if Yes or Footnote Letter for Comments Below					Problems Identified Check (√) if Yes or Footnote Letter for Comments Below					Support Documentation Attachments Check (√) if Yes or Footnote Letter for Comments Below				
			Ra-226	Ra-228				Ra-226	Ra-228				Ra-226	Ra-228	
Holding Times			X	X									X	X	
Blank Analysis Results			X	X									X	X	
Laboratory Control Standard (LCS)			X	X									X	X	
Tracer/Chemical Yield															
Duplicate Analysis: (X) Field (X) Lab			X	X					X				X	X	
Matrix Spike Results															
Quantitation of Results			X	X									X	X	
Detection Limit			X	X									X	X	
Efficiency/Energy Calibrations			X	X									X	X	
Initial Calibration Verifications			X	X									X	X	
Annual Calibration Verifications			X	X									X	X	
Continuing Calibration Checks			X	X									X	X	
Continuing Calibration Backgrounds			X	X									X	X	
Sample Preservation			X	X									X	X	
Condition on Receipt			X	X									X	X	
Others:															

Comments:

RADIOLOGICAL FIELD DUPLICATE EVALUATION

DUPLICATE ERROR RATIO (DER 2-s) LIMIT < 2

DER = ABS (SAMPLE ACT - DUPLICATE ACT) / SQRT [(TPU 2-s SAMPLE)2 + (TPU 2-s DUPLICATE)2]

160-36789-1

Samples: WRSB217-0-0.5 & WRSB217-FD_0-0.5

Analyte	Sample Act	Sample TPU	Duplicate Act	Duplicate TPU	DER 2-s
Ra-226	1.23	0.245	1.21	0.261	0.11
Ra-228	1.51	0.298	1.16	0.395	1.41

Samples: WRSB218-0.5-3 & WRSB218-FD_0.5-3

Analyte	Sample Act	Sample TPU	Duplicate Act	Duplicate TPU	DER 2-s
Ra-226	1.63	0.33	1.48	0.282	0.69
Ra-228	2.04	0.42	1.33	0.417	2.40

Samples: WRSB211_3-6 & WRSB211-FD_3-6

Analyte	Sample Act	Sample TPU	Duplicate Act	Duplicate TPU	DER 2-s
Ra-226	1.88	0.342	1.72	0.3	0.70
Ra-228	2.17	0.367	2.16	0.235	0.05

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ANALYTICAL REPORT

Job Number: 160-36789-1

Job Description: ACMS - Yerington OU-4B_OU-5_SOIL

Contract Number: EPSCM 2017-009//BP01498843

For:
Wood E&I Solutions Inc
10940 White Rock Road Suite 190
Rancho Cordova, CA 95670

Attention: Kent Parrish

Approved for release.
Jayna K Awalt
Project Manager II
3/20/2020 11:58 AM

Jayna K Awalt, Project Manager II
13715 Rider Trail North, Earth City, MO, 63045
(314)298-8566
jayna.awalt@testamericainc.com
03/20/2020
Revision: 1

The test results in this report meet NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted. Results pertain only to samples listed in this report. Pursuant to NELAP, this report shall not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of TestAmerica and its client. All questions regarding this report should be directed to the TestAmerica Project Manager.

Louisiana Lab Certification ID (Non-Potable, Solid/Haz. Material): 106151
Florida Lab Certification ID (Drinking Water): E87689.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins TestAmerica Project Manager.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Eurofins TestAmerica, St. Louis
13715 Rider Trail North, Earth City, MO 63045
Tel (314) 298-8566 Fax (314) 298-8757 www.testamericainc.com

Sample Summary

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
160-36789-1	WRSB235_0-0.5	Solid	12/16/19 14:37	12/20/19 11:00	
160-36789-2	WRSB235_0.5-3	Solid	12/16/19 14:50	12/20/19 11:00	
160-36789-3	WRSB235_3-6	Solid	12/16/19 15:01	12/20/19 11:00	
160-36789-4	WRSB235_6-15	Solid	12/16/19 15:05	12/20/19 11:00	
160-36789-5	WRSB217_0-0.5	Solid	12/17/19 08:42	12/20/19 11:00	
160-36789-6	WRSB217-FD_0-0.5	Solid	12/17/19 08:47	12/20/19 11:00	
160-36789-7	WRSB217_0.5-3	Solid	12/17/19 08:53	12/20/19 11:00	
160-36789-8	WRSB217_3-6	Solid	12/17/19 09:04	12/20/19 11:00	
160-36789-9	WRSB217_6-15	Solid	12/17/19 09:09	12/20/19 11:00	
160-36789-10	WRSB218_0-0.5	Solid	12/17/19 14:32	12/20/19 11:00	
160-36789-11	WRSB218_0.5-3	Solid	12/17/19 14:41	12/20/19 11:00	
160-36789-12	WRSB218-FD_0.5-3	Solid	12/17/19 14:50	12/20/19 11:00	
160-36789-13	WRSB218_3-6	Solid	12/17/19 15:04	12/20/19 11:00	
160-36789-14	WRSB218_6-15	Solid	12/17/19 15:07	12/20/19 11:00	
160-36789-15	WRSB229_0-0.5	Solid	12/18/19 09:19	12/20/19 11:00	
160-36789-16	WRSB229_0.5-3	Solid	12/18/19 09:27	12/20/19 11:00	
160-36789-17	WRSB229_3-6	Solid	12/18/19 09:39	12/20/19 11:00	
160-36789-18	WRSB229_6-15	Solid	12/18/19 09:47	12/20/19 11:00	
160-36789-19	WRSB211_0-0.5	Solid	12/18/19 10:41	12/20/19 11:00	
160-36789-20	WRSB211_0.5-3	Solid	12/18/19 10:48	12/20/19 11:00	
160-36789-21	WRSB211_3-6	Solid	12/18/19 10:59	12/20/19 11:00	
160-36789-22	WRSB211-FD_3-6	Solid	12/18/19 11:03	12/20/19 11:00	
160-36789-23	WRSB211_6-15	Solid	12/18/19 11:07	12/20/19 11:00	
160-36789-24	WRSB209_0-0.5	Solid	12/18/19 12:10	12/20/19 11:00	
160-36789-25	WRSB209_0.5-3	Solid	12/18/19 12:15	12/20/19 11:00	
160-36789-26	WRSB209_3-6	Solid	12/18/19 12:52	12/20/19 11:00	
160-36789-27	WRSB209_6-15	Solid	12/18/19 13:07	12/20/19 11:00	
160-36789-28	WRSB210_0-0.5	Solid	12/18/19 14:05	12/20/19 11:00	
160-36789-29	WRSB210_0.5-3	Solid	12/18/19 14:12	12/20/19 11:00	
160-36789-30	WRSB210_3-6	Solid	12/18/19 14:22	12/20/19 11:00	
160-36789-31	WRSB210_6-15	Solid	12/18/19 14:36	12/20/19 11:00	

CASE NARRATIVE

Client: Wood E&I Solutions Inc

Project: ACMS - Yerington OU-4B_OU-5_SOIL

Report Number: 160-36789-1

Rev. 1 - Daily check for GV12 (901.1) for 1/20/20 is now included in level IV report.

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Eurofins TestAmerica, St. Louis attests to the validity of the laboratory data generated by Eurofins TestAmerica facilities reported herein. All analyses performed by Eurofins TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. Eurofins TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results for Chemistry analyses are reported on an ""as received"" basis unless otherwise indicated by the presence of a % solids value in the method header. All soil/sediment sample results for radiochemistry analyses are based upon sample as dried and disaggregated with the exception of tritium, carbon-14, and iodine-129 by gamma spectroscopy unless requested as wet weight by the client."

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

Manual Integrations were performed only when necessary and are in compliance with the laboratory's standard operating procedure. Detailed information can be found in the raw data section of the level IV report.

This laboratory report is confidential and is intended for the sole use of Eurofins TestAmerica and its client.

RECEIPT

The samples were received on 12/20/2019; the samples arrived in good condition, properly preserved and on ice. The temperatures of the 8 coolers at receipt time were 0.1º C, 0.2º C, 0.2º C, 0.3º C, 0.3º C, 0.5º C, 0.5º C and 1.0º C.

METALS (ICPMS)

Samples WRSB235_0-0.5 (160-36789-1), WRSB235_0.5-3 (160-36789-2), WRSB235_3-6 (160-36789-3), WRSB235_6-15 (160-36789-4), WRSB217_0-0.5 (160-36789-5), WRSB217-FD_0-0.5 (160-36789-6), WRSB217_0.5-3 (160-36789-7), WRSB217_3-6 (160-36789-8), WRSB217_6-15 (160-36789-9), WRSB218_0-0.5 (160-36789-10), WRSB218_0.5-3 (160-36789-11), WRSB218-FD_0.5-3 (160-36789-12), WRSB218_3-6 (160-36789-13), WRSB218_6-15 (160-36789-14), WRSB229_0-0.5 (160-36789-15), WRSB229_0.5-3 (160-36789-16), WRSB229_3-6 (160-36789-17), WRSB229_6-15 (160-36789-18), WRSB211_0-0.5 (160-36789-19), WRSB211_0.5-3 (160-36789-20), WRSB211_3-6 (160-36789-21), WRSB211-FD_3-6 (160-36789-22), WRSB211_6-15 (160-36789-23), WRSB209_0-0.5 (160-36789-24), WRSB209_0.5-3 (160-36789-25), WRSB209_3-6 (160-36789-26), WRSB209_6-15 (160-36789-27), WRSB210_0-0.5 (160-36789-28), WRSB210_0.5-3 (160-36789-29), WRSB210_3-6 (160-36789-30) and WRSB210_6-15 (160-36789-31) were analyzed for metals (ICPMS) in accordance with EPA SW-846 Methods 6020A. The samples were prepared on 12/27/2019 and analyzed on 01/10/2020.

The serial dilution performed was outside control limits for Uranium and Thorium indicating a potential matrix interference. (160-36789-A-26-B SD)

The serial dilution performed was outside control limits for Thorium indicating a potential matrix interference. (160-36789-A-13-B SD)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

PERCENT SOLIDS

Samples WRSB235_0-0.5 (160-36789-1), WRSB235_0.5-3 (160-36789-2), WRSB235_3-6 (160-36789-3), WRSB235_6-15 (160-36789-4), WRSB217_0-0.5 (160-36789-5), WRSB217-FD_0-0.5 (160-36789-6), WRSB217_0.5-3 (160-36789-7), WRSB217_3-6 (160-36789-8), WRSB217_6-15 (160-36789-9), WRSB218_0-0.5 (160-36789-10), WRSB218_0.5-3 (160-36789-11), WRSB218-FD_0.5-3 (160-36789-12), WRSB218_3-6 (160-36789-13), WRSB218_6-15 (160-36789-14), WRSB229_0-0.5 (160-36789-15), WRSB229_0.5-3 (160-36789-16), WRSB229_3-6 (160-36789-17), WRSB229_6-15 (160-36789-18), WRSB211_0-0.5 (160-36789-19), WRSB211_0.5-3 (160-36789-20), WRSB211_3-6 (160-36789-21), WRSB211-FD_3-6 (160-36789-22), WRSB211_6-15 (160-36789-23), WRSB209_0-0.5 (160-36789-24), WRSB209_0.5-3 (160-36789-25), WRSB209_3-6 (160-36789-26), WRSB209_6-15 (160-36789-27), WRSB210_0-0.5 (160-36789-28), WRSB210_0.5-3 (160-36789-29), WRSB210_3-6 (160-36789-30) and WRSB210_6-15 (160-36789-31) were analyzed for percent solids in accordance with EPA Method 160.3 MOD. The samples were analyzed on 12/26/2019 and 12/30/2019.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

RADIUM-226 BY GAMMA SPEC (21 DAY INGROWTH)

Samples WRSB235_0-0.5 (160-36789-1), WRSB235_0.5-3 (160-36789-2), WRSB235_3-6 (160-36789-3), WRSB235_6-15 (160-36789-4), WRSB217_0-0.5 (160-36789-5), WRSB217-FD_0-0.5 (160-36789-6), WRSB217_0.5-3 (160-36789-7), WRSB217_3-6 (160-36789-8), WRSB217_6-15 (160-36789-9), WRSB218_0-0.5 (160-36789-10), WRSB218_0.5-3 (160-36789-11), WRSB218-FD_0.5-3 (160-36789-12), WRSB218_3-6 (160-36789-13), WRSB218_6-15 (160-36789-14), WRSB229_0-0.5 (160-36789-15), WRSB229_0.5-3 (160-36789-16), WRSB229_3-6 (160-36789-17), WRSB229_6-15 (160-36789-18), WRSB211_0-0.5 l(160-36789-19), WRSB211_0.5-3 (160-36789-20), WRSB211_3-6 (160-36789-21), WRSB211-FD_3-6 (160-36789-22), WRSB211_6-15 (160-36789-23), WRSB209_0-0.5 (160-36789-24), WRSB209_0.5-3 (160-36789-25), WRSB209_3-6 (160-36789-26), WRSB209_6-15 (160-36789-27), WRSB210_0-0.5 (160-36789-28), WRSB210_0.5-3 (160-36789-29), WRSB210_3-6 (160-36789-30) and WRSB210_6-15 (160-36789-31) were analyzed for Radium-226 by gamma spec (21 day ingrowth) in accordance with EPA 901.1. The samples were dried on 12/23/2019 and 12/27/2019, prepared on 12/27/2019 and 12/30/2019 and analyzed on 01/20/2020, 01/21/2020, 01/22/2020 and 01/23/2020.

Insufficient sample was available for the following samples to fill a geometry (e.g. tuna can) calibrated for Ra-226 analysis by gamma spectroscopy due to loss of sample (re-prep required due to an anomaly equipment failure that caused sample contamination): WRSB235_6-15 (160-36789-4) and (160-36789-A-4-B DU). The use of a different geometry could potentially bias the results low due to the loss of radon into the headspace of the container.

Many isotopes requested for analysis do not have any gamma emissions, or the gamma emissions they do have are very poor. Often, such analytes are reported by gamma spectrometry assuming secular equilibrium with a longer-lived parent. The client should ensure that such inference is acceptable for their sample based upon process knowledge. The following assumptions were made for this report:

Inferred from	Reported to Analyte
Th-234	Pa-234
Th-234	U-238
Pb-210	Po-210
Pb-210	Bi-210
Cs-137	Ba-137m
Pb-212	Po-216
Xe-131m	Xe-131
Sb-125	Te-125m
Ag-108m	Ag-108
Rh-106	Ru-106
Pb-212	Th-228
Pb-212	Ra-224
U-235	Th-231
Ac-228	Th-232
Ac-228	Ra-228
Th-227	Ra-223
Th-227	Ac-227
Th-227	Bi-211
Th-227	Pb-211
Bi-214	Ra-226

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

The results listed within this Laboratory Report pertain only to the samples tested in the laboratory. The analyses contained in this report were performed in accordance with the BPLAMP Technical Specifications, applicable federal, state, local regulations and certification requirements as well as the methodologies as described in laboratory SOPs reviewed by the BPLAMP. This Laboratory Report is confidential and is intended for the sole use of Eurofins TestAmerica and its client. This report shall not be reproduced, except in full, without written permission from TestAmerica. The signature on the cover page extends to the case narrative and all the data and forms in the package. The Chain of Custody is included and is an integral part of this report.

Jayna Awalt
Project Manager II
1/28/2020 1:17:01 PM

Definitions/Glossary

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Client Sample ID: WRSB235_0-0.5

Lab Sample ID: 160-36789-1
Date Collected: 12/16/19 14:37
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 93.1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	11		0.20	0.091	mg/Kg	☼	12/27/19 11:27	01/10/20 04:28	2
Uranium	1.8		0.10	0.041	mg/Kg	☼	12/27/19 11:27	01/10/20 04:28	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.81		0.328	0.378	1.00	0.252	pCi/g	12/27/19 14:47	01/21/20 11:59	1
Radium-228	2.03		0.313	0.375	1.00	0.284	pCi/g	12/27/19 14:47	01/21/20 11:59	1

Client Sample ID: WRSB235_0.5-3

Lab Sample ID: 160-36789-2
Date Collected: 12/16/19 14:50
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 94.7

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	10		0.19	0.084	mg/Kg	☼	12/27/19 11:27	01/10/20 04:55	2
Uranium	1.5		0.094	0.037	mg/Kg	☼	12/27/19 11:27	01/10/20 04:55	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.40		0.228	0.271	1.00	0.218	pCi/g	12/27/19 14:47	01/21/20 12:00	1
Radium-228	1.82		0.322	0.372	1.00	0.216	pCi/g	12/27/19 14:47	01/21/20 12:00	1

Client Sample ID: WRSB235_3-6

Lab Sample ID: 160-36789-3
Date Collected: 12/16/19 15:01
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 94.8

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	7.4		0.20	0.091	mg/Kg	☼	12/27/19 11:27	01/10/20 05:02	2
Uranium	1.1		0.10	0.041	mg/Kg	☼	12/27/19 11:27	01/10/20 05:02	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.43		0.190	0.241	1.00	0.129	pCi/g	12/27/19 14:47	01/21/20 12:27	1
Radium-228	1.68		0.246	0.300	1.00	0.166	pCi/g	12/27/19 14:47	01/21/20 12:27	1

Client Sample ID: WRSB235_6-15

Lab Sample ID: 160-36789-4
Date Collected: 12/16/19 15:05
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	6.4		0.20	0.090	mg/Kg	☼	12/27/19 11:27	01/10/20 05:09	2
Uranium	1.1		0.10	0.040	mg/Kg	☼	12/27/19 11:27	01/10/20 05:09	2

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Client Sample ID: WRSB235_6-15

Lab Sample ID: 160-36789-4
Date Collected: 12/16/19 15:05
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.5

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.63		0.267	0.315	1.00	0.205	pCi/g	12/30/19 15:30	01/23/20 14:33	1
Radium-228	2.03		0.266	0.336	1.00	0.206	pCi/g	12/30/19 15:30	01/23/20 14:33	1

Client Sample ID: WRSB217_0-0.5

Lab Sample ID: 160-36789-5
Date Collected: 12/17/19 08:42
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	5.4		0.18	0.081	mg/Kg	☼	12/27/19 11:27	01/10/20 05:15	2
Uranium	1.0		0.091	0.036	mg/Kg	☼	12/27/19 11:27	01/10/20 05:15	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.23		0.210	0.245	1.00	0.150	pCi/g	12/27/19 14:47	01/21/20 12:28	1
Radium-228	1.51		0.255	0.298	1.00	0.147	pCi/g	12/27/19 14:47	01/21/20 12:28	1

Client Sample ID: WRSB217-FD_0-0.5

Lab Sample ID: 160-36789-6
Date Collected: 12/17/19 08:47
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.9

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	6.6		0.19	0.087	mg/Kg	☼	12/27/19 11:27	01/10/20 05:22	2
Uranium	1.3		0.097	0.039	mg/Kg	☼	12/27/19 11:27	01/10/20 05:22	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.21		0.229	0.261	1.00	0.181	pCi/g	12/27/19 14:47	01/21/20 12:30	1
Radium-228	1.16		0.377	0.395	1.00	0.331	pCi/g	12/27/19 14:47	01/21/20 12:30	1

Client Sample ID: WRSB217_0.5-3

Lab Sample ID: 160-36789-7
Date Collected: 12/17/19 08:53
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 96.5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	4.6		0.19	0.087	mg/Kg	☼	12/27/19 11:27	01/10/20 05:29	2
Uranium	1.0		0.097	0.039	mg/Kg	☼	12/27/19 11:27	01/10/20 05:29	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.07		0.211	0.238	1.00	0.155	pCi/g	12/27/19 14:47	01/21/20 12:32	1
Radium-228	1.15		0.216	0.246	1.00	0.155	pCi/g	12/27/19 14:47	01/21/20 12:32	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Client Sample ID: WRSB217_3-6

Lab Sample ID: 160-36789-8
Date Collected: 12/17/19 09:04
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 96.5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	6.3		0.20	0.089	mg/Kg	☼	12/27/19 11:27	01/10/20 05:36	2
Uranium	1.1		0.099	0.040	mg/Kg	☼	12/27/19 11:27	01/10/20 05:36	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.28		0.212	0.250	1.00	0.149	pCi/g	12/27/19 14:47	01/21/20 12:24	1
Radium-228	1.37		0.264	0.298	1.00	0.235	pCi/g	12/27/19 14:47	01/21/20 12:24	1

Client Sample ID: WRSB217_6-15

Lab Sample ID: 160-36789-9
Date Collected: 12/17/19 09:09
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 94.7

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	6.8		0.18	0.081	mg/Kg	☼	12/27/19 11:27	01/10/20 05:42	2
Uranium	1.2		0.090	0.036	mg/Kg	☼	12/27/19 11:27	01/10/20 05:42	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.36		0.222	0.263	1.00	0.173	pCi/g	12/27/19 14:47	01/21/20 12:25	1
Radium-228	1.36		0.260	0.295	1.00	0.219	pCi/g	12/27/19 14:47	01/21/20 12:25	1

Client Sample ID: WRSB218_0-0.5

Lab Sample ID: 160-36789-10
Date Collected: 12/17/19 14:32
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 93.4

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	7.7		0.19	0.087	mg/Kg	☼	12/27/19 11:27	01/10/20 05:49	2
Uranium	1.1		0.097	0.039	mg/Kg	☼	12/27/19 11:27	01/10/20 05:49	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.73		0.202	0.270	1.00	0.124	pCi/g	12/27/19 14:47	01/21/20 13:04	1
Radium-228	2.03		0.261	0.334	1.00	0.189	pCi/g	12/27/19 14:47	01/21/20 13:04	1

Client Sample ID: WRSB218_0.5-3

Lab Sample ID: 160-36789-11
Date Collected: 12/17/19 14:41
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.6

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	8.0		0.20	0.091	mg/Kg	☼	12/27/19 11:27	01/10/20 05:56	2
Uranium	1.2		0.10	0.041	mg/Kg	☼	12/27/19 11:27	01/10/20 05:56	2

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Client Sample ID: WRSB218_0.5-3

Lab Sample ID: 160-36789-11
Date Collected: 12/17/19 14:41
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.6

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.63		0.285	0.330	1.00	0.226	pCi/g	12/27/19 14:47	01/21/20 13:04	1
Radium-228	2.04		0.366	0.420	1.00	0.184	pCi/g	12/27/19 14:47	01/21/20 13:04	1

Client Sample ID: WRSB218-FD_0.5-3

Lab Sample ID: 160-36789-12
Date Collected: 12/17/19 14:50
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	7.9		0.19	0.084	mg/Kg	☼	12/27/19 11:27	01/10/20 06:23	2
Uranium	1.2		0.094	0.038	mg/Kg	☼	12/27/19 11:27	01/10/20 06:23	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.48		0.236	0.282	1.00	0.154	pCi/g	12/27/19 14:47	01/21/20 13:06	1
Radium-228	1.33		0.395	0.417	1.00	0.588	pCi/g	12/27/19 14:47	01/21/20 13:06	1

Client Sample ID: WRSB218_3-6

Lab Sample ID: 160-36789-13
Date Collected: 12/17/19 15:04
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.3

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	9.4		0.18	0.082	mg/Kg	☼	12/27/19 11:27	01/10/20 06:30	2
Uranium	1.4		0.091	0.036	mg/Kg	☼	12/27/19 11:27	01/10/20 06:30	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.48		0.269	0.310	1.00	0.209	pCi/g	12/27/19 14:47	01/21/20 13:08	1
Radium-228	2.13		0.381	0.439	1.00	0.307	pCi/g	12/27/19 14:47	01/21/20 13:08	1

Client Sample ID: WRSB218_6-15

Lab Sample ID: 160-36789-14
Date Collected: 12/17/19 15:07
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.4

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	8.4		0.20	0.088	mg/Kg	☼	12/27/19 11:27	01/10/20 07:03	2
Uranium	1.4		0.098	0.039	mg/Kg	☼	12/27/19 11:27	01/10/20 07:03	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.72		0.256	0.312	1.00	0.179	pCi/g	12/27/19 14:47	01/21/20 13:09	1
Radium-228	2.05		0.327	0.389	1.00	0.239	pCi/g	12/27/19 14:47	01/21/20 13:09	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Client Sample ID: WRSB229_0-0.5

Lab Sample ID: 160-36789-15
Date Collected: 12/18/19 09:19
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 91.7

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	8.9		0.21	0.094	mg/Kg	☼	12/27/19 11:27	01/10/20 07:10	2
Uranium	3.6		0.10	0.042	mg/Kg	☼	12/27/19 11:27	01/10/20 07:10	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.63		0.224	0.281	1.00	0.145	pCi/g	12/27/19 14:47	01/21/20 13:11	1
Radium-228	1.21		0.232	0.263	1.00	0.0837	pCi/g	12/27/19 14:47	01/21/20 13:11	1

Client Sample ID: WRSB229_0.5-3

Lab Sample ID: 160-36789-16
Date Collected: 12/18/19 09:27
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 93.1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	7.6		0.20	0.090	mg/Kg	☼	12/27/19 11:27	01/10/20 07:17	2
Uranium	3.7		0.10	0.040	mg/Kg	☼	12/27/19 11:27	01/10/20 07:17	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.40		0.234	0.275	1.00	0.154	pCi/g	12/27/19 14:47	01/21/20 13:07	1
Radium-228	1.27		0.300	0.327	1.00	0.182	pCi/g	12/27/19 14:47	01/21/20 13:07	1

Client Sample ID: WRSB229_3-6

Lab Sample ID: 160-36789-17
Date Collected: 12/18/19 09:39
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.0

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	12		0.19	0.087	mg/Kg	☼	12/27/19 11:27	01/10/20 07:24	2
Uranium	2.1		0.096	0.039	mg/Kg	☼	12/27/19 11:27	01/10/20 07:24	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.49		0.259	0.300	1.00	0.204	pCi/g	12/27/19 14:47	01/21/20 13:52	1
Radium-228	1.01		0.233	0.254	1.00	0.100	pCi/g	12/27/19 14:47	01/21/20 13:52	1

Client Sample ID: WRSB229_6-15

Lab Sample ID: 160-36789-18
Date Collected: 12/18/19 09:47
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 93.5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	11		0.19	0.084	mg/Kg	☼	12/27/19 11:27	01/10/20 07:51	2
Uranium	2.7		0.094	0.038	mg/Kg	☼	12/27/19 11:27	01/10/20 07:51	2

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Client Sample ID: WRSB229_6-15

Lab Sample ID: 160-36789-18
Date Collected: 12/18/19 09:47
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 93.5

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.65		0.297	0.343	1.00	0.212	pCi/g	12/27/19 14:47	01/21/20 13:53	1
Radium-228	1.24		0.337	0.360	1.00	0.256	pCi/g	12/27/19 14:47	01/21/20 13:53	1

Client Sample ID: WRSB211_0-0.5

Lab Sample ID: 160-36789-19
Date Collected: 12/18/19 10:41
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 93.2

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	9.8		0.19	0.084	mg/Kg	☼	12/27/19 11:28	01/10/20 07:58	2
Uranium	2.4		0.093	0.037	mg/Kg	☼	12/27/19 11:28	01/10/20 07:58	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	2.12		0.309	0.380	1.00	0.203	pCi/g	12/27/19 14:47	01/21/20 13:54	1
Radium-228	2.17		0.320	0.389	1.00	0.232	pCi/g	12/27/19 14:47	01/21/20 13:54	1

Client Sample ID: WRSB211_0.5-3

Lab Sample ID: 160-36789-20
Date Collected: 12/18/19 10:48
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 93.4

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	9.7		0.19	0.085	mg/Kg	☼	12/27/19 11:34	01/10/20 08:04	2
Uranium	2.0		0.095	0.038	mg/Kg	☼	12/27/19 11:34	01/10/20 08:04	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.89		0.223	0.297	1.00	0.200	pCi/g	12/27/19 14:47	01/22/20 06:47	1
Radium-228	2.05		0.292	0.359	1.00	0.0777	pCi/g	12/27/19 14:47	01/22/20 06:47	1

Client Sample ID: WRSB211_3-6

Lab Sample ID: 160-36789-21
Date Collected: 12/18/19 10:59
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 94.1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	11		0.21	0.093	mg/Kg	☼	12/27/19 11:29	01/10/20 02:07	2
Uranium	2.1		0.10	0.041	mg/Kg	☼	12/27/19 11:29	01/10/20 02:07	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.88		0.283	0.342	1.00	0.210	pCi/g	12/27/19 14:47	01/22/20 06:48	1
Radium-228	2.17		0.294	0.367	1.00	0.223	pCi/g	12/27/19 14:47	01/22/20 06:48	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Client Sample ID: WRSB211-FD_3-6

Lab Sample ID: 160-36789-22
Date Collected: 12/18/19 11:03
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 93.9

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	9.8		0.20	0.090	mg/Kg	☼	12/27/19 11:29	01/10/20 02:13	2
Uranium	2.0		0.10	0.040	mg/Kg	☼	12/27/19 11:29	01/10/20 02:13	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.72		0.242	0.300	1.00	0.214	pCi/g	12/27/19 15:50	01/20/20 16:36	1
Radium-228	2.16		0.366	0.427	1.00	0.235	pCi/g	12/27/19 15:50	01/20/20 16:36	1

Client Sample ID: WRSB211_6-15

Lab Sample ID: 160-36789-23
Date Collected: 12/18/19 11:07
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 92.8

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	11		0.19	0.085	mg/Kg	☼	12/27/19 11:29	01/10/20 02:20	2
Uranium	2.6		0.094	0.038	mg/Kg	☼	12/27/19 11:29	01/10/20 02:20	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	2.17		0.281	0.360	1.00	0.190	pCi/g	12/27/19 15:50	01/20/20 16:37	1
Radium-228	1.69		0.392	0.428	1.00	0.375	pCi/g	12/27/19 15:50	01/20/20 16:37	1

Client Sample ID: WRSB209_0-0.5

Lab Sample ID: 160-36789-24
Date Collected: 12/18/19 12:10
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.3

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	6.4		0.19	0.087	mg/Kg	☼	12/27/19 11:29	01/10/20 02:27	2
Uranium	1.5		0.096	0.039	mg/Kg	☼	12/27/19 11:29	01/10/20 02:27	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.76		0.220	0.286	1.00	0.133	pCi/g	12/27/19 15:50	01/20/20 17:43	1
Radium-228	1.59		0.276	0.320	1.00	0.254	pCi/g	12/27/19 15:50	01/20/20 17:43	1

Client Sample ID: WRSB209_0.5-3

Lab Sample ID: 160-36789-25
Date Collected: 12/18/19 12:15
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.3

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	9.4		0.19	0.086	mg/Kg	☼	12/27/19 11:29	01/10/20 02:34	2
Uranium	3.2		0.096	0.038	mg/Kg	☼	12/27/19 11:29	01/10/20 02:34	2

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Client Sample ID: WRSB209_0.5-3

Lab Sample ID: 160-36789-25
Date Collected: 12/18/19 12:15
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.3

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	2.19		0.266	0.347	1.00	0.151	pCi/g	12/27/19 15:50	01/20/20 17:44	1
Radium-228	1.83		0.289	0.343	1.00	0.234	pCi/g	12/27/19 15:50	01/20/20 17:44	1

Client Sample ID: WRSB209_3-6

Lab Sample ID: 160-36789-26
Date Collected: 12/18/19 12:52
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.9

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	8.1		0.20	0.091	mg/Kg	☼	12/27/19 11:29	01/10/20 02:40	2
Uranium	10		0.10	0.040	mg/Kg	☼	12/27/19 11:29	01/10/20 02:40	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	3.66		0.325	0.500	1.00	0.212	pCi/g	12/27/19 15:50	01/20/20 17:45	1
Radium-228	1.42		0.319	0.350	1.00	0.207	pCi/g	12/27/19 15:50	01/20/20 17:45	1

Client Sample ID: WRSB209_6-15

Lab Sample ID: 160-36789-27
Date Collected: 12/18/19 13:07
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	11		0.19	0.088	mg/Kg	☼	12/27/19 11:29	01/10/20 03:34	2
Uranium	12		0.097	0.039	mg/Kg	☼	12/27/19 11:29	01/10/20 03:34	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	3.49		0.330	0.490	1.00	0.283	pCi/g	12/27/19 15:50	01/20/20 18:55	1
Radium-228	1.63		0.287	0.332	1.00	0.257	pCi/g	12/27/19 15:50	01/20/20 18:55	1

Client Sample ID: WRSB210_0-0.5

Lab Sample ID: 160-36789-28
Date Collected: 12/18/19 14:05
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 93.5

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	9.3		0.20	0.090	mg/Kg	☼	12/27/19 11:29	01/10/20 03:41	2
Uranium	1.2		0.10	0.040	mg/Kg	☼	12/27/19 11:29	01/10/20 03:41	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.14		0.189	0.223	1.00	0.131	pCi/g	12/27/19 15:50	01/20/20 17:46	1
Radium-228	1.29		0.204	0.243	1.00	0.140	pCi/g	12/27/19 15:50	01/20/20 17:46	1

Client Sample Results

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Client Sample ID: WRSB210_0.5-3

Lab Sample ID: 160-36789-29
Date Collected: 12/18/19 14:12
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.6

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	6.7		0.19	0.087	mg/Kg	☼	12/27/19 11:29	01/10/20 03:48	2
Uranium	1.1		0.097	0.039	mg/Kg	☼	12/27/19 11:29	01/10/20 03:48	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.905		0.213	0.233	1.00	0.179	pCi/g	12/27/19 15:50	01/20/20 18:08	1
Radium-228	1.03		0.259	0.280	1.00	0.214	pCi/g	12/27/19 15:50	01/20/20 18:08	1

Client Sample ID: WRSB210_3-6

Lab Sample ID: 160-36789-30
Date Collected: 12/18/19 14:22
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.2

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	6.3		0.19	0.087	mg/Kg	☼	12/27/19 11:29	01/10/20 03:55	2
Uranium	2.1		0.096	0.039	mg/Kg	☼	12/27/19 11:29	01/10/20 03:55	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.15		0.189	0.224	1.00	0.124	pCi/g	12/27/19 15:50	01/20/20 18:09	1
Radium-228	1.12		0.257	0.281	1.00	0.171	pCi/g	12/27/19 15:50	01/20/20 18:09	1

Client Sample ID: WRSB210_6-15

Lab Sample ID: 160-36789-31
Date Collected: 12/18/19 14:36
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 96.4

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	6.9		0.20	0.089	mg/Kg	☼	12/27/19 11:34	01/10/20 04:01	2
Uranium	2.7		0.099	0.039	mg/Kg	☼	12/27/19 11:34	01/10/20 04:01	2

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.41		0.166	0.221	1.00	0.0930	pCi/g	12/27/19 15:50	01/20/20 18:54	1
Radium-228	1.09		0.211	0.238	1.00	0.137	pCi/g	12/27/19 15:50	01/20/20 18:54	1

QC Sample Results

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 160-455441/1-A
Matrix: Solid
Analysis Batch: 456435

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 455441

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	ND		0.19	0.086	mg/Kg		12/27/19 11:27	01/10/20 04:08	2
Uranium	ND		0.096	0.038	mg/Kg		12/27/19 11:27	01/10/20 04:08	2

Lab Sample ID: LCS 160-455441/2-A
Matrix: Solid
Analysis Batch: 456435

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 455441

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Thorium	91.7	91.2		mg/Kg		99	80 - 120

Lab Sample ID: LCSSRM 160-455441/3-A
Matrix: Solid
Analysis Batch: 456435

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 455441

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Uranium	70.9	58.7		mg/Kg		82.8	62.6 - 110.0

Lab Sample ID: 160-36789-13 MS
Matrix: Solid
Analysis Batch: 456435

Client Sample ID: WRSB218_3-6
Prep Type: Total/NA
Prep Batch: 455441

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Thorium	9.4		96.6	102		mg/Kg	☼	96	75 - 125
Uranium	1.4		96.6	93.9		mg/Kg	☼	96	75 - 125

Lab Sample ID: 160-36789-13 MSD
Matrix: Solid
Analysis Batch: 456435

Client Sample ID: WRSB218_3-6
Prep Type: Total/NA
Prep Batch: 455441

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Thorium	9.4		95.6	103		mg/Kg	☼	98	75 - 125	1	30
Uranium	1.4		95.6	95.2		mg/Kg	☼	98	75 - 125	1	30

Lab Sample ID: 160-36789-13 DU
Matrix: Solid
Analysis Batch: 456435

Client Sample ID: WRSB218_3-6
Prep Type: Total/NA
Prep Batch: 455441

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Thorium	9.4		9.68		mg/Kg	☼	3	30
Uranium	1.4		1.42		mg/Kg	☼	3	30

Lab Sample ID: MB 160-455442/1-A
Matrix: Solid
Analysis Batch: 456435

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 455442

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	ND		0.18	0.082	mg/Kg		12/27/19 11:29	01/10/20 01:26	2
Uranium	ND		0.092	0.037	mg/Kg		12/27/19 11:29	01/10/20 01:26	2

QC Sample Results

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 160-455442/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 456435 — **Prep Batch: 455442**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Thorium	93.1	91.1		mg/Kg		98	80 - 120

Lab Sample ID: LCSSRM 160-455442/3-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 456435 — **Prep Batch: 455442**

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Uranium	70.9	58.5		mg/Kg		82.5	62.6 - 110.0

Lab Sample ID: 160-36789-26 MS — **Client Sample ID: WRSB209_3-6**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 456435 — **Prep Batch: 455442**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Thorium	8.1		96.6	102		mg/Kg	☼	97	75 - 125
Uranium	10		96.6	106		mg/Kg	☼	99	75 - 125

Lab Sample ID: 160-36789-26 MSD — **Client Sample ID: WRSB209_3-6**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 456435 — **Prep Batch: 455442**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Thorium	8.1		99.1	102		mg/Kg	☼	95	75 - 125	0	30
Uranium	10		99.1	105		mg/Kg	☼	96	75 - 125	1	30

Lab Sample ID: 160-36789-26 DU — **Client Sample ID: WRSB209_3-6**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 456435 — **Prep Batch: 455442**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Thorium	8.1		6.01		mg/Kg	☼	29	30
Uranium	10		10.6		mg/Kg	☼	3	30

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Lab Sample ID: MB 160-455482/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 457408 — **Prep Batch: 455482**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.02505	U	0.0348	0.0349	1.00	0.221	pCi/g	12/27/19 14:47	01/21/20 11:55	1
Radium-228	0.09015	U	0.148	0.149	1.00	0.165	pCi/g	12/27/19 14:47	01/21/20 11:55	1

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS) (Continued)

Lab Sample ID: LCS 160-455482/2-A
Matrix: Solid
Analysis Batch: 457407

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 455482

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	96.6	99.82		11.7		1.05	pCi/g	103	75 - 125
Cesium-137	27.3	30.85		3.24		0.267	pCi/g	113	75 - 125
Cobalt-60	10.6	11.21		1.18		0.138	pCi/g	105	75 - 125

Lab Sample ID: 160-36789-13 DU
Matrix: Solid
Analysis Batch: 457518

Client Sample ID: WRSB218_3-6
Prep Type: Total/NA
Prep Batch: 455482

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	DER	DER Limit
Radium-226	1.48		1.572		0.340	1.00	0.224	pCi/g	0.40	2
Radium-228	2.13		2.034		0.466	1.00	0.258	pCi/g	0.31	2

Lab Sample ID: MB 160-455485/1-A
Matrix: Solid
Analysis Batch: 457266

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 455485

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.03648	U	0.107	0.107	1.00	0.276	pCi/g	12/27/19 15:50	01/20/20 16:31	1
Radium-228	0.0000	U	0.0355	0.0355	1.00	0.0924	pCi/g	12/27/19 15:50	01/20/20 16:31	1

Lab Sample ID: LCS 160-455485/2-A
Matrix: Solid
Analysis Batch: 457265

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 455485

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	96.6	98.88		11.6		1.30	pCi/g	102	75 - 125
Cesium-137	27.3	30.09		3.15		0.271	pCi/g	110	75 - 125
Cobalt-60	10.7	11.59		1.22		0.150	pCi/g	109	75 - 125

Lab Sample ID: 160-36789-26 DU
Matrix: Solid
Analysis Batch: 457250

Client Sample ID: WRSB209_3-6
Prep Type: Total/NA
Prep Batch: 455485

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	DER	DER Limit
Radium-226	3.66		3.981		0.556	1.00	0.240	pCi/g	0.86	2
Radium-228	1.42		1.242		0.283	1.00	0.330	pCi/g	0.78	2

Lab Sample ID: MB 160-455678/1-A
Matrix: Solid
Analysis Batch: 457643

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 455678

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.09617	U	0.0608	0.0616	1.00	0.353	pCi/g	12/30/19 15:30	01/23/20 13:55	1
Radium-228	0.04802	U	0.107	0.107	1.00	0.272	pCi/g	12/30/19 15:30	01/23/20 13:55	1

QC Sample Results

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Method: 901.1 - Radium-226 & Other Gamma Emitters (GS)

Lab Sample ID: LCS 160-455678/2-A
Matrix: Solid
Analysis Batch: 457639

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 455678

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	100	92.43		10.8		0.825	pCi/g	92	75 - 125
Cesium-137	31.2	29.72		3.11		0.249	pCi/g	95	75 - 125
Cobalt-60	19.2	17.76		1.82		0.145	pCi/g	92	75 - 125

Lab Sample ID: 160-36789-4 DU
Matrix: Solid
Analysis Batch: 457639

Client Sample ID: WRSB235_6-15
Prep Type: Total/NA
Prep Batch: 455678

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	DER	DER Limit
Radium-226	1.63		1.633		0.324	1.00	0.213	pCi/g	0.01	2
Radium-228	2.03		1.973		0.394	1.00	0.372	pCi/g	0.22	2

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Metals

Prep Batch: 455441

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36789-1	WRSB235_0-0.5	Total/NA	Solid	3050B	
160-36789-2	WRSB235_0.5-3	Total/NA	Solid	3050B	
160-36789-3	WRSB235_3-6	Total/NA	Solid	3050B	
160-36789-4	WRSB235_6-15	Total/NA	Solid	3050B	
160-36789-5	WRSB217_0-0.5	Total/NA	Solid	3050B	
160-36789-6	WRSB217-FD_0-0.5	Total/NA	Solid	3050B	
160-36789-7	WRSB217_0.5-3	Total/NA	Solid	3050B	
160-36789-8	WRSB217_3-6	Total/NA	Solid	3050B	
160-36789-9	WRSB217_6-15	Total/NA	Solid	3050B	
160-36789-10	WRSB218_0-0.5	Total/NA	Solid	3050B	
160-36789-11	WRSB218_0.5-3	Total/NA	Solid	3050B	
160-36789-12	WRSB218-FD_0.5-3	Total/NA	Solid	3050B	
160-36789-13	WRSB218_3-6	Total/NA	Solid	3050B	
160-36789-14	WRSB218_6-15	Total/NA	Solid	3050B	
160-36789-15	WRSB229_0-0.5	Total/NA	Solid	3050B	
160-36789-16	WRSB229_0.5-3	Total/NA	Solid	3050B	
160-36789-17	WRSB229_3-6	Total/NA	Solid	3050B	
160-36789-18	WRSB229_6-15	Total/NA	Solid	3050B	
160-36789-19	WRSB211_0-0.5	Total/NA	Solid	3050B	
160-36789-20	WRSB211_0.5-3	Total/NA	Solid	3050B	
MB 160-455441/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 160-455441/2-A	Lab Control Sample	Total/NA	Solid	3050B	
LCSSRM 160-455441/3-A	Lab Control Sample	Total/NA	Solid	3050B	
160-36789-13 MS	WRSB218_3-6	Total/NA	Solid	3050B	
160-36789-13 MSD	WRSB218_3-6	Total/NA	Solid	3050B	
160-36789-13 DU	WRSB218_3-6	Total/NA	Solid	3050B	

Prep Batch: 455442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36789-21	WRSB211_3-6	Total/NA	Solid	3050B	
160-36789-22	WRSB211-FD_3-6	Total/NA	Solid	3050B	
160-36789-23	WRSB211_6-15	Total/NA	Solid	3050B	
160-36789-24	WRSB209_0-0.5	Total/NA	Solid	3050B	
160-36789-25	WRSB209_0.5-3	Total/NA	Solid	3050B	
160-36789-26	WRSB209_3-6	Total/NA	Solid	3050B	
160-36789-27	WRSB209_6-15	Total/NA	Solid	3050B	
160-36789-28	WRSB210_0-0.5	Total/NA	Solid	3050B	
160-36789-29	WRSB210_0.5-3	Total/NA	Solid	3050B	
160-36789-30	WRSB210_3-6	Total/NA	Solid	3050B	
160-36789-31	WRSB210_6-15	Total/NA	Solid	3050B	
MB 160-455442/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 160-455442/2-A	Lab Control Sample	Total/NA	Solid	3050B	
LCSSRM 160-455442/3-A	Lab Control Sample	Total/NA	Solid	3050B	
160-36789-26 MS	WRSB209_3-6	Total/NA	Solid	3050B	
160-36789-26 MSD	WRSB209_3-6	Total/NA	Solid	3050B	
160-36789-26 DU	WRSB209_3-6	Total/NA	Solid	3050B	

Analysis Batch: 456435

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36789-1	WRSB235_0-0.5	Total/NA	Solid	6020A	455441
160-36789-2	WRSB235_0.5-3	Total/NA	Solid	6020A	455441

Metals (Continued)

Analysis Batch: 456435 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36789-3	WRSB235_3-6	Total/NA	Solid	6020A	455441
160-36789-4	WRSB235_6-15	Total/NA	Solid	6020A	455441
160-36789-5	WRSB217_0-0.5	Total/NA	Solid	6020A	455441
160-36789-6	WRSB217-FD_0-0.5	Total/NA	Solid	6020A	455441
160-36789-7	WRSB217_0.5-3	Total/NA	Solid	6020A	455441
160-36789-8	WRSB217_3-6	Total/NA	Solid	6020A	455441
160-36789-9	WRSB217_6-15	Total/NA	Solid	6020A	455441
160-36789-10	WRSB218_0-0.5	Total/NA	Solid	6020A	455441
160-36789-11	WRSB218_0.5-3	Total/NA	Solid	6020A	455441
160-36789-12	WRSB218-FD_0.5-3	Total/NA	Solid	6020A	455441
160-36789-13	WRSB218_3-6	Total/NA	Solid	6020A	455441
160-36789-14	WRSB218_6-15	Total/NA	Solid	6020A	455441
160-36789-15	WRSB229_0-0.5	Total/NA	Solid	6020A	455441
160-36789-16	WRSB229_0.5-3	Total/NA	Solid	6020A	455441
160-36789-17	WRSB229_3-6	Total/NA	Solid	6020A	455441
160-36789-18	WRSB229_6-15	Total/NA	Solid	6020A	455441
160-36789-19	WRSB211_0-0.5	Total/NA	Solid	6020A	455441
160-36789-20	WRSB211_0.5-3	Total/NA	Solid	6020A	455441
160-36789-21	WRSB211_3-6	Total/NA	Solid	6020A	455442
160-36789-22	WRSB211-FD_3-6	Total/NA	Solid	6020A	455442
160-36789-23	WRSB211_6-15	Total/NA	Solid	6020A	455442
160-36789-24	WRSB209_0-0.5	Total/NA	Solid	6020A	455442
160-36789-25	WRSB209_0.5-3	Total/NA	Solid	6020A	455442
160-36789-26	WRSB209_3-6	Total/NA	Solid	6020A	455442
160-36789-27	WRSB209_6-15	Total/NA	Solid	6020A	455442
160-36789-28	WRSB210_0-0.5	Total/NA	Solid	6020A	455442
160-36789-29	WRSB210_0.5-3	Total/NA	Solid	6020A	455442
160-36789-30	WRSB210_3-6	Total/NA	Solid	6020A	455442
160-36789-31	WRSB210_6-15	Total/NA	Solid	6020A	455442
MB 160-455441/1-A	Method Blank	Total/NA	Solid	6020A	455441
MB 160-455442/1-A	Method Blank	Total/NA	Solid	6020A	455442
LCS 160-455441/2-A	Lab Control Sample	Total/NA	Solid	6020A	455441
LCS 160-455442/2-A	Lab Control Sample	Total/NA	Solid	6020A	455442
LCSSRM 160-455441/3-A	Lab Control Sample	Total/NA	Solid	6020A	455441
LCSSRM 160-455442/3-A	Lab Control Sample	Total/NA	Solid	6020A	455442
160-36789-13 MS	WRSB218_3-6	Total/NA	Solid	6020A	455441
160-36789-13 MSD	WRSB218_3-6	Total/NA	Solid	6020A	455441
160-36789-26 MS	WRSB209_3-6	Total/NA	Solid	6020A	455442
160-36789-26 MSD	WRSB209_3-6	Total/NA	Solid	6020A	455442
160-36789-13 DU	WRSB218_3-6	Total/NA	Solid	6020A	455441
160-36789-26 DU	WRSB209_3-6	Total/NA	Solid	6020A	455442

General Chemistry

Analysis Batch: 455287

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36789-1	WRSB235_0-0.5	Total/NA	Solid	Moisture	
160-36789-2	WRSB235_0.5-3	Total/NA	Solid	Moisture	
160-36789-3	WRSB235_3-6	Total/NA	Solid	Moisture	
160-36788-B-36 DU	Duplicate	Total/NA	Solid	Moisture	

QC Association Summary

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

General Chemistry

Analysis Batch: 455316

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36789-4	WRSB235_6-15	Total/NA	Solid	Moisture	
160-36789-5	WRSB217_0-0.5	Total/NA	Solid	Moisture	
160-36789-6	WRSB217-FD_0-0.5	Total/NA	Solid	Moisture	
160-36789-7	WRSB217_0.5-3	Total/NA	Solid	Moisture	
160-36789-8	WRSB217_3-6	Total/NA	Solid	Moisture	
160-36789-9	WRSB217_6-15	Total/NA	Solid	Moisture	
160-36789-10	WRSB218_0-0.5	Total/NA	Solid	Moisture	
160-36789-11	WRSB218_0.5-3	Total/NA	Solid	Moisture	
160-36789-12	WRSB218-FD_0.5-3	Total/NA	Solid	Moisture	
160-36789-13	WRSB218_3-6	Total/NA	Solid	Moisture	
160-36789-14	WRSB218_6-15	Total/NA	Solid	Moisture	
160-36789-15	WRSB229_0-0.5	Total/NA	Solid	Moisture	
160-36789-16	WRSB229_0.5-3	Total/NA	Solid	Moisture	
160-36789-17	WRSB229_3-6	Total/NA	Solid	Moisture	
160-36789-18	WRSB229_6-15	Total/NA	Solid	Moisture	
160-36789-19	WRSB211_0-0.5	Total/NA	Solid	Moisture	
160-36789-20	WRSB211_0.5-3	Total/NA	Solid	Moisture	
160-36789-21	WRSB211_3-6	Total/NA	Solid	Moisture	
160-36789-22	WRSB211-FD_3-6	Total/NA	Solid	Moisture	
160-36789-23	WRSB211_6-15	Total/NA	Solid	Moisture	
160-36789-4 DU	WRSB235_6-15	Total/NA	Solid	Moisture	

Analysis Batch: 455689

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36789-24	WRSB209_0-0.5	Total/NA	Solid	Moisture	
160-36789-25	WRSB209_0.5-3	Total/NA	Solid	Moisture	
160-36789-26	WRSB209_3-6	Total/NA	Solid	Moisture	
160-36789-27	WRSB209_6-15	Total/NA	Solid	Moisture	
160-36789-28	WRSB210_0-0.5	Total/NA	Solid	Moisture	
160-36789-29	WRSB210_0.5-3	Total/NA	Solid	Moisture	
160-36789-30	WRSB210_3-6	Total/NA	Solid	Moisture	
160-36789-31	WRSB210_6-15	Total/NA	Solid	Moisture	
160-36789-24 DU	WRSB209_0-0.5	Total/NA	Solid	Moisture	

Rad

Leach Batch: 454894

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36789-1	WRSB235_0-0.5	Total/NA	Solid	Dry and Grind	
160-36789-2	WRSB235_0.5-3	Total/NA	Solid	Dry and Grind	
160-36789-3	WRSB235_3-6	Total/NA	Solid	Dry and Grind	
160-36789-5	WRSB217_0-0.5	Total/NA	Solid	Dry and Grind	
160-36789-6	WRSB217-FD_0-0.5	Total/NA	Solid	Dry and Grind	
160-36789-7	WRSB217_0.5-3	Total/NA	Solid	Dry and Grind	
160-36789-8	WRSB217_3-6	Total/NA	Solid	Dry and Grind	
160-36789-9	WRSB217_6-15	Total/NA	Solid	Dry and Grind	
160-36789-10	WRSB218_0-0.5	Total/NA	Solid	Dry and Grind	
160-36789-11	WRSB218_0.5-3	Total/NA	Solid	Dry and Grind	
160-36789-12	WRSB218-FD_0.5-3	Total/NA	Solid	Dry and Grind	
160-36789-13	WRSB218_3-6	Total/NA	Solid	Dry and Grind	
160-36789-14	WRSB218_6-15	Total/NA	Solid	Dry and Grind	

Rad (Continued)

Leach Batch: 454894 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36789-15	WRSB229_0-0.5	Total/NA	Solid	Dry and Grind	
160-36789-16	WRSB229_0.5-3	Total/NA	Solid	Dry and Grind	
160-36789-17	WRSB229_3-6	Total/NA	Solid	Dry and Grind	
160-36789-18	WRSB229_6-15	Total/NA	Solid	Dry and Grind	
160-36789-19	WRSB211_0-0.5	Total/NA	Solid	Dry and Grind	
160-36789-20	WRSB211_0.5-3	Total/NA	Solid	Dry and Grind	
160-36789-21	WRSB211_3-6	Total/NA	Solid	Dry and Grind	
160-36789-22	WRSB211-FD_3-6	Total/NA	Solid	Dry and Grind	
160-36789-23	WRSB211_6-15	Total/NA	Solid	Dry and Grind	
160-36789-24	WRSB209_0-0.5	Total/NA	Solid	Dry and Grind	
160-36789-25	WRSB209_0.5-3	Total/NA	Solid	Dry and Grind	
160-36789-26	WRSB209_3-6	Total/NA	Solid	Dry and Grind	
160-36789-27	WRSB209_6-15	Total/NA	Solid	Dry and Grind	
160-36789-28	WRSB210_0-0.5	Total/NA	Solid	Dry and Grind	
160-36789-29	WRSB210_0.5-3	Total/NA	Solid	Dry and Grind	
160-36789-30	WRSB210_3-6	Total/NA	Solid	Dry and Grind	
160-36789-31	WRSB210_6-15	Total/NA	Solid	Dry and Grind	
160-36789-13 DU	WRSB218_3-6	Total/NA	Solid	Dry and Grind	
160-36789-26 DU	WRSB209_3-6	Total/NA	Solid	Dry and Grind	

Prep Batch: 455482

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36789-1	WRSB235_0-0.5	Total/NA	Solid	Fill_Geo-21	454894
160-36789-2	WRSB235_0.5-3	Total/NA	Solid	Fill_Geo-21	454894
160-36789-3	WRSB235_3-6	Total/NA	Solid	Fill_Geo-21	454894
160-36789-5	WRSB217_0-0.5	Total/NA	Solid	Fill_Geo-21	454894
160-36789-6	WRSB217-FD_0-0.5	Total/NA	Solid	Fill_Geo-21	454894
160-36789-7	WRSB217_0.5-3	Total/NA	Solid	Fill_Geo-21	454894
160-36789-8	WRSB217_3-6	Total/NA	Solid	Fill_Geo-21	454894
160-36789-9	WRSB217_6-15	Total/NA	Solid	Fill_Geo-21	454894
160-36789-10	WRSB218_0-0.5	Total/NA	Solid	Fill_Geo-21	454894
160-36789-11	WRSB218_0.5-3	Total/NA	Solid	Fill_Geo-21	454894
160-36789-12	WRSB218-FD_0.5-3	Total/NA	Solid	Fill_Geo-21	454894
160-36789-13	WRSB218_3-6	Total/NA	Solid	Fill_Geo-21	454894
160-36789-14	WRSB218_6-15	Total/NA	Solid	Fill_Geo-21	454894
160-36789-15	WRSB229_0-0.5	Total/NA	Solid	Fill_Geo-21	454894
160-36789-16	WRSB229_0.5-3	Total/NA	Solid	Fill_Geo-21	454894
160-36789-17	WRSB229_3-6	Total/NA	Solid	Fill_Geo-21	454894
160-36789-18	WRSB229_6-15	Total/NA	Solid	Fill_Geo-21	454894
160-36789-19	WRSB211_0-0.5	Total/NA	Solid	Fill_Geo-21	454894
160-36789-20	WRSB211_0.5-3	Total/NA	Solid	Fill_Geo-21	454894
160-36789-21	WRSB211_3-6	Total/NA	Solid	Fill_Geo-21	454894
MB 160-455482/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	
LCS 160-455482/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
160-36789-13 DU	WRSB218_3-6	Total/NA	Solid	Fill_Geo-21	454894

Prep Batch: 455485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36789-22	WRSB211-FD_3-6	Total/NA	Solid	Fill_Geo-21	454894
160-36789-23	WRSB211_6-15	Total/NA	Solid	Fill_Geo-21	454894
160-36789-24	WRSB209_0-0.5	Total/NA	Solid	Fill_Geo-21	454894

Rad (Continued)

Prep Batch: 455485 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36789-25	WRSB209_0.5-3	Total/NA	Solid	Fill_Geo-21	454894
160-36789-26	WRSB209_3-6	Total/NA	Solid	Fill_Geo-21	454894
160-36789-27	WRSB209_6-15	Total/NA	Solid	Fill_Geo-21	454894
160-36789-28	WRSB210_0-0.5	Total/NA	Solid	Fill_Geo-21	454894
160-36789-29	WRSB210_0.5-3	Total/NA	Solid	Fill_Geo-21	454894
160-36789-30	WRSB210_3-6	Total/NA	Solid	Fill_Geo-21	454894
160-36789-31	WRSB210_6-15	Total/NA	Solid	Fill_Geo-21	454894
MB 160-455485/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	
LCS 160-455485/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
160-36789-26 DU	WRSB209_3-6	Total/NA	Solid	Fill_Geo-21	454894

Leach Batch: 455486

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36789-4	WRSB235_6-15	Total/NA	Solid	Dry and Grind	
160-36789-4 DU	WRSB235_6-15	Total/NA	Solid	Dry and Grind	

Prep Batch: 455678

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36789-4	WRSB235_6-15	Total/NA	Solid	Fill_Geo-21	455486
MB 160-455678/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	
LCS 160-455678/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
160-36789-4 DU	WRSB235_6-15	Total/NA	Solid	Fill_Geo-21	455486

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Client Sample ID: WRSB235_0-0.5
Lab Sample ID: 160-36789-1
Date Collected: 12/16/19 14:37
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455287	12/26/19 10:25	JLC	TAL SL
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455482	12/27/19 14:47	KLH	TAL SL
Total/NA	Analysis	901.1		1	457420	01/21/20 11:59	AJD	TAL SL

Client Sample ID: WRSB235_0-0.5
Lab Sample ID: 160-36789-1
Date Collected: 12/16/19 14:37
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 93.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455441	12/27/19 11:27	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 04:28	FLC	TAL SL

Client Sample ID: WRSB235_0.5-3
Lab Sample ID: 160-36789-2
Date Collected: 12/16/19 14:50
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455287	12/26/19 10:25	JLC	TAL SL
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455482	12/27/19 14:47	KLH	TAL SL
Total/NA	Analysis	901.1		1	457419	01/21/20 12:00	AJD	TAL SL

Client Sample ID: WRSB235_0.5-3
Lab Sample ID: 160-36789-2
Date Collected: 12/16/19 14:50
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 94.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455441	12/27/19 11:27	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 04:55	FLC	TAL SL

Client Sample ID: WRSB235_3-6
Lab Sample ID: 160-36789-3
Date Collected: 12/16/19 15:01
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455287	12/26/19 10:25	JLC	TAL SL
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455482	12/27/19 14:47	KLH	TAL SL
Total/NA	Analysis	901.1		1	457408	01/21/20 12:27	KLS	TAL SL

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Client Sample ID: WRSB235_3-6 — Lab Sample ID: 160-36789-3

Date Collected: 12/16/19 15:01
Date Received: 12/20/19 11:00
Matrix: Solid
Percent Solids: 94.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455441	12/27/19 11:27	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 05:02	FLC	TAL SL

Client Sample ID: WRSB235_6-15 — Lab Sample ID: 160-36789-4

Date Collected: 12/16/19 15:05
Date Received: 12/20/19 11:00
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455316	12/26/19 13:47	JLC	TAL SL
Total/NA	Leach	Dry and Grind			455486	12/27/19 15:59	CMM	TAL SL
Total/NA	Prep	Fill_Geo-21			455678	12/30/19 15:30	CMM	TAL SL
Total/NA	Analysis	901.1		1	457644	01/23/20 14:33	KLS	TAL SL

Client Sample ID: WRSB235_6-15 — Lab Sample ID: 160-36789-4

Date Collected: 12/16/19 15:05
Date Received: 12/20/19 11:00
Matrix: Solid
Percent Solids: 95.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455441	12/27/19 11:27	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 05:09	FLC	TAL SL

Client Sample ID: WRSB217_0-0.5 — Lab Sample ID: 160-36789-5

Date Collected: 12/17/19 08:42
Date Received: 12/20/19 11:00
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455316	12/26/19 13:47	JLC	TAL SL
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455482	12/27/19 14:47	KLH	TAL SL
Total/NA	Analysis	901.1		1	457407	01/21/20 12:28	AJD	TAL SL

Client Sample ID: WRSB217_0-0.5 — Lab Sample ID: 160-36789-5

Date Collected: 12/17/19 08:42
Date Received: 12/20/19 11:00
Matrix: Solid
Percent Solids: 95.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455441	12/27/19 11:27	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 05:15	FLC	TAL SL

Client Sample ID: WRSB217-FD_0-0.5 — Lab Sample ID: 160-36789-6

Date Collected: 12/17/19 08:47
Date Received: 12/20/19 11:00
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455316	12/26/19 13:47	JLC	TAL SL

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Client Sample ID: WRSB217-FD_0-0.5
Lab Sample ID: 160-36789-6
Date Collected: 12/17/19 08:47
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455482	12/27/19 14:47	KLH	TAL SL
Total/NA	Analysis	901.1		1	457420	01/21/20 12:30	AJD	TAL SL

Client Sample ID: WRSB217-FD_0-0.5
Lab Sample ID: 160-36789-6
Date Collected: 12/17/19 08:47
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455441	12/27/19 11:27	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 05:22	FLC	TAL SL

Client Sample ID: WRSB217_0.5-3
Lab Sample ID: 160-36789-7
Date Collected: 12/17/19 08:53
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455316	12/26/19 13:47	JLC	TAL SL
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455482	12/27/19 14:47	KLH	TAL SL
Total/NA	Analysis	901.1		1	457419	01/21/20 12:32	AJD	TAL SL

Client Sample ID: WRSB217_0.5-3
Lab Sample ID: 160-36789-7
Date Collected: 12/17/19 08:53
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 96.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455441	12/27/19 11:27	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 05:29	FLC	TAL SL

Client Sample ID: WRSB217_3-6
Lab Sample ID: 160-36789-8
Date Collected: 12/17/19 09:04
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455316	12/26/19 13:47	JLC	TAL SL
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455482	12/27/19 14:47	KLH	TAL SL
Total/NA	Analysis	901.1		1	457429	01/21/20 12:24	JS	TAL SL

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Client Sample ID: WRSB217_3-6

Lab Sample ID: 160-36789-8
Date Collected: 12/17/19 09:04
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 96.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455441	12/27/19 11:27	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 05:36	FLC	TAL SL

Client Sample ID: WRSB217_6-15

Lab Sample ID: 160-36789-9
Date Collected: 12/17/19 09:09
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455316	12/26/19 13:47	JLC	TAL SL
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455482	12/27/19 14:47	KLH	TAL SL
Total/NA	Analysis	901.1		1	457430	01/21/20 12:25	JS	TAL SL

Client Sample ID: WRSB217_6-15

Lab Sample ID: 160-36789-9
Date Collected: 12/17/19 09:09
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 94.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455441	12/27/19 11:27	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 05:42	FLC	TAL SL

Client Sample ID: WRSB218_0-0.5

Lab Sample ID: 160-36789-10
Date Collected: 12/17/19 14:32
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455316	12/26/19 13:47	JLC	TAL SL
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455482	12/27/19 14:47	KLH	TAL SL
Total/NA	Analysis	901.1		1	457408	01/21/20 13:04	KLS	TAL SL

Client Sample ID: WRSB218_0-0.5

Lab Sample ID: 160-36789-10
Date Collected: 12/17/19 14:32
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 93.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455441	12/27/19 11:27	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 05:49	FLC	TAL SL

Client Sample ID: WRSB218_0.5-3

Lab Sample ID: 160-36789-11
Date Collected: 12/17/19 14:41
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455316	12/26/19 13:47	JLC	TAL SL

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Client Sample ID: WRSB218_0.5-3
Lab Sample ID: 160-36789-11
Date Collected: 12/17/19 14:41
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455482	12/27/19 14:47	KLH	TAL SL
Total/NA	Analysis	901.1		1	457407	01/21/20 13:04	AJD	TAL SL

Client Sample ID: WRSB218_0.5-3
Lab Sample ID: 160-36789-11
Date Collected: 12/17/19 14:41
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455441	12/27/19 11:27	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 05:56	FLC	TAL SL

Client Sample ID: WRSB218-FD_0.5-3
Lab Sample ID: 160-36789-12
Date Collected: 12/17/19 14:50
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455318	12/26/19 13:47	JLC	TAL SL
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455482	12/27/19 14:47	KLH	TAL SL
Total/NA	Analysis	901.1		1	457420	01/21/20 13:06	AJD	TAL SL

Client Sample ID: WRSB218-FD_0.5-3
Lab Sample ID: 160-36789-12
Date Collected: 12/17/19 14:50
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455441	12/27/19 11:27	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 06:23	FLC	TAL SL

Client Sample ID: WRSB218_3-6
Lab Sample ID: 160-36789-13
Date Collected: 12/17/19 15:04
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455316	12/26/19 13:47	JLC	TAL SL
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455482	12/27/19 14:47	KLH	TAL SL
Total/NA	Analysis	901.1		1	457429	01/21/20 13:08	JS	TAL SL

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Client Sample ID: WRSB218_3-6 — Lab Sample ID: 160-36789-13

Date Collected: 12/17/19 15:04
Date Received: 12/20/19 11:00
Matrix: Solid
Percent Solids: 95.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455441	12/27/19 11:27	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 06:30	FLC	TAL SL

Client Sample ID: WRSB218_6-15 — Lab Sample ID: 160-36789-14

Date Collected: 12/17/19 15:07
Date Received: 12/20/19 11:00
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455316	12/26/19 13:47	JLC	TAL SL
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455482	12/27/19 14:47	KLH	TAL SL
Total/NA	Analysis	901.1		1	457430	01/21/20 13:09	JS	TAL SL

Client Sample ID: WRSB218_6-15 — Lab Sample ID: 160-36789-14

Date Collected: 12/17/19 15:07
Date Received: 12/20/19 11:00
Matrix: Solid
Percent Solids: 95.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455441	12/27/19 11:27	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 07:03	FLC	TAL SL

Client Sample ID: WRSB229_0-0.5 — Lab Sample ID: 160-36789-15

Date Collected: 12/18/19 09:19
Date Received: 12/20/19 11:00
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455316	12/26/19 13:47	JLC	TAL SL
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455482	12/27/19 14:47	KLH	TAL SL
Total/NA	Analysis	901.1		1	457431	01/21/20 13:11	JS	TAL SL

Client Sample ID: WRSB229_0-0.5 — Lab Sample ID: 160-36789-15

Date Collected: 12/18/19 09:19
Date Received: 12/20/19 11:00
Matrix: Solid
Percent Solids: 91.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455441	12/27/19 11:27	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 07:10	FLC	TAL SL

Client Sample ID: WRSB229_0.5-3 — Lab Sample ID: 160-36789-16

Date Collected: 12/18/19 09:27
Date Received: 12/20/19 11:00
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455316	12/26/19 13:47	JLC	TAL SL

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Client Sample ID: WRSB229_0.5-3
Date Collected: 12/18/19 09:27
Date Received: 12/20/19 11:00

Lab Sample ID: 160-36789-16
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455482	12/27/19 14:47	KLH	TAL SL
Total/NA	Analysis	901.1		1	457419	01/21/20 13:07	AJD	TAL SL

Client Sample ID: WRSB229_0.5-3
Date Collected: 12/18/19 09:27
Date Received: 12/20/19 11:00

Lab Sample ID: 160-36789-16
Matrix: Solid
Percent Solids: 93.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455441	12/27/19 11:27	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 07:17	FLC	TAL SL

Client Sample ID: WRSB229_3-6
Date Collected: 12/18/19 09:39
Date Received: 12/20/19 11:00

Lab Sample ID: 160-36789-17
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455316	12/26/19 13:47	JLC	TAL SL
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455482	12/27/19 14:47	KLH	TAL SL
Total/NA	Analysis	901.1		1	457407	01/21/20 13:52	AJD	TAL SL

Client Sample ID: WRSB229_3-6
Date Collected: 12/18/19 09:39
Date Received: 12/20/19 11:00

Lab Sample ID: 160-36789-17
Matrix: Solid
Percent Solids: 95.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455441	12/27/19 11:27	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 07:24	FLC	TAL SL

Client Sample ID: WRSB229_6-15
Date Collected: 12/18/19 09:47
Date Received: 12/20/19 11:00

Lab Sample ID: 160-36789-18
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455316	12/26/19 13:47	JLC	TAL SL
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455482	12/27/19 14:47	KLH	TAL SL
Total/NA	Analysis	901.1		1	457420	01/21/20 13:53	AJD	TAL SL

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Client Sample ID: WRSB229_6-15
Lab Sample ID: 160-36789-18

Date Collected: 12/18/19 09:47
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 93.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455441	12/27/19 11:27	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 07:51	FLC	TAL SL

Client Sample ID: WRSB211_0-0.5
Lab Sample ID: 160-36789-19

Date Collected: 12/18/19 10:41
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455316	12/26/19 13:47	JLC	TAL SL
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455482	12/27/19 14:47	KLH	TAL SL
Total/NA	Analysis	901.1		1	457419	01/21/20 13:54	AJD	TAL SL

Client Sample ID: WRSB211_0-0.5
Lab Sample ID: 160-36789-19

Date Collected: 12/18/19 10:41
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 93.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455441	12/27/19 11:28	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 07:58	FLC	TAL SL

Client Sample ID: WRSB211_0.5-3
Lab Sample ID: 160-36789-20

Date Collected: 12/18/19 10:48
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455316	12/26/19 13:47	JLC	TAL SL
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455482	12/27/19 14:47	KLH	TAL SL
Total/NA	Analysis	901.1		1	457540	01/22/20 06:47	KLS	TAL SL

Client Sample ID: WRSB211_0.5-3
Lab Sample ID: 160-36789-20

Date Collected: 12/18/19 10:48
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 93.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455441	12/27/19 11:34	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 08:04	FLC	TAL SL

Client Sample ID: WRSB211_3-6
Lab Sample ID: 160-36789-21

Date Collected: 12/18/19 10:59
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455316	12/26/19 13:47	JLC	TAL SL

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Client Sample ID: WRSB211_3-6
Lab Sample ID: 160-36789-21
Date Collected: 12/18/19 10:59
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455482	12/27/19 14:47	KLH	TAL SL
Total/NA	Analysis	901.1		1	457539	01/22/20 06:48	KLS	TAL SL

Client Sample ID: WRSB211_3-6
Lab Sample ID: 160-36789-21
Date Collected: 12/18/19 10:59
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 94.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455442	12/27/19 11:29	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 02:07	FLC	TAL SL

Client Sample ID: WRSB211-FD_3-6
Lab Sample ID: 160-36789-22
Date Collected: 12/18/19 11:03
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455316	12/26/19 13:47	JLC	TAL SL
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455485	12/27/19 15:50	SCB	TAL SL
Total/NA	Analysis	901.1		1	457247	01/20/20 16:36	KLS	TAL SL

Client Sample ID: WRSB211-FD_3-6
Lab Sample ID: 160-36789-22
Date Collected: 12/18/19 11:03
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 93.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455442	12/27/19 11:29	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 02:13	FLC	TAL SL

Client Sample ID: WRSB211_6-15
Lab Sample ID: 160-36789-23
Date Collected: 12/18/19 11:07
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455316	12/26/19 13:47	JLC	TAL SL
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455485	12/27/19 15:50	SCB	TAL SL
Total/NA	Analysis	901.1		1	457250	01/20/20 16:37	KLS	TAL SL

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Client Sample ID: WRSB211_6-15
Lab Sample ID: 160-36789-23
Date Collected: 12/18/19 11:07
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 92.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455442	12/27/19 11:29	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 02:20	FLC	TAL SL

Client Sample ID: WRSB209_0-0.5
Lab Sample ID: 160-36789-24
Date Collected: 12/18/19 12:10
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455689	12/30/19 18:54	KLH	TAL SL
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455485	12/27/19 15:50	SCB	TAL SL
Total/NA	Analysis	901.1		1	457266	01/20/20 17:43	AJD	TAL SL

Client Sample ID: WRSB209_0-0.5
Lab Sample ID: 160-36789-24
Date Collected: 12/18/19 12:10
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455442	12/27/19 11:29	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 02:27	FLC	TAL SL

Client Sample ID: WRSB209_0.5-3
Lab Sample ID: 160-36789-25
Date Collected: 12/18/19 12:15
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455689	12/30/19 18:54	KLH	TAL SL
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455485	12/27/19 15:50	SCB	TAL SL
Total/NA	Analysis	901.1		1	457265	01/20/20 17:44	AJD	TAL SL

Client Sample ID: WRSB209_0.5-3
Lab Sample ID: 160-36789-25
Date Collected: 12/18/19 12:15
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455442	12/27/19 11:29	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 02:34	FLC	TAL SL

Client Sample ID: WRSB209_3-6
Lab Sample ID: 160-36789-26
Date Collected: 12/18/19 12:52
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455689	12/30/19 18:54	KLH	TAL SL

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Client Sample ID: WRSB209_3-6
Lab Sample ID: 160-36789-26
Date Collected: 12/18/19 12:52
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455485	12/27/19 15:50	SCB	TAL SL
Total/NA	Analysis	901.1		1	457247	01/20/20 17:45	KLS	TAL SL

Client Sample ID: WRSB209_3-6
Lab Sample ID: 160-36789-26
Date Collected: 12/18/19 12:52
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455442	12/27/19 11:29	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 02:40	FLC	TAL SL

Client Sample ID: WRSB209_6-15
Lab Sample ID: 160-36789-27
Date Collected: 12/18/19 13:07
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455689	12/30/19 18:54	KLH	TAL SL
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455485	12/27/19 15:50	SCB	TAL SL
Total/NA	Analysis	901.1		1	457247	01/20/20 18:55	KLS	TAL SL

Client Sample ID: WRSB209_6-15
Lab Sample ID: 160-36789-27
Date Collected: 12/18/19 13:07
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455442	12/27/19 11:29	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 03:34	FLC	TAL SL

Client Sample ID: WRSB210_0-0.5
Lab Sample ID: 160-36789-28
Date Collected: 12/18/19 14:05
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455689	12/30/19 18:54	KLH	TAL SL
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455485	12/27/19 15:50	SCB	TAL SL
Total/NA	Analysis	901.1		1	457250	01/20/20 17:46	KLS	TAL SL

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Client Sample ID: WRSB210_0-0.5

Lab Sample ID: 160-36789-28
Date Collected: 12/18/19 14:05
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 93.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455442	12/27/19 11:29	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 03:41	FLC	TAL SL

Client Sample ID: WRSB210_0.5-3

Lab Sample ID: 160-36789-29
Date Collected: 12/18/19 14:12
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455689	12/30/19 18:54	KLH	TAL SL
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455485	12/27/19 15:50	SCB	TAL SL
Total/NA	Analysis	901.1		1	457267	01/20/20 18:08	AJD	TAL SL

Client Sample ID: WRSB210_0.5-3

Lab Sample ID: 160-36789-29
Date Collected: 12/18/19 14:12
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455442	12/27/19 11:29	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 03:48	FLC	TAL SL

Client Sample ID: WRSB210_3-6

Lab Sample ID: 160-36789-30
Date Collected: 12/18/19 14:22
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455689	12/30/19 18:54	KLH	TAL SL
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455485	12/27/19 15:50	SCB	TAL SL
Total/NA	Analysis	901.1		1	457268	01/20/20 18:09	KLS	TAL SL

Client Sample ID: WRSB210_3-6

Lab Sample ID: 160-36789-30
Date Collected: 12/18/19 14:22
Matrix: Solid
Date Received: 12/20/19 11:00
Percent Solids: 95.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455442	12/27/19 11:29	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 03:55	FLC	TAL SL

Client Sample ID: WRSB210_6-15

Lab Sample ID: 160-36789-31
Date Collected: 12/18/19 14:36
Matrix: Solid
Date Received: 12/20/19 11:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	455689	12/30/19 18:54	KLH	TAL SL

Lab Chronicle

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Client Sample ID: WRSB210_6-15

Lab Sample ID: 160-36789-31

Date Collected: 12/18/19 14:36
Date Received: 12/20/19 11:00

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Leach	Dry and Grind			454894	12/23/19 07:53	MNH	TAL SL
Total/NA	Prep	Fill_Geo-21			455485	12/27/19 15:50	SCB	TAL SL
Total/NA	Analysis	901.1		1	457266	01/20/20 18:54	AJD	TAL SL

Client Sample ID: WRSB210_6-15

Lab Sample ID: 160-36789-31

Date Collected: 12/18/19 14:36
Date Received: 12/20/19 11:00

Matrix: Solid
Percent Solids: 96.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			455442	12/27/19 11:34	LAM	TAL SL
Total/NA	Analysis	6020A		2	456435	01/10/20 04:01	FLC	TAL SL

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Accreditation/Certification Summary

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Laboratory: Eurofins TestAmerica, St. Louis

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Louisiana	NELAP	04080	06-30-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6020A	3050B	Solid	Thorium
6020A	3050B	Solid	Uranium
901.1	Fill_Geo-21	Solid	Radium-226
901.1	Fill_Geo-21	Solid	Radium-228
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

Nevada	State Program	MO000542018-1	07-31-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
6020A	3050B	Solid	Thorium
901.1	Fill_Geo-21	Solid	Radium-226
901.1	Fill_Geo-21	Solid	Radium-228
Moisture		Solid	Percent Moisture
Moisture		Solid	Percent Solids

Method Summary

Client: Wood E&I Solutions Inc
Project/Site: ACMS - Yerington OU-4B_OU-5_SOIL

Job ID: 160-36789-1

Method	Method Description	Protocol	Laboratory
6020A	Metals (ICP/MS)	SW846	TAL SL
Moisture	Percent Moisture	EPA	TAL SL
901.1	Radium-226 & Other Gamma Emitters (GS)	EPA	TAL SL
3050B	Preparation, Metals	SW846	TAL SL
Dry and Grind	Preparation, Dry and Grind	None	TAL SL
Fill_Geo-21	Fill Geometry, 21-Day In-Growth	None	TAL SL

Protocol References:

EPA = US Environmental Protection Agency

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Atlantic Richfield Company
A BP affiliated company

Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Site Node Path: NV_YERINGTON
Req Due Date (mm/dd/yy): STD TAT
Rush TAT: Yes ___ No X
BP/ARC Facility Name: Anaconda Copper Mine Site
Lab Work Order Number:

Lab Name:	TestAmerica, Inc.	BP/ARC Facility Address:	1 Austin Circle	Consultant/Contractor:	Wood - E&I Solutions, Inc.
Lab Address:	13715 Rider Trail N., Earth City, MO 63045	City, State, ZIP Code:	Yerington, Nevada 89447	Consultant/Contractor Project No:	SA18170340.005.055B
Lab PM:	Jayna Awalt	Lead Regulatory Agency:	NDEP Abandoned Mine Lands Program	Address:	10940 White Rock Rd, Ste 190 Rancho Cordova, CA 95670
Lab Phone:	314-298-8566	California Global ID No.:		Consultant/Contractor PM	Kent Parrish
Lab Shipping Accnt:	1955-3772-0 (TAL Acct #)	Enfos Proposal No: D019Q-0047	Work Release No: WR331232	Phone: 916-636-3200	Email: Kent.Parrish@woodplc.com
Lab Bottle Order No:	NA	Accounting Mode:	Provision X OOC-BU ___ OOC-RM ___	Email Report/EDD To:	lynda.lombardi@woodplc.com
Other Info:	OU-4b_OU-5_Soil	Stage: Appraise	Activity: Field Work/Remedial Investigation	Invoice To:	BP/ARC X Contractor ___
BP/ARC EBM:	Chuck Stilwell				
EBM Phone:	713-998-2443				
EBM Email:	Chuck.Stilwell@bp.com				

Report Type & QC Level: Standard ___ Full Data Package X

Lab No.	Sample Description	Date	Time	Soil / Solid	Water / Liquid	Air / Vapor	Total Number of Containers	Unpreserved	H_2SO_4	HNO_3	Thorium, Uranium (SW6020A)	Radium-226 (HASL 300)	Radium-228 (HASL 300)	MS/MSD or LD	Comments (Note. If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.)
	WRSB235_0-0.5	12/16/19	14:37	X			2	2			X	X	X		Report soil on dry weight basis.
	WRSB235_0.5-3	12/16/19	14:50	X			2	2			X	X	X		
	WRSB235_3-6	12/16/19	15:01	X			2	2			X	X	X		
	WRSB235_6-15	12/16/19	15:05	X			2	2			X	X	X		
	WRSB217_0-0.5	12/17/19	08:42	X			2	2			X	X	X		
	WRSB217-FD_0-0.5	12/17/19	08:47	X			2	2			X	X	X		
	WRSB217_0.5-3	12/17/19	08:53	X			2	2			X	X	X		
	WRSB217_3-6	12/17/19	09:04	X			2	2			X	X	X		
	WRSB217_6-15	12/17/19	09:09	X			2	2			X	X	X		
	WRSB218_0-0.5	12/17/19	14:32	X			2	2			X	X	X		

160-36789 Chain of Custody

	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Name: Rachael Klier						
Sampler's Company: Wood	/ WOOD	12/19/19	10:30	/ Wood	12/19/19	1050
Shipment Method: Fed Ex Ship Date: 12/19/19	/ Wood	12/19/19	10:40	ETASTL	12/20/19	11:00
Shipment Tracking No: 777300826386, 77730084 4764, 7773 0088 7723						

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No | Temp Blank: Yes / No | Cooler Temp on Receipt _____ °F/C | Trip Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

BP/ARC LaMP COC Rev. 7, Jul 29, 2010

Atlantic Richfield Company
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Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Site Node Path: NV_YERINGTON
Req Due Date (mm/dd/yy): STD TAT
Rush TAT: Yes ___ No X
BP/ARC Facility Name: Anaconda Copper Mine Site
Lab Work Order Number:

Lab Name:	TestAmerica, Inc.	BP/ARC Facility Address:	1 Austin Circle	Consultant/Contractor:	Wood - E&I Solutions, Inc.
Lab Address:	13715 Rider Trail N., Earth City, MO 63045	City, State, ZIP Code:	Yerington, Nevada 89447	Consultant/Contractor Project No:	SA18170340.005.055B
Lab PM:	Jayna Awalt	Lead Regulatory Agency:	NDEP Abandoned Mine Lands Program	Address:	10940 White Rock Rd, Ste 190 Rancho Cordova, CA 95670
Lab Phone:	314-298-8566	California Global ID No.		Consultant/Contractor PM:	Kent Parrish
Lab Shipping Accnt:	1955-3772-0 (TAL Acct #)	Enfos Proposal No: D019Q-0047	Work Release No: WR331232	Phone: 916-636-3200	Email: Kent.Parrish@woodplc.com
Lab Bottle Order No:	NA	Accounting Mode:	Provision X OOC-BU ___ OOC-RM ___	Email Report/EDD To:	lynda.lombardi@woodplc.com
Other Info:	OU-4b_OU-5_Soil	Stage: Appraise	Activity: Field Work/Remedial Investigation	Invoice To:	BP/ARC X Contractor ___

BP/ARC EBM: Chuck Stilwell
EBM Phone: 713-998-2443
EBM Email: Chuck.Stilwell@bp.com

Report Type & QC Level: Standard ___ Full Data Package X

Lab No.	Sample Description	Date	Time	Soil / Solid	Water / Liquid	Air / Vapor	Total Number of Containers	Unpreserved	H_2SO_4	HNO_3	Thorium, Uranium (SW6020A)	Radium-226 (HASL 300)	Radium-228 (HASL 300)	MS/MSD or LD	Comments (Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description)
	WRSB218_0.5-3	12/17/19	14:41	X			2	2			X	X	X		Report soil on dry weight basis.
	WRSB218-FD_0.5-3	12/17/19	14:50	X			2	2			X	X	X		
	WRSB218_3-6	12/17/19	15:04	X			4	4			X	X	X	X	
	WRSB218_6-15	12/17/19	15:07	X			2	2			X	X	X		
	WRSB229_0-0.5	12/18/19	09:19	X			2	2			X	X	X		
	WRSB229_0.5-3	12/18/19	09:27	X			2	2			X	X	X		
	WRSB229_3-6	12/18/19	09:39	X			2	2			X	X	X		
	WRSB229_6-15	12/18/19	09:47	X			2	2			X	X	X		
	WRSB211_0-0.5	12/18/19	10:41	X			2	2			X	X	X		
	WRSB211_0.5-3	12/18/19	10:48	X			2	2			X	X	X		

Sampler's Name: Rachael Klier
Sampler's Company: WOOD
Shipment Method: Fed Ex Ship Date: 12/19/19
Shipment Tracking No:

Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
[signature] / WOOD	12/19/19	10:30	[signature] / Wood	12/19/19	1030
[signature] / Wood	12/19/19	1040	[signature] ETASTL	12.20.19	11:00

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No | Temp Blank: Yes / No | Cooler Temp on Receipt: ____ °F/C | Trip Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

BP/ARC LaMP COC Rev. 7, Jul 29, 2010

Atlantic Richfield Company
A BP affiliated company

Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Site Node Path: NV_YERINGTON
Req Due Date (mm/dd/yy): STD TAT
Rush TAT: Yes ___ No X
BP/ARC Facility Name: Anaconda Copper Mine Site
Lab Work Order Number:

Lab Name: TestAmerica, Inc.	BP/ARC Facility Address: 1 Austin Circle	Consultant/Contractor: Wood - E&I Solutions, Inc.	
Lab Address: 13715 Rider Trail N., Earth City, MO 63045	City, State, ZIP Code: Yerington, Nevada 89447	Consultant/Contractor Project No: SA18170340.005.055B	
Lab PM: Jayna Awalt	Lead Regulatory Agency: NDEP Abandoned Mine Lands Program	Address: 10940 White Rock Rd, Ste 190 Rancho Cordova, CA 95670	
Lab Phone: 314-298-8566	California Global ID No.:	Consultant/Contractor PM: Kent Parrish	
Lab Shipping Accnt: 1955-3772-0 (TAL Acct #)	Enfos Proposal No: D019Q-0047 Work Release No: WR331232	Phone: 916-636-3200 Email: Kent.Parrish@woodplc.com	
Lab Bottle Order No: NA	Accounting Mode: Provision X OOC-BU ___ OOC-RM ___	Email Report/EDD To: lynda.lombardi@woodplc.com	
Other Info: OU-4b_OU-5_Soil	Stage: Appraise Activity: Field Work/Remedial Investigation	Invoice To: BP/ARC X Contractor ___	
BP/ARC EBM: Chuck Stilwell			
EBM Phone: 713-998-2443			
EBM Email: Chuck.Stilwell@bp.com			

Report Type & QC Level: Standard ___ Full Data Package X

Lab No.	Sample Description	Date	Time	Matrix: Soil / Solid	Water / Liquid	Air / Vapor		No. Containers / Preservative: Total Number of Containers	Unpreserved	H_2SO_4	HNO_3				Requested Analyses: Thorium, Uranium (SW6020A)	Radium-226 (HASL 300)	Radium-228 (HASL 300)							MS/MSD or LD	Comments (Note: If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description)
	WRSB211_3-6	12/18/19	10:59	X				2	2						X	X	X								Report soil on dry weight basis.
	WRSB211-FD_3-6	12/18/19	11:03	X				2	2						X	X	X								
	WRSB211_6-15	12/18/19	11:07	X				2	2						X	X	X								
	WRSB209_0-0.5	12/18/19	12:10	X				2	2						X	X	X								
	WRSB209_0.5-3	12/18/19	12:15	X				2	2						X	X	X								
	WRSB209_3-6	12/18/19	12:52	X				4	4						X	X	X							X	
	WRSB209_6-15	12/18/19	13:07	X				2	2						X	X	X								
	WRSB210_0-0.5	12/18/19	14:05	X				2	2						X	X	X								
	WRSB210_0.5-3	12/18/19	14:12	X				2	2						X	X	X								
	WRSB210_3-6	12/18/19	14:22	X				2	2						X	X	X								

	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Name: Rachael Klier						
Sampler's Company: Wood	/ WOOD	12/19/19	10:30	/ Wood	12/19/19	1030
Shipment Method: Fed Ex Ship Date 12/19/19	/ Wood	12/19/19	1040	ETASTL	12-20-19	11:00
Shipment Tracking No:						

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No | Temp Blank: Yes / No | Cooler Temp on Receipt: _____ °F/C | Trip Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

Atlantic Richfield Company
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Laboratory Management Program LaMP Chain of Custody Record

BP/ARC Site Node Path: NV_YERINGTON
Req Due Date (mm/dd/yy): STD TAT
Rush TAT: Yes ___ No X
BP/ARC Facility Name: Anaconda Copper Mine Site
Lab Work Order Number:

Lab Name: TestAmerica, Inc.	BP/ARC Facility Address: 1 Austin Circle	Consultant/Contractor: Wood - E&I Solutions, Inc.	
Lab Address: 13715 Rider Trail N., Earth City, MO 63045	City, State, ZIP Code: Yerington, Nevada 89447	Consultant/Contractor Project No: SA18170340.005.055B	
Lab PM: Jayna Awalt	Lead Regulatory Agency: NDEP Abandoned Mine Lands Program	Address: 10940 White Rock Rd, Ste 190 Rancho Cordova, CA 95670	
Lab Phone: 314-298-8566	California Global ID No.:	Consultant/Contractor PM: Kent Parrish	
Lab Shipping Accnt: 1955-3772-0 (TAL Acct #)	Enfos Proposal No: D019Q-0047 Work Release No: WR331232	Phone: 916-636-3200 Email: Kent.Parrish@woodplc.com	
Lab Bottle Order No: NA	Accounting Mode: Provision X OOC-BU ___ OOC-RM ___	Email Report/EDD To: lynda.lombardi@woodplc.com	
Other Info: OU-4b_OU-5_Soil	Stage: Appraise Activity: Field Work/Remedial Investigation	Invoice To: BP/ARC X Contractor ___	
BP/ARC EBM: Chuck Stilwell			
EBM Phone: 713-998-2443			
EBM Email: Chuck.Stilwell@bp.com			

Report Type & QC Level: Standard ___ Full Data Package X

Lab No.	Sample Description	Date	Time	Matrix: Soil / Solid	Matrix: Water / Liquid	Matrix: Air / Vapor		No. Containers / Preservative: Total Number of Containers	Unpreserved	H_2SO_4	HNO_3				Requested Analyses: Thorium, Uranium (SW6020A)	Radium-226 (HASL 300)	Radium-228 (HASL 300)							MS/MSD or LD	Comments (Note. If sample not collected, indicate "No Sample" in comments and single-strike out and initial any preprinted sample description.)
	WRSB210_6-15	12/18/19	14:36	X				2	2						X	X	X								Report soil on dry weight basis.

12/18/19

Sampler's Name: Rachael Klier	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: WOOD	/ WOOD	12/19/19	10:30	/ Wood	12/19/19	1030
Shipment Method: Fed Ex Ship Date: 12/19/19	/ Wood	12/19/19	1040	ETASTL	12-20-19	11:00
Shipment Tracking No:						

Special Instructions:

THIS LINE - LAB USE ONLY: Custody Seals In Place: Yes / No | Temp Blank: Yes / No | Cooler Temp on Receipt ___ °F/C | Trip Blank: Yes / No | MS/MSD Sample Submitted: Yes / No

BP/ARC LaMP COC Rev. 7, Jul 29, 2010

Login Sample Receipt Checklist

Client: Wood E&I Solutions Inc

Job Number: 160-36789-1
SDG Number:

Login Number: 36789
List Number: 1
Creator: McKinney, Gerrod E

List Source: Eurofins TestAmerica, St. Louis

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Internal Chain of Custody Tracking

Login	Smp	Customer Sample ID	Matrix	Container ID	Lab Sample ID	Container Type	Location	Custody User	I/O	ICOC ID	ICOC Date
160-36789	1	WRSB235_0-0.5	Solid	160-1854784	160-36789-A-1	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	1	WRSB235_0-0.5	Solid	160-1854784	160-36789-A-1	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	1	WRSB235_0-0.5	Solid	160-1854785	160-36789-B-1	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188759	12/27/19 08:32
160-36789	1	WRSB235_0-0.5	Solid	160-1854785	160-36789-B-1	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188713	12/26/19 07:00
160-36789	1	WRSB235_0-0.5	Solid	160-1854785	160-36789-B-1	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	2	WRSB235_0.5-3	Solid	160-1854786	160-36789-A-2	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	2	WRSB235_0.5-3	Solid	160-1854786	160-36789-A-2	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	2	WRSB235_0.5-3	Solid	160-1854787	160-36789-B-2	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188759	12/27/19 08:32
160-36789	2	WRSB235_0.5-3	Solid	160-1854787	160-36789-B-2	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188713	12/26/19 07:00
160-36789	2	WRSB235_0.5-3	Solid	160-1854787	160-36789-B-2	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	3	WRSB235_3-6	Solid	160-1854788	160-36789-A-3	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	3	WRSB235_3-6	Solid	160-1854788	160-36789-A-3	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	3	WRSB235_3-6	Solid	160-1854789	160-36789-B-3	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188759	12/27/19 08:32
160-36789	3	WRSB235_3-6	Solid	160-1854789	160-36789-B-3	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188713	12/26/19 07:00
160-36789	3	WRSB235_3-6	Solid	160-1854789	160-36789-B-3	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	4	WRSB235_6-15	Solid	160-1854790	160-36789-A-4	Soil jar 4oz	Pre-Prep	Mazariegos,	I	160-188828	12/27/19 15:58
160-36789	4	WRSB235_6-15	Solid	160-1854790	160-36789-A-4	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	4	WRSB235_6-15	Solid	160-1854791	160-36789-B-4	Plastic Bag - 1000g	Pre-Prep	Mazariegos,	I	160-188828	12/27/19 15:58
160-36789	4	WRSB235_6-15	Solid	160-1854791	160-36789-B-4	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188759	12/27/19 08:32
160-36789	4	WRSB235_6-15	Solid	160-1854791	160-36789-B-4	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188713	12/26/19 07:00
160-36789	4	WRSB235_6-15	Solid	160-1854791	160-36789-B-4	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	5	WRSB217_0-0.5	Solid	160-1854792	160-36789-A-5	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	5	WRSB217_0-0.5	Solid	160-1854792	160-36789-A-5	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	5	WRSB217_0-0.5	Solid	160-1854793	160-36789-B-5	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188759	12/27/19 08:32
160-36789	5	WRSB217_0-0.5	Solid	160-1854793	160-36789-B-5	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188713	12/26/19 07:00
160-36789	5	WRSB217_0-0.5	Solid	160-1854793	160-36789-B-5	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	6	WRSB217-FD_0-0.5	Solid	160-1854794	160-36789-A-6	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	6	WRSB217-FD_0-0.5	Solid	160-1854794	160-36789-A-6	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	6	WRSB217-FD_0-0.5	Solid	160-1854795	160-36789-B-6	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188759	12/27/19 08:32
160-36789	6	WRSB217-FD_0-0.5	Solid	160-1854795	160-36789-B-6	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188713	12/26/19 07:00
160-36789	6	WRSB217-FD_0-0.5	Solid	160-1854795	160-36789-B-6	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	7	WRSB217_0.5-3	Solid	160-1854796	160-36789-A-7	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	7	WRSB217_0.5-3	Solid	160-1854796	160-36789-A-7	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	7	WRSB217_0.5-3	Solid	160-1854797	160-36789-B-7	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188759	12/27/19 08:32
160-36789	7	WRSB217_0.5-3	Solid	160-1854797	160-36789-B-7	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188713	12/26/19 07:00
160-36789	7	WRSB217_0.5-3	Solid	160-1854797	160-36789-B-7	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	8	WRSB217_3-6	Solid	160-1854798	160-36789-A-8	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	8	WRSB217_3-6	Solid	160-1854798	160-36789-A-8	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	8	WRSB217_3-6	Solid	160-1854799	160-36789-B-8	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188759	12/27/19 08:32
160-36789	8	WRSB217_3-6	Solid	160-1854799	160-36789-B-8	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188713	12/26/19 07:00

Internal Chain of Custody Tracking

Login	Smp	Customer Sample ID	Matrix	Container ID	Lab Sample ID	Container Type	Location	Custody User	I/O	ICOC ID	ICOC Date
160-36789	8	WRSB217_3-6	Solid	160-1854799	160-36789-B-8	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	9	WRSB217_6-15	Solid	160-1854800	160-36789-A-9	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	9	WRSB217_6-15	Solid	160-1854800	160-36789-A-9	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	9	WRSB217_6-15	Solid	160-1854801	160-36789-B-9	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188761	12/27/19 08:45
160-36789	9	WRSB217_6-15	Solid	160-1854801	160-36789-B-9	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188713	12/26/19 07:00
160-36789	9	WRSB217_6-15	Solid	160-1854801	160-36789-B-9	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	10	WRSB218_0-0.5	Solid	160-1854802	160-36789-A-10	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	10	WRSB218_0-0.5	Solid	160-1854802	160-36789-A-10	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	10	WRSB218_0-0.5	Solid	160-1854803	160-36789-B-10	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188761	12/27/19 08:45
160-36789	10	WRSB218_0-0.5	Solid	160-1854803	160-36789-B-10	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188713	12/26/19 07:00
160-36789	10	WRSB218_0-0.5	Solid	160-1854803	160-36789-B-10	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	11	WRSB218_0.5-3	Solid	160-1854804	160-36789-A-11	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	11	WRSB218_0.5-3	Solid	160-1854804	160-36789-A-11	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	11	WRSB218_0.5-3	Solid	160-1854805	160-36789-B-11	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188761	12/27/19 08:45
160-36789	11	WRSB218_0.5-3	Solid	160-1854805	160-36789-B-11	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188713	12/26/19 07:00
160-36789	11	WRSB218_0.5-3	Solid	160-1854805	160-36789-B-11	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	12	WRSB218-FD_0.5-3	Solid	160-1854806	160-36789-A-12	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	12	WRSB218-FD_0.5-3	Solid	160-1854806	160-36789-A-12	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	12	WRSB218-FD_0.5-3	Solid	160-1854807	160-36789-B-12	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188761	12/27/19 08:45
160-36789	12	WRSB218-FD_0.5-3	Solid	160-1854807	160-36789-B-12	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188713	12/26/19 07:00
160-36789	12	WRSB218-FD_0.5-3	Solid	160-1854807	160-36789-B-12	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	13	WRSB218_3-6	Solid	160-1854808	160-36789-A-13	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	13	WRSB218_3-6	Solid	160-1854808	160-36789-A-13	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	13	WRSB218_3-6	Solid	160-1854868	160-36789-A-13	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188761	12/27/19 08:45
160-36789	13	WRSB218_3-6	Solid	160-1854868	160-36789-A-13	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188713	12/26/19 07:00
160-36789	13	WRSB218_3-6	Solid	160-1854868	160-36789-A-13	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	13	WRSB218_3-6	Solid	160-1854869	160-36789-A-13	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	13	WRSB218_3-6	Solid	160-1854869	160-36789-A-13	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	13	WRSB218_3-6	Solid	160-1854870	160-36789-A-13	No Container	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	13	WRSB218_3-6	Solid	160-1854870	160-36789-A-13	No Container	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	13	WRSB218_3-6	Solid	160-1854809	160-36789-B-13	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188761	12/27/19 08:45
160-36789	13	WRSB218_3-6	Solid	160-1854809	160-36789-B-13	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188713	12/26/19 07:00
160-36789	13	WRSB218_3-6	Solid	160-1854809	160-36789-B-13	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	14	WRSB218_6-15	Solid	160-1854810	160-36789-A-14	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	14	WRSB218_6-15	Solid	160-1854810	160-36789-A-14	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	14	WRSB218_6-15	Solid	160-1854811	160-36789-B-14	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188761	12/27/19 08:45
160-36789	14	WRSB218_6-15	Solid	160-1854811	160-36789-B-14	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188714	12/26/19 07:01
160-36789	14	WRSB218_6-15	Solid	160-1854811	160-36789-B-14	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	15	WRSB229_0-0.5	Solid	160-1854812	160-36789-A-15	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	15	WRSB229_0-0.5	Solid	160-1854812	160-36789-A-15	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19

Internal Chain of Custody Tracking

Login	Smp	Customer Sample ID	Matrix	Container ID	Lab Sample ID	Container Type	Location	Custody User	I/O	ICOC ID	ICOC Date
160-36789	15	WRSB229_0-0.5	Solid	160-1854813	160-36789-B-15	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188759	12/27/19 08:32
160-36789	15	WRSB229_0-0.5	Solid	160-1854813	160-36789-B-15	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188714	12/26/19 07:01
160-36789	15	WRSB229_0-0.5	Solid	160-1854813	160-36789-B-15	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	16	WRSB229_0.5-3	Solid	160-1854814	160-36789-A-16	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	16	WRSB229_0.5-3	Solid	160-1854814	160-36789-A-16	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	16	WRSB229_0.5-3	Solid	160-1854815	160-36789-B-16	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188759	12/27/19 08:32
160-36789	16	WRSB229_0.5-3	Solid	160-1854815	160-36789-B-16	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188714	12/26/19 07:01
160-36789	16	WRSB229_0.5-3	Solid	160-1854815	160-36789-B-16	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	17	WRSB229_3-6	Solid	160-1854816	160-36789-A-17	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	17	WRSB229_3-6	Solid	160-1854816	160-36789-A-17	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	17	WRSB229_3-6	Solid	160-1854817	160-36789-B-17	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188759	12/27/19 08:32
160-36789	17	WRSB229_3-6	Solid	160-1854817	160-36789-B-17	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188714	12/26/19 07:01
160-36789	17	WRSB229_3-6	Solid	160-1854817	160-36789-B-17	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	18	WRSB229_6-15	Solid	160-1854818	160-36789-A-18	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	18	WRSB229_6-15	Solid	160-1854818	160-36789-A-18	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	18	WRSB229_6-15	Solid	160-1854819	160-36789-B-18	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188759	12/27/19 08:32
160-36789	18	WRSB229_6-15	Solid	160-1854819	160-36789-B-18	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188714	12/26/19 07:01
160-36789	18	WRSB229_6-15	Solid	160-1854819	160-36789-B-18	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	19	WRSB211_0-0.5	Solid	160-1854820	160-36789-A-19	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	19	WRSB211_0-0.5	Solid	160-1854820	160-36789-A-19	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	19	WRSB211_0-0.5	Solid	160-1854821	160-36789-B-19	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188759	12/27/19 08:32
160-36789	19	WRSB211_0-0.5	Solid	160-1854821	160-36789-B-19	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188714	12/26/19 07:01
160-36789	19	WRSB211_0-0.5	Solid	160-1854821	160-36789-B-19	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	20	WRSB211_0.5-3	Solid	160-1854822	160-36789-A-20	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	20	WRSB211_0.5-3	Solid	160-1854822	160-36789-A-20	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	20	WRSB211_0.5-3	Solid	160-1854823	160-36789-B-20	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188759	12/27/19 08:32
160-36789	20	WRSB211_0.5-3	Solid	160-1854823	160-36789-B-20	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188714	12/26/19 07:01
160-36789	20	WRSB211_0.5-3	Solid	160-1854823	160-36789-B-20	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	21	WRSB211_3-6	Solid	160-1854824	160-36789-A-21	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	21	WRSB211_3-6	Solid	160-1854824	160-36789-A-21	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	21	WRSB211_3-6	Solid	160-1854825	160-36789-B-21	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188759	12/27/19 08:32
160-36789	21	WRSB211_3-6	Solid	160-1854825	160-36789-B-21	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188714	12/26/19 07:01
160-36789	21	WRSB211_3-6	Solid	160-1854825	160-36789-B-21	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	22	WRSB211-FD_3-6	Solid	160-1854826	160-36789-A-22	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	22	WRSB211-FD_3-6	Solid	160-1854826	160-36789-A-22	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	22	WRSB211-FD_3-6	Solid	160-1854827	160-36789-B-22	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188759	12/27/19 08:32
160-36789	22	WRSB211-FD_3-6	Solid	160-1854827	160-36789-B-22	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188714	12/26/19 07:01
160-36789	22	WRSB211-FD_3-6	Solid	160-1854827	160-36789-B-22	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	23	WRSB211_6-15	Solid	160-1854828	160-36789-A-23	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	23	WRSB211_6-15	Solid	160-1854828	160-36789-A-23	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19

Internal Chain of Custody Tracking

Login	Smp	Customer Sample ID	Matrix	Container ID	Lab Sample ID	Container Type	Location	Custody User	I/O	ICOC ID	ICOC Date
160-36789	23	WRSB211_6-15	Solid	160-1854829	160-36789-B-23	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188759	12/27/19 08:32
160-36789	23	WRSB211_6-15	Solid	160-1854829	160-36789-B-23	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188714	12/26/19 07:01
160-36789	23	WRSB211_6-15	Solid	160-1854829	160-36789-B-23	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	24	WRSB209_0-0.5	Solid	160-1854830	160-36789-A-24	Soil jar 4oz	1-56	Harris, Kayla L	I	160-188966	12/31/19 08:02
160-36789	24	WRSB209_0-0.5	Solid	160-1854830	160-36789-A-24	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	24	WRSB209_0-0.5	Solid	160-1854830	160-36789-A-24	Soil jar 4oz	Pre-Prep	Harris, Kayla L	I	160-188950	12/30/19 18:52
160-36789	24	WRSB209_0-0.5	Solid	160-1854830	160-36789-A-24	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	24	WRSB209_0-0.5	Solid	160-1854831	160-36789-B-24	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188761	12/27/19 08:45
160-36789	24	WRSB209_0-0.5	Solid	160-1854831	160-36789-B-24	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188714	12/26/19 07:01
160-36789	24	WRSB209_0-0.5	Solid	160-1854831	160-36789-B-24	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	25	WRSB209_0.5-3	Solid	160-1854832	160-36789-A-25	Soil jar 4oz	1-56	Harris, Kayla L	I	160-188966	12/31/19 08:02
160-36789	25	WRSB209_0.5-3	Solid	160-1854832	160-36789-A-25	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	25	WRSB209_0.5-3	Solid	160-1854832	160-36789-A-25	Soil jar 4oz	Pre-Prep	Harris, Kayla L	I	160-188950	12/30/19 18:52
160-36789	25	WRSB209_0.5-3	Solid	160-1854832	160-36789-A-25	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	25	WRSB209_0.5-3	Solid	160-1854833	160-36789-B-25	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188761	12/27/19 08:45
160-36789	25	WRSB209_0.5-3	Solid	160-1854833	160-36789-B-25	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188714	12/26/19 07:01
160-36789	25	WRSB209_0.5-3	Solid	160-1854833	160-36789-B-25	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	26	WRSB209_3-6	Solid	160-1854834	160-36789-A-26	Soil jar 4oz	1-56	Harris, Kayla L	I	160-188966	12/31/19 08:02
160-36789	26	WRSB209_3-6	Solid	160-1854834	160-36789-A-26	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	26	WRSB209_3-6	Solid	160-1854834	160-36789-A-26	Soil jar 4oz	Pre-Prep	Harris, Kayla L	I	160-188950	12/30/19 18:52
160-36789	26	WRSB209_3-6	Solid	160-1854834	160-36789-A-26	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	26	WRSB209_3-6	Solid	160-1854871	160-36789-A-26	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188761	12/27/19 08:45
160-36789	26	WRSB209_3-6	Solid	160-1854871	160-36789-A-26	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188714	12/26/19 07:01
160-36789	26	WRSB209_3-6	Solid	160-1854871	160-36789-A-26	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	26	WRSB209_3-6	Solid	160-1854872	160-36789-A-26	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	26	WRSB209_3-6	Solid	160-1854872	160-36789-A-26	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	26	WRSB209_3-6	Solid	160-1854873	160-36789-A-26	No Container	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	26	WRSB209_3-6	Solid	160-1854873	160-36789-A-26	No Container	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	26	WRSB209_3-6	Solid	160-1854835	160-36789-B-26	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188761	12/27/19 08:45
160-36789	26	WRSB209_3-6	Solid	160-1854835	160-36789-B-26	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188714	12/26/19 07:01
160-36789	26	WRSB209_3-6	Solid	160-1854835	160-36789-B-26	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	27	WRSB209_6-15	Solid	160-1854836	160-36789-A-27	Soil jar 4oz	1-56	Harris, Kayla L	I	160-188966	12/31/19 08:02
160-36789	27	WRSB209_6-15	Solid	160-1854836	160-36789-A-27	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	27	WRSB209_6-15	Solid	160-1854836	160-36789-A-27	Soil jar 4oz	Pre-Prep	Harris, Kayla L	I	160-188950	12/30/19 18:52
160-36789	27	WRSB209_6-15	Solid	160-1854836	160-36789-A-27	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	27	WRSB209_6-15	Solid	160-1854837	160-36789-B-27	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188761	12/27/19 08:45
160-36789	27	WRSB209_6-15	Solid	160-1854837	160-36789-B-27	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188714	12/26/19 07:01
160-36789	27	WRSB209_6-15	Solid	160-1854837	160-36789-B-27	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	28	WRSB210_0-0.5	Solid	160-1854838	160-36789-A-28	Soil jar 4oz	1-56	Harris, Kayla L	I	160-188966	12/31/19 08:02
160-36789	28	WRSB210_0-0.5	Solid	160-1854838	160-36789-A-28	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46

Internal Chain of Custody Tracking

Login	Smp	Customer Sample ID	Matrix	Container ID	Lab Sample ID	Container Type	Location	Custody User	I/O	ICOC ID	ICOC Date
160-36789	28	WRSB210_0-0.5	Solid	160-1854838	160-36789-A-28	Soil jar 4oz	Pre-Prep	Harris, Kayla L	I	160-188950	12/30/19 18:52
160-36789	28	WRSB210_0-0.5	Solid	160-1854838	160-36789-A-28	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	28	WRSB210_0-0.5	Solid	160-1854839	160-36789-B-28	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188761	12/27/19 08:45
160-36789	28	WRSB210_0-0.5	Solid	160-1854839	160-36789-B-28	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188714	12/26/19 07:01
160-36789	28	WRSB210_0-0.5	Solid	160-1854839	160-36789-B-28	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	29	WRSB210_0.5-3	Solid	160-1854840	160-36789-A-29	Soil jar 4oz	1-56	Harris, Kayla L	I	160-188966	12/31/19 08:02
160-36789	29	WRSB210_0.5-3	Solid	160-1854840	160-36789-A-29	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	29	WRSB210_0.5-3	Solid	160-1854840	160-36789-A-29	Soil jar 4oz	Pre-Prep	Harris, Kayla L	I	160-188950	12/30/19 18:52
160-36789	29	WRSB210_0.5-3	Solid	160-1854840	160-36789-A-29	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	29	WRSB210_0.5-3	Solid	160-1854841	160-36789-B-29	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188761	12/27/19 08:45
160-36789	29	WRSB210_0.5-3	Solid	160-1854841	160-36789-B-29	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188714	12/26/19 07:01
160-36789	29	WRSB210_0.5-3	Solid	160-1854841	160-36789-B-29	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	30	WRSB210_3-6	Solid	160-1854842	160-36789-A-30	Soil jar 4oz	1-56	Harris, Kayla L	I	160-188966	12/31/19 08:02
160-36789	30	WRSB210_3-6	Solid	160-1854842	160-36789-A-30	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	30	WRSB210_3-6	Solid	160-1854842	160-36789-A-30	Soil jar 4oz	Pre-Prep	Harris, Kayla L	I	160-188950	12/30/19 18:52
160-36789	30	WRSB210_3-6	Solid	160-1854842	160-36789-A-30	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	30	WRSB210_3-6	Solid	160-1854843	160-36789-B-30	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188761	12/27/19 08:45
160-36789	30	WRSB210_3-6	Solid	160-1854843	160-36789-B-30	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188714	12/26/19 07:01
160-36789	30	WRSB210_3-6	Solid	160-1854843	160-36789-B-30	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52
160-36789	31	WRSB210_6-15	Solid	160-1854844	160-36789-A-31	Soil jar 4oz	1-56	Harris, Kayla L	I	160-188966	12/31/19 08:02
160-36789	31	WRSB210_6-15	Solid	160-1854844	160-36789-A-31	Soil jar 4oz	1-56	Mazariegos, Leonel	I	160-188914	12/30/19 13:46
160-36789	31	WRSB210_6-15	Solid	160-1854844	160-36789-A-31	Soil jar 4oz	Pre-Prep	Harris, Kayla L	I	160-188950	12/30/19 18:52
160-36789	31	WRSB210_6-15	Solid	160-1854844	160-36789-A-31	Soil jar 4oz	METALS	Mazariegos, Leonel	I	160-188782	12/27/19 10:19
160-36789	31	WRSB210_6-15	Solid	160-1854845	160-36789-B-31	Plastic Bag - 1000g	Rad Cart	Chapman, Jessica	I	160-188761	12/27/19 08:45
160-36789	31	WRSB210_6-15	Solid	160-1854845	160-36789-B-31	Plastic Bag - 1000g	Pre-Prep	Chapman, Jessica	I	160-188714	12/26/19 07:01
160-36789	31	WRSB210_6-15	Solid	160-1854845	160-36789-B-31	Plastic Bag - 1000g	Pre-Prep	Howard, Molly N	I	160-188576	12/23/19 07:52

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455441 Batch Start Date: 12/27/19 11:27 Batch Analyst: Mazariegos, Leonel A

Batch Method: 3050B Batch End Date: 01/06/20 17:14

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	MPREP1-A 00004	MPREP1-B 00004	MPREP2 00022	PR_LCSSRM 00024
MB 160-455441/1		3050B, 6020A		0.5218 g	50 mL				
LCS 160-455441/2		3050B, 6020A		0.5450 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
LCSSRM 160-455441/3		3050B, 6020A		0.5434 g	50 mL				0.5434 g
160-36789-A-1	WRSB235_0-0.5	3050B, 6020A	T	0.5302 g	50 mL				
160-36789-A-2	WRSB235_0.5-3	3050B, 6020A	T	0.5637 g	50 mL				
160-36789-A-3	WRSB235_3-6	3050B, 6020A	T	0.5190 g	50 mL				
160-36789-A-4	WRSB235_6-15	3050B, 6020A	T	0.5252 g	50 mL				
160-36789-A-5	WRSB217_0-0.5	3050B, 6020A	T	0.5784 g	50 mL				
160-36789-A-6	WRSB217-FD_0-0.5	3050B, 6020A	T	0.5384 g	50 mL				
160-36789-A-7	WRSB217_0.5-3	3050B, 6020A	T	0.5350 g	50 mL				
160-36789-A-8	WRSB217_3-6	3050B, 6020A	T	0.5246 g	50 mL				
160-36789-A-9	WRSB217_6-15	3050B, 6020A	T	0.5848 g	50 mL				
160-36789-A-10	WRSB218_0-0.5	3050B, 6020A	T	0.5545 g	50 mL				
160-36789-A-11	WRSB218_0.5-3	3050B, 6020A	T	0.5147 g	50 mL				
160-36789-A-12	WRSB218-FD_0.5-3	3050B, 6020A	T	0.5579 g	50 mL				
160-36789-A-13	WRSB218_3-6	3050B, 6020A	T	0.5782 g	50 mL				
160-36789-A-13 DU	WRSB218_3-6	3050B, 6020A	T	0.5706 g	50 mL				
160-36789-A-13 MS	WRSB218_3-6	3050B, 6020A	T	0.5433 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
160-36789-A-13 MSD	WRSB218_3-6	3050B, 6020A	T	0.5488 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
160-36789-A-14	WRSB218_6-15	3050B, 6020A	T	0.5344 g	50 mL				
160-36789-A-15	WRSB229_0-0.5	3050B, 6020A	T	0.5223 g	50 mL				
160-36789-A-16	WRSB229_0.5-3	3050B, 6020A	T	0.5372 g	50 mL				
160-36789-A-17	WRSB229_3-6	3050B, 6020A	T	0.5456 g	50 mL				
160-36789-A-18	WRSB229_6-15	3050B, 6020A	T	0.5703 g	50 mL				
160-36789-A-19	WRSB211_0-0.5	3050B, 6020A	T	0.5751 g	50 mL				
160-36789-A-20	WRSB211_0.5-3	3050B, 6020A	T	0.5654 g	50 mL				

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455441 Batch Start Date: 12/27/19 11:27 Batch Analyst: Mazariegos, Leonel A

Batch Method: 3050B Batch End Date: 01/06/20 17:14

Batch Notes	
Balance ID	27150420
Blank Soil Lot Number	25438819
Temperature - Corrected - End	C9: 92.5 Degrees C
Temperature - Corrected - Start	E4: 93.1 Degrees C
Digestion End Time	01/06/2020 16:30
Digestion Start Time	01/06/2020 11:54
Digestion Unit ID	HOTBLOCK 1
Digestion Tube/Cup ID	344749-4653
Hydrogen Peroxide ID	1852964
Hydrochloric Acid ID	1843669
Nitric Acid ID	1843694, 1847195
Pipette/Syringe/Dispenser ID	MET-12
Analyst ID - Spike Analyst	LAM
Sufficient Volume for Batch QC	YES
Thermometer ID	160322347

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455442 Batch Start Date: 12/27/19 11:29 Batch Analyst: Mazariegos, Leonel A

Batch Method: 3050B Batch End Date: 01/06/20 17:14

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	MPREP1-A 00004	MPREP1-B 00004	MPREP2 00022	PR_LCSSRM 00024
MB 160-455442/1		3050B, 6020A		0.5462 g	50 mL				
LCS 160-455442/2		3050B, 6020A		0.5369 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
LCSSRM 160-455442/3		3050B, 6020A		0.5269 g	50 mL				0.5269 g
160-36789-A-21	WRSB211_3-6	3050B, 6020A	T	0.5153 g	50 mL				
160-36789-A-22	WRSB211-FD_3-6	3050B, 6020A	T	0.5328 g	50 mL				
160-36789-A-23	WRSB211_6-15	3050B, 6020A	T	0.5724 g	50 mL				
160-36789-A-24	WRSB209_0-0.5	3050B, 6020A	T	0.5451 g	50 mL				
160-36789-A-25	WRSB209_0.5-3	3050B, 6020A	T	0.5495 g	50 mL				
160-36789-A-26	WRSB209_3-6	3050B, 6020A	T	0.5171 g	50 mL				
160-36789-A-26 DU	WRSB209_3-6	3050B, 6020A	T	0.5655 g	50 mL				
160-36789-A-26 MS	WRSB209_3-6	3050B, 6020A	T	0.5399 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
160-36789-A-26 MSD	WRSB209_3-6	3050B, 6020A	T	0.5261 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
160-36789-A-27	WRSB209_6-15	3050B, 6020A	T	0.5409 g	50 mL				
160-36789-A-28	WRSB210_0-0.5	3050B, 6020A	T	0.5364 g	50 mL				
160-36789-A-29	WRSB210_0.5-3	3050B, 6020A	T	0.5406 g	50 mL				
160-36789-A-30	WRSB210_3-6	3050B, 6020A	T	0.5446 g	50 mL				
160-36789-A-31	WRSB210_6-15	3050B, 6020A	T	0.5266 g	50 mL				

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455442 Batch Start Date: 12/27/19 11:29 Batch Analyst: Mazariegos, Leonel A

Batch Method: 3050B Batch End Date: 01/06/20 17:14

Batch Notes	
Balance ID	27150420
Blank Soil Lot Number	25438819
Temperature - Corrected - End	C9: 92.5 Degrees C
Temperature - Corrected - Start	E4: 93.1 Degrees C
Digestion End Time	01/06/2020 16:30
Digestion Start Time	01/06/2020 11:54
Digestion Unit ID	HOTBLOCK 1
Digestion Tube/Cup ID	344749-4653
Hydrogen Peroxide ID	1852964
Hydrochloric Acid ID	1843669
Nitric Acid ID	1843694, 1847195
Pipette/Syringe/Dispenser ID	MET-12
Analyst ID - Spike Analyst	LAM
Sufficient Volume for Batch QC	YES
Thermometer ID	160322347

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455287 Batch Start Date: 12/26/19 10:25 Batch Analyst: Chapman, Jessica L

Batch Method: Moisture Batch End Date: 12/27/19 12:39

Lab Sample ID	Client Sample ID	Method Chain	Basis	DishWeight	SampleMassWet	SampleMassDry			
160-36788-B-36		Moisture	T	1.0337 g	11.4151 g	10.9442 g			
160-36788-B-36 DU		Moisture	T	1.0248 g	11.4657 g	11.0038 g			
160-36789-B-1	WRSB235_0-0.5	Moisture	T	1.2162 g	11.8269 g	11.0979 g			
160-36789-B-2	WRSB235_0.5-3	Moisture	T	1.1705 g	11.7226 g	11.1655 g			
160-36789-B-3	WRSB235_3-6	Moisture	T	1.0627 g	11.5250 g	10.9820 g			

Batch Notes	
Balance ID	0034150065
Date and Time Samples in Desiccator	12/27/2019 12:00
Date and Time Samples out of Desiccator	12/27/2019 12:15
Date samples were placed in the oven	12/26/2019
Oven Temp In	105 Degrees C
Time samples were place in the oven	13:23
Date samples were removed from oven	12/27/2019
Oven Temp Out	105 Degrees C
Time Samples were removed from oven	07:30
Oven ID	OD
Thermometer ID	A142186

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455316 Batch Start Date: 12/26/19 13:47 Batch Analyst: Chapman, Jessica L

Batch Method: Moisture Batch End Date: 12/27/19 12:42

Lab Sample ID	Client Sample ID	Method Chain	Basis	DishWeight	SampleMassWet	SampleMassDry			
160-36789-B-4	WRSB235_6-15	Moisture	T	1.0713 g	11.8329 g	11.3447 g			
160-36789-B-4 DU	WRSB235_6-15	Moisture	T	1.0797 g	11.1694 g	10.7062 g			
160-36789-B-5	WRSB217_0-0.5	Moisture	T	1.0416 g	11.4303 g	10.9626 g			
160-36789-B-6	WRSB217-FD_0-0.5	Moisture	T	1.0866 g	11.1030 g	10.6909 g			
160-36789-B-7	WRSB217_0.5-3	Moisture	T	1.0909 g	11.3299 g	10.9727 g			
160-36789-B-8	WRSB217_3-6	Moisture	T	1.1012 g	11.6071 g	11.2381 g			
160-36789-B-9	WRSB217_6-15	Moisture	T	1.0882 g	11.8053 g	11.2379 g			
160-36789-B-10	WRSB218_0-0.5	Moisture	T	1.0827 g	11.5550 g	10.8639 g			
160-36789-B-11	WRSB218_0.5-3	Moisture	T	1.0872 g	11.5445 g	11.0805 g			
160-36789-B-12	WRSB218-FD_0.5-3	Moisture	T	1.0873 g	11.7517 g	11.2715 g			
160-36789-B-13	WRSB218_3-6	Moisture	T	1.0968 g	11.3593 g	10.8736 g			
160-36789-B-14	WRSB218_6-15	Moisture	T	1.0863 g	11.6018 g	11.1198 g			
160-36789-B-15	WRSB229_0-0.5	Moisture	T	1.1367 g	11.2018 g	10.3654 g			
160-36789-B-16	WRSB229_0.5-3	Moisture	T	1.0814 g	11.5016 g	10.7796 g			
160-36789-B-17	WRSB229_3-6	Moisture	T	1.0876 g	11.3260 g	10.8172 g			
160-36789-B-18	WRSB229_6-15	Moisture	T	1.0985 g	11.5553 g	10.8712 g			
160-36789-B-19	WRSB211_0-0.5	Moisture	T	1.0666 g	11.3228 g	10.6301 g			
160-36789-B-20	WRSB211_0.5-3	Moisture	T	1.0929 g	11.3576 g	10.6799 g			
160-36789-B-21	WRSB211_3-6	Moisture	T	1.1049 g	11.6515 g	11.0243 g			
160-36789-B-22	WRSB211-FD_3-6	Moisture	T	1.0938 g	11.4082 g	10.7772 g			
160-36789-B-23	WRSB211_6-15	Moisture	T	1.0827 g	11.6154 g	10.8611 g			

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455316 Batch Start Date: 12/26/19 13:47 Batch Analyst: Chapman, Jessica L

Batch Method: Moisture Batch End Date: 12/27/19 12:42

Batch Notes	
Balance ID	0034150037
Date and Time Samples in Desiccator	12/27/2019 12:00
Date and Time Samples out of Desiccator	12/27/2019 12:15
Date samples were placed in the oven	12/26/2019
Oven Temp In	105 Degrees C
Time samples were place in the oven	14:42
Date samples were removed from oven	12/27/2019
Oven Temp Out	105 Degrees C
Time Samples were removed from oven	07:10
Oven ID	OE
Thermometer ID	A142186

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455689 Batch Start Date: 12/30/19 18:54 Batch Analyst: Harris, Kayla L

Batch Method: Moisture Batch End Date: 12/31/19 09:13

Lab Sample ID	Client Sample ID	Method Chain	Basis	DishWeight	SampleMassWet	SampleMassDry			
160-36789-A-24	WRSB209_0-0.5	Moisture	T	1.0983 g	10.0405 g	9.6162 g			
160-36789-A-24 DU	WRSB209_0-0.5	Moisture	T	1.0804 g	10.8611 g	10.3877 g			
160-36789-A-25	WRSB209_0.5-3	Moisture	T	1.1197 g	10.0007 g	9.5794 g			
160-36789-A-26	WRSB209_3-6	Moisture	T	1.0747 g	10.0016 g	9.6335 g			
160-36789-A-27	WRSB209_6-15	Moisture	T	1.0846 g	10.0092 g	9.5680 g			
160-36789-A-28	WRSB210_0-0.5	Moisture	T	1.0897 g	10.0036 g	9.4272 g			
160-36789-A-29	WRSB210_0.5-3	Moisture	T	1.0747 g	10.0031 g	9.6119 g			
160-36789-A-30	WRSB210_3-6	Moisture	T	1.0877 g	10.0020 g	9.5727 g			
160-36789-A-31	WRSB210_6-15	Moisture	T	1.1062 g	10.0014 g	9.6789 g			

Batch Notes	
Balance ID	0034150065
Date and Time Samples in Desiccator	12/31/2019 08:45
Date and Time Samples out of Desiccator	12/31/2019 09:00
Date samples were placed in the oven	12/30/2019
Oven Temp In	105 Degrees C
Time samples were place in the oven	19:52
Date samples were removed from oven	12/31/2019
Oven Temp Out	105 Degrees C
Time Samples were removed from oven	08:43
Oven ID	OB
Thermometer ID	A142186

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GAMMA SPECTROSCOPY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455482 Batch Start Date: 12/27/19 14:47 Batch Analyst: Harris, Kayla L

Batch Method: Fill_Geo-21 Batch End Date: 12/27/19 15:44

Lab Sample ID	Client Sample ID	Method Chain	Basis	TareWeight	GrossWeight	InitialAmount	IngDecDate1	IngDecDate3	Geometry
MB 160-455482/1		Fill_Geo-21, 901.1				291.18 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
LCS 160-455482/2		Fill_Geo-21, 901.1				341.9 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-1-A	WRSB235_0-0.5	Fill_Geo-21, 901.1	T	46.4 g	403.7 g	357.3 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-2-A	WRSB235_0.5-3	Fill_Geo-21, 901.1	T	46.7 g	425.5 g	378.8 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-3-A	WRSB235_3-6	Fill_Geo-21, 901.1	T	46.3 g	451.4 g	405.1 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-5-A	WRSB217_0-0.5	Fill_Geo-21, 901.1	T	46.6 g	471.6 g	425 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-6-A	WRSB217-FD_0-0.5	Fill_Geo-21, 901.1	T	46.5 g	468.1 g	421.6 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-7-A	WRSB217_0.5-3	Fill_Geo-21, 901.1	T	46.0 g	466.7 g	420.7 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-8-A	WRSB217_3-6	Fill_Geo-21, 901.1	T	46.2 g	435.7 g	389.5 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-9-A	WRSB217_6-15	Fill_Geo-21, 901.1	T	46.4 g	466.0 g	419.6 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-10-A	WRSB218_0-0.5	Fill_Geo-21, 901.1	T	46.2 g	410.3 g	364.1 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-11-A	WRSB218_0.5-3	Fill_Geo-21, 901.1	T	46.4 g	452.1 g	405.7 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-12-A	WRSB218-FD_0.5-3	Fill_Geo-21, 901.1	T	46.6 g	430.1 g	383.5 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-13-A	WRSB218_3-6	Fill_Geo-21, 901.1	T	46.2 g	397.0 g	350.8 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-A-13-A DU	WRSB218_3-6	Fill_Geo-21, 901.1	T	46.2 g	397.0 g	350.8000 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-14-A	WRSB218_6-15	Fill_Geo-21, 901.1	T	46.5 g	430.5 g	384 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-15-A	WRSB229_0-0.5	Fill_Geo-21, 901.1	T	46.8 g	448.2 g	401.4 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-16-A	WRSB229_0.5-3	Fill_Geo-21, 901.1	T	46.3 g	416.3 g	370 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-17-A	WRSB229_3-6	Fill_Geo-21, 901.1	T	46.4 g	420.7 g	374.3 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-18-A	WRSB229_6-15	Fill_Geo-21, 901.1	T	46.2 g	418.0 g	371.8 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-19-A	WRSB211_0-0.5	Fill_Geo-21, 901.1	T	46.0 g	394.5 g	348.5 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GAMMA SPECTROSCOPY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455482 Batch Start Date: 12/27/19 14:47 Batch Analyst: Harris, Kayla L

Batch Method: Fill_Geo-21 Batch End Date: 12/27/19 15:44

Lab Sample ID	Client Sample ID	Method Chain	Basis	TareWeight	GrossWeight	InitialAmount	IngDecDate1	IngDecDate3	Geometry
160-36789-B-20-A	WRSB211_0.5-3	Fill_Geo-21, 901.1	T	46.0 g	392.3 g	346.3 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-21-A	WRSB211_3-6	Fill_Geo-21, 901.1	T	46.3 g	409.4 g	363.1 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN

Lab Sample ID	Client Sample ID	Method Chain	Basis	Tuna Can LCS 00009					
MB 160-455482/1		Fill_Geo-21, 901.1							
LCS 160-455482/2		Fill_Geo-21, 901.1		# g					
160-36789-B-1-A	WRSB235_0-0.5	Fill_Geo-21, 901.1	T						
160-36789-B-2-A	WRSB235_0.5-3	Fill_Geo-21, 901.1	T						
160-36789-B-3-A	WRSB235_3-6	Fill_Geo-21, 901.1	T						
160-36789-B-5-A	WRSB217_0-0.5	Fill_Geo-21, 901.1	T						
160-36789-B-6-A	WRSB217-FD_0-0.5	Fill_Geo-21, 901.1	T						
160-36789-B-7-A	WRSB217_0.5-3	Fill_Geo-21, 901.1	T						
160-36789-B-8-A	WRSB217_3-6	Fill_Geo-21, 901.1	T						
160-36789-B-9-A	WRSB217_6-15	Fill_Geo-21, 901.1	T						
160-36789-B-10-A	WRSB218_0-0.5	Fill_Geo-21, 901.1	T						
160-36789-B-11-A	WRSB218_0.5-3	Fill_Geo-21, 901.1	T						
160-36789-B-12-A	WRSB218-FD_0.5-3	Fill_Geo-21, 901.1	T						
160-36789-B-13-A	WRSB218_3-6	Fill_Geo-21, 901.1	T						
160-36789-A-13-A DU	WRSB218_3-6	Fill_Geo-21, 901.1	T						
160-36789-B-14-A	WRSB218_6-15	Fill_Geo-21, 901.1	T						
160-36789-B-15-A	WRSB229_0-0.5	Fill_Geo-21, 901.1	T						

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GAMMA SPECTROSCOPY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455482 Batch Start Date: 12/27/19 14:47 Batch Analyst: Harris, Kayla L

Batch Method: Fill_Geo-21 Batch End Date: 12/27/19 15:44

Lab Sample ID	Client Sample ID	Method Chain	Basis	Tuna Can LCS 00009					
160-36789-B-16-A	WRSB229_0.5-3	Fill_Geo-21, 901.1	T						
160-36789-B-17-A	WRSB229_3-6	Fill_Geo-21, 901.1	T						
160-36789-B-18-A	WRSB229_6-15	Fill_Geo-21, 901.1	T						
160-36789-B-19-A	WRSB211_0-0.5	Fill_Geo-21, 901.1	T						
160-36789-B-20-A	WRSB211_0.5-3	Fill_Geo-21, 901.1	T						
160-36789-B-21-A	WRSB211_3-6	Fill_Geo-21, 901.1	T						

Batch Notes	
Balance ID	1121432711
SOP Number	ST-RC-0025

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GAMMA SPECTROSCOPY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455485 Batch Start Date: 12/27/19 15:50 Batch Analyst: Bernsen, Sarah C

Batch Method: Fill_Geo-21 Batch End Date: 12/27/19 16:12

Lab Sample ID	Client Sample ID	Method Chain	Basis	TareWeight	GrossWeight	InitialAmount	IngDecDate1	IngDecDate3	Geometry
MB 160-455485/1		Fill_Geo-21, 901.1				291.18 g	12/27/2019 16:12	01/17/2020 16:12	tuna can
LCS 160-455485/2		Fill_Geo-21, 901.1				341.9 g	12/27/2019 16:12	01/17/2020 16:12	tuna can
160-36789-B-22-A	WRSB211-FD_3-6	Fill_Geo-21, 901.1	T	46.3 g	408.6 g	362.3 g	12/27/2019 16:12	01/17/2020 16:12	tuna can
160-36789-B-23-A	WRSB211_6-15	Fill_Geo-21, 901.1	T	46.2 g	378.9 g	332.7 g	12/27/2019 16:12	01/17/2020 16:12	tuna can
160-36789-B-24-A	WRSB209_0-0.5	Fill_Geo-21, 901.1	T	46.6 g	399.9 g	353.3 g	12/27/2019 16:12	01/17/2020 16:12	tuna can
160-36789-B-25-A	WRSB209_0.5-3	Fill_Geo-21, 901.1	T	46.2 g	432.0 g	385.8 g	12/27/2019 16:12	01/17/2020 16:12	tuna can
160-36789-B-26-A	WRSB209_3-6	Fill_Geo-21, 901.1	T	46.0 g	417.2 g	371.2 g	12/27/2019 16:12	01/17/2020 16:12	tuna can
160-36789-A-26-A DU	WRSB209_3-6	Fill_Geo-21, 901.1	T	46.0 g	417.2 g	371.2 g	12/27/2019 16:12	01/17/2020 16:12	tuna can
160-36789-B-27-A	WRSB209_6-15	Fill_Geo-21, 901.1	T	46.5 g	438.2 g	391.7 g	12/27/2019 16:12	01/17/2020 16:12	tuna can
160-36789-B-28-A	WRSB210_0-0.5	Fill_Geo-21, 901.1	T	46.8 g	439.8 g	393 g	12/27/2019 16:12	01/17/2020 16:12	tuna can
160-36789-B-29-A	WRSB210_0.5-3	Fill_Geo-21, 901.1	T	46.3 g	447.0 g	400.7 g	12/27/2019 16:12	01/17/2020 16:12	tuna can
160-36789-B-30-A	WRSB210_3-6	Fill_Geo-21, 901.1	T	46.4 g	463.9 g	417.5 g	12/27/2019 16:12	01/17/2020 16:12	tuna can
160-36789-B-31-A	WRSB210_6-15	Fill_Geo-21, 901.1	T	46.6 g	490.2 g	443.6 g	12/27/2019 16:12	01/17/2020 16:12	tuna can

Lab Sample ID	Client Sample ID	Method Chain	Basis	Tuna Can LCS 00009					
MB 160-455485/1		Fill_Geo-21, 901.1							
LCS 160-455485/2		Fill_Geo-21, 901.1		# g					
160-36789-B-22-A	WRSB211-FD_3-6	Fill_Geo-21, 901.1	T						
160-36789-B-23-A	WRSB211_6-15	Fill_Geo-21, 901.1	T						
160-36789-B-24-A	WRSB209_0-0.5	Fill_Geo-21, 901.1	T						
160-36789-B-25-A	WRSB209_0.5-3	Fill_Geo-21, 901.1	T						

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GAMMA SPECTROSCOPY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455485 Batch Start Date: 12/27/19 15:50 Batch Analyst: Bernsen, Sarah C

Batch Method: Fill_Geo-21 Batch End Date: 12/27/19 16:12

Lab Sample ID	Client Sample ID	Method Chain	Basis	Tuna Can LCS 00009					
160-36789-B-26-A	WRSB209_3-6	Fill_Geo-21, 901.1	T						
160-36789-A-26-A DU	WRSB209_3-6	Fill_Geo-21, 901.1	T						
160-36789-B-27-A	WRSB209_6-15	Fill_Geo-21, 901.1	T						
160-36789-B-28-A	WRSB210_0-0.5	Fill_Geo-21, 901.1	T						
160-36789-B-29-A	WRSB210_0.5-3	Fill_Geo-21, 901.1	T						
160-36789-B-30-A	WRSB210_3-6	Fill_Geo-21, 901.1	T						
160-36789-B-31-A	WRSB210_6-15	Fill_Geo-21, 901.1	T						

Batch Notes	
Balance ID	1121432711
SOP Number	ST-RC-0003, ST-RC-0025

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GAMMA SPECTROSCOPY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455678 Batch Start Date: 12/30/19 15:30 Batch Analyst: Mazariegos, Chelsea M

Batch Method: Fill_Geo-21 Batch End Date: 12/30/19 15:40

Lab Sample ID	Client Sample ID	Method Chain	Basis	TareWeight	GrossWeight	InitialAmount	IngDecDate1	IngDecDate3	Geometry
MB 160-455678/1		Fill_Geo-21, 901.1				146.5 g	12/30/2019 15:39	01/20/2020 15:39	100mL solid
LCS 160-455678/2		Fill_Geo-21, 901.1				166.06 g	12/30/2019 15:39	01/20/2020 15:39	100mL solid
160-36789-A-4-B	WRSB235_6-15	Fill_Geo-21, 901.1	T	38.0 g	179.7 g	141.7 g	12/30/2019 15:39	01/20/2020 15:39	100mL solid
160-36789-A-4-B DU	WRSB235_6-15	Fill_Geo-21, 901.1	T	38.0 g	179.7 g	141.7 g	12/30/2019 15:39	01/20/2020 15:39	100mL solid

Lab Sample ID	Client Sample ID	Method Chain	Basis	100mLSolidLCS 00002					
MB 160-455678/1		Fill_Geo-21, 901.1							
LCS 160-455678/2		Fill_Geo-21, 901.1		# mL					
160-36789-A-4-B	WRSB235_6-15	Fill_Geo-21, 901.1	T						
160-36789-A-4-B DU	WRSB235_6-15	Fill_Geo-21, 901.1	T						

Batch Notes	
Balance ID	1121432711
SOP Number	ST-RC-0025

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

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GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, St. Louis Job Number: 160-36789-1

SDG No.:

Project: ACMS - Yerington OU-4B_OU-5_SOIL

Client Sample ID	Lab Sample ID
WRSB235_0-0.5	160-36789-1
WRSB235_0.5-3	160-36789-2
WRSB235_3-6	160-36789-3
WRSB235_6-15	160-36789-4
WRSB217_0-0.5	160-36789-5
WRSB217-FD_0-0.5	160-36789-6
WRSB217_0.5-3	160-36789-7
WRSB217_3-6	160-36789-8
WRSB217_6-15	160-36789-9
WRSB218_0-0.5	160-36789-10
WRSB218_0.5-3	160-36789-11
WRSB218-FD_0.5-3	160-36789-12
WRSB218_3-6	160-36789-13
WRSB218_6-15	160-36789-14
WRSB229_0-0.5	160-36789-15
WRSB229_0.5-3	160-36789-16
WRSB229_3-6	160-36789-17
WRSB229_6-15	160-36789-18
WRSB211_0-0.5	160-36789-19
WRSB211_0.5-3	160-36789-20
WRSB211_3-6	160-36789-21
WRSB211-FD_3-6	160-36789-22
WRSB211_6-15	160-36789-23
WRSB209_0-0.5	160-36789-24
WRSB209_0.5-3	160-36789-25
WRSB209_3-6	160-36789-26
WRSB209_6-15	160-36789-27
WRSB210_0-0.5	160-36789-28
WRSB210_0.5-3	160-36789-29
WRSB210_3-6	160-36789-30
WRSB210_6-15	160-36789-31

Comments:

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, St. Louis Job Number: 160-36789-1

SDG Number:

Matrix: Solid Instrument ID: NOEQUIP

Method: Moisture RL Date: 01/28/2011 14:43

Analyte	Wavelength/ Mass	RL (%)
Percent Moisture		0.1
Percent Solids		0.1

FORM IX - IN

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, St. Louis Job Number: 160-36789-1

SDG Number:

Matrix: Solid Instrument ID: NOEQUIP

Method: Moisture XRL Date: 01/28/2011 14:42

Analyte	Wavelength/ Mass	XRL (%)	
Percent Moisture		0.1	
Percent Solids		0.1	

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

Instrument ID: NOEQUIP Analysis Method: Moisture

Start Date: 12/26/2019 10:25 End Date: 12/26/2019 10:25

Lab Sample Id	D/F	Type	Time	% Sol	Moist	Analytes
ZZZZZZ			10:25			
160-36788-B-36 DU	1	T	10:25	X	X	
ZZZZZZ			10:25			
ZZZZZZ			10:25			
ZZZZZZ			10:25			
ZZZZZZ			10:25			
ZZZZZZ			10:25			
ZZZZZZ			10:25			
ZZZZZZ			10:25			
ZZZZZZ			10:25			
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ZZZZZZ			10:25			
ZZZZZZ			10:25			
ZZZZZZ			10:25			
ZZZZZZ			10:25			
ZZZZZZ			10:25			
160-36789-1	1	T	10:25	X	X	
160-36789-2	1	T	10:25	X	X	
160-36789-3	1	T	10:25	X	X	

Prep Types:
T = Total/NA

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

Instrument ID: NOEQUIP Analysis Method: Moisture

Start Date: 12/26/2019 13:47 End Date: 12/26/2019 13:47

Lab Sample Id	D/F	Type	Time	% Sol	Moist	Analytes
160-36789-4	1	T	13:47	X	X	
160-36789-4 DU	1	T	13:47	X	X	
160-36789-5	1	T	13:47	X	X	
160-36789-6	1	T	13:47	X	X	
160-36789-7	1	T	13:47	X	X	
160-36789-8	1	T	13:47	X	X	
160-36789-9	1	T	13:47	X	X	
160-36789-10	1	T	13:47	X	X	
160-36789-11	1	T	13:47	X	X	
160-36789-12	1	T	13:47	X	X	
160-36789-13	1	T	13:47	X	X	
160-36789-14	1	T	13:47	X	X	
160-36789-15	1	T	13:47	X	X	
160-36789-16	1	T	13:47	X	X	
160-36789-17	1	T	13:47	X	X	
160-36789-18	1	T	13:47	X	X	
160-36789-19	1	T	13:47	X	X	
160-36789-20	1	T	13:47	X	X	
160-36789-21	1	T	13:47	X	X	
160-36789-22	1	T	13:47	X	X	
160-36789-23	1	T	13:47	X	X	

Prep Types:
T = Total/NA

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

Instrument ID: NOEQUIP Analysis Method: Moisture

Start Date: 12/30/2019 18:54 End Date: 12/30/2019 18:54

Lab Sample Id	D/F	Type	Time	% Sol	Moist	Analytes
160-36789-24	1	T	18:54	X	X	
160-36789-24 DU	1	T	18:54	X	X	
160-36789-25	1	T	18:54	X	X	
160-36789-26	1	T	18:54	X	X	
160-36789-27	1	T	18:54	X	X	
160-36789-28	1	T	18:54	X	X	
160-36789-29	1	T	18:54	X	X	
160-36789-30	1	T	18:54	X	X	
160-36789-31	1	T	18:54	X	X	
ZZZZZZ			18:54			
ZZZZZZ			18:54			
ZZZZZZ			18:54			
ZZZZZZ			18:54			
ZZZZZZ			18:54			
ZZZZZZ			18:54			
ZZZZZZ			18:54			
ZZZZZZ			18:54			
ZZZZZZ			18:54			
ZZZZZZ			18:54			
ZZZZZZ			18:54			

Prep Types:
T = Total/NA

FORM XIII-IN

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455287 Batch Start Date: 12/26/19 10:25 Batch Analyst: Chapman, Jessica L

Batch Method: Moisture Batch End Date: 12/27/19 12:39

Lab Sample ID	Client Sample ID	Method Chain	Basis	DishWeight	SampleMassWet	SampleMassDry
160-36788-B-36 DU		Moisture	T	1.0248 g	11.4657 g	11.0038 g
160-36789-B-1	WRSB235_0-0.5	Moisture	T	1.2162 g	11.8269 g	11.0979 g
160-36789-B-2	WRSB235_0.5-3	Moisture	T	1.1705 g	11.7226 g	11.1655 g
160-36789-B-3	WRSB235_3-6	Moisture	T	1.0627 g	11.5250 g	10.9820 g

Batch Notes

Balance ID	0034150065
Date and Time Samples in Desiccator	12/27/2019 12:00
Date and Time Samples out of Desiccator	12/27/2019 12:15
Date samples were placed in the oven	12/26/2019
Oven Temp In	105 Degrees C
Time samples were place in the oven	13:23
Date samples were removed from oven	12/27/2019
Oven Temp Out	105 Degrees C
Time Samples were removed from oven	07:30
Oven ID	OD
Thermometer ID	A142186

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455316 Batch Start Date: 12/26/19 13:47 Batch Analyst: Chapman, Jessica L

Batch Method: Moisture Batch End Date: 12/27/19 12:42

Lab Sample ID	Client Sample ID	Method Chain	Basis	DishWeight	SampleMassWet	SampleMassDry
160-36789-B-4	WRSB235_6-15	Moisture	T	1.0713 g	11.8329 g	11.3447 g
160-36789-B-4 DU	WRSB235_6-15	Moisture	T	1.0797 g	11.1694 g	10.7062 g
160-36789-B-5	WRSB217_0-0.5	Moisture	T	1.0416 g	11.4303 g	10.9626 g
160-36789-B-6	WRSB217-FD_0-0.5	Moisture	T	1.0866 g	11.1030 g	10.6909 g
160-36789-B-7	WRSB217_0.5-3	Moisture	T	1.0909 g	11.3299 g	10.9727 g
160-36789-B-8	WRSB217_3-6	Moisture	T	1.1012 g	11.6071 g	11.2381 g
160-36789-B-9	WRSB217_6-15	Moisture	T	1.0882 g	11.8053 g	11.2379 g
160-36789-B-10	WRSB218_0-0.5	Moisture	T	1.0827 g	11.5550 g	10.8639 g
160-36789-B-11	WRSB218_0.5-3	Moisture	T	1.0872 g	11.5445 g	11.0805 g
160-36789-B-12	WRSB218-FD_0.5-3	Moisture	T	1.0873 g	11.7517 g	11.2715 g
160-36789-B-13	WRSB218_3-6	Moisture	T	1.0968 g	11.3593 g	10.8736 g
160-36789-B-14	WRSB218_6-15	Moisture	T	1.0863 g	11.6018 g	11.1198 g
160-36789-B-15	WRSB229_0-0.5	Moisture	T	1.1367 g	11.2018 g	10.3654 g
160-36789-B-16	WRSB229_0.5-3	Moisture	T	1.0814 g	11.5016 g	10.7796 g
160-36789-B-17	WRSB229_3-6	Moisture	T	1.0876 g	11.3260 g	10.8172 g
160-36789-B-18	WRSB229_6-15	Moisture	T	1.0985 g	11.5553 g	10.8712 g
160-36789-B-19	WRSB211_0-0.5	Moisture	T	1.0666 g	11.3228 g	10.6301 g
160-36789-B-20	WRSB211_0.5-3	Moisture	T	1.0929 g	11.3576 g	10.6799 g
160-36789-B-21	WRSB211_3-6	Moisture	T	1.1049 g	11.6515 g	11.0243 g
160-36789-B-22	WRSB211-FD_3-6	Moisture	T	1.0938 g	11.4082 g	10.7772 g
160-36789-B-23	WRSB211_6-15	Moisture	T	1.0827 g	11.6154 g	10.8611 g

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455316 Batch Start Date: 12/26/19 13:47 Batch Analyst: Chapman, Jessica L

Batch Method: Moisture Batch End Date: 12/27/19 12:42

Batch Notes	
Balance ID	0034150037
Date and Time Samples in Desiccator	12/27/2019 12:00
Date and Time Samples out of Desiccator	12/27/2019 12:15
Date samples were placed in the oven	12/26/2019
Oven Temp In	105 Degrees C
Time samples were place in the oven	14:42
Date samples were removed from oven	12/27/2019
Oven Temp Out	105 Degrees C
Time Samples were removed from oven	07:10
Oven ID	OE
Thermometer ID	A142186

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455689 Batch Start Date: 12/30/19 18:54 Batch Analyst: Harris, Kayla L

Batch Method: Moisture Batch End Date: 12/31/19 09:13

Lab Sample ID	Client Sample ID	Method Chain	Basis	DishWeight	SampleMassWet	SampleMassDry
160-36789-A-24	WRSB209_0-0.5	Moisture	T	1.0983 g	10.0405 g	9.6162 g
160-36789-A-24 DU	WRSB209_0-0.5	Moisture	T	1.0804 g	10.8611 g	10.3877 g
160-36789-A-25	WRSB209_0.5-3	Moisture	T	1.1197 g	10.0007 g	9.5794 g
160-36789-A-26	WRSB209_3-6	Moisture	T	1.0747 g	10.0016 g	9.6335 g
160-36789-A-27	WRSB209_6-15	Moisture	T	1.0846 g	10.0092 g	9.5680 g
160-36789-A-28	WRSB210_0-0.5	Moisture	T	1.0897 g	10.0036 g	9.4272 g
160-36789-A-29	WRSB210_0.5-3	Moisture	T	1.0747 g	10.0031 g	9.6119 g
160-36789-A-30	WRSB210_3-6	Moisture	T	1.0877 g	10.0020 g	9.5727 g
160-36789-A-31	WRSB210_6-15	Moisture	T	1.1062 g	10.0014 g	9.6789 g

Batch Notes

Balance ID	0034150065
Date and Time Samples in Desiccator	12/31/2019 08:45
Date and Time Samples out of Desiccator	12/31/2019 09:00
Date samples were placed in the oven	12/30/2019
Oven Temp In	105 Degrees C
Time samples were place in the oven	19:52
Date samples were removed from oven	12/31/2019
Oven Temp Out	105 Degrees C
Time Samples were removed from oven	08:43
Oven ID	OB
Thermometer ID	A142186

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

COVER PAGE
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job Number: 160-36789-1

SDG No.:

Project: ACMS - Yerington OU-4B_OU-5_SOIL

Client Sample ID	Lab Sample ID
WRSB235_0-0.5	160-36789-1
WRSB235_0.5-3	160-36789-2
WRSB235_3-6	160-36789-3
WRSB235_6-15	160-36789-4
WRSB217_0-0.5	160-36789-5
WRSB217-FD_0-0.5	160-36789-6
WRSB217_0.5-3	160-36789-7
WRSB217_3-6	160-36789-8
WRSB217_6-15	160-36789-9
WRSB218_0-0.5	160-36789-10
WRSB218_0.5-3	160-36789-11
WRSB218-FD_0.5-3	160-36789-12
WRSB218_3-6	160-36789-13
WRSB218_6-15	160-36789-14
WRSB229_0-0.5	160-36789-15
WRSB229_0.5-3	160-36789-16
WRSB229_3-6	160-36789-17
WRSB229_6-15	160-36789-18
WRSB211_0-0.5	160-36789-19
WRSB211_0.5-3	160-36789-20
WRSB211_3-6	160-36789-21
WRSB211-FD_3-6	160-36789-22
WRSB211_6-15	160-36789-23
WRSB209_0-0.5	160-36789-24
WRSB209_0.5-3	160-36789-25
WRSB209_3-6	160-36789-26
WRSB209_6-15	160-36789-27
WRSB210_0-0.5	160-36789-28
WRSB210_0.5-3	160-36789-29
WRSB210_3-6	160-36789-30
WRSB210_6-15	160-36789-31

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB235_0-0.5

Lab Sample ID: 160-36789-1

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/16/2019 14:37

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 93.1

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	11	0.20	0.091	mg/Kg			2	6020A
7440-61-1	Uranium	1.8	0.10	0.041	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB235_0.5-3

Lab Sample ID: 160-36789-2

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/16/2019 14:50

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 94.7

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	10	0.19	0.084	mg/Kg			2	6020A
7440-61-1	Uranium	1.5	0.094	0.037	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB235_3-6

Lab Sample ID: 160-36789-3

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/16/2019 15:01

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 94.8

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	7.4	0.20	0.091	mg/Kg			2	6020A
7440-61-1	Uranium	1.1	0.10	0.041	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB235_6-15

Lab Sample ID: 160-36789-4

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/16/2019 15:05

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 95.5

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	6.4	0.20	0.090	mg/Kg			2	6020A
7440-61-1	Uranium	1.1	0.10	0.040	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB217_0-0.5

Lab Sample ID: 160-36789-5

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/17/2019 08:42

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 95.5

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	5.4	0.18	0.081	mg/Kg			2	6020A
7440-61-1	Uranium	1.0	0.091	0.036	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB217-FD_0-0.5

Lab Sample ID: 160-36789-6

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/17/2019 08:47

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 95.9

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	6.6	0.19	0.087	mg/Kg			2	6020A
7440-61-1	Uranium	1.3	0.097	0.039	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB217_0.5-3

Lab Sample ID: 160-36789-7

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/17/2019 08:53

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 96.5

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	4.6	0.19	0.087	mg/Kg			2	6020A
7440-61-1	Uranium	1.0	0.097	0.039	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB217_3-6

Lab Sample ID: 160-36789-8

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/17/2019 09:04

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 96.5

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	6.3	0.20	0.089	mg/Kg			2	6020A
7440-61-1	Uranium	1.1	0.099	0.040	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB217_6-15

Lab Sample ID: 160-36789-9

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/17/2019 09:09

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 94.7

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	6.8	0.18	0.081	mg/Kg			2	6020A
7440-61-1	Uranium	1.2	0.090	0.036	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB218_0-0.5

Lab Sample ID: 160-36789-10

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/17/2019 14:32

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 93.4

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	7.7	0.19	0.087	mg/Kg			2	6020A
7440-61-1	Uranium	1.1	0.097	0.039	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB218_0.5-3

Lab Sample ID: 160-36789-11

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/17/2019 14:41

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 95.6

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	8.0	0.20	0.091	mg/Kg			2	6020A
7440-61-1	Uranium	1.2	0.10	0.041	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB218-FD_0.5-3

Lab Sample ID: 160-36789-12

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/17/2019 14:50

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 95.5

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	7.9	0.19	0.084	mg/Kg			2	6020A
7440-61-1	Uranium	1.2	0.094	0.038	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB218_3-6

Lab Sample ID: 160-36789-13

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/17/2019 15:04

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 95.3

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	9.4	0.18	0.082	mg/Kg			2	6020A
7440-61-1	Uranium	1.4	0.091	0.036	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB218_6-15

Lab Sample ID: 160-36789-14

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/17/2019 15:07

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 95.4

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	8.4	0.20	0.088	mg/Kg			2	6020A
7440-61-1	Uranium	1.4	0.098	0.039	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB229_0-0.5

Lab Sample ID: 160-36789-15

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/18/2019 09:19

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 91.7

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	8.9	0.21	0.094	mg/Kg			2	6020A
7440-61-1	Uranium	3.6	0.10	0.042 +	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB229_0.5-3

Lab Sample ID: 160-36789-16

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/18/2019 09:27

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 93.1

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	7.6	0.20	0.090	mg/Kg			2	6020A
7440-61-1	Uranium	3.7	0.10	0.040	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB229_3-6

Lab Sample ID: 160-36789-17

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/18/2019 09:39

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 95.0

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	12	0.19	0.087	mg/Kg			2	6020A
7440-61-1	Uranium	2.1	0.096	0.039	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB229_6-15

Lab Sample ID: 160-36789-18

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/18/2019 09:47

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 93.5

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	11	0.19	0.084	mg/Kg			2	6020A
7440-61-1	Uranium	2.7	0.094	0.038	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB211_0-0.5

Lab Sample ID: 160-36789-19

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/18/2019 10:41

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 93.2

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	9.8	0.19	0.084	mg/Kg			2	6020A
7440-61-1	Uranium	2.4	0.093	0.037	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB211_0.5-3

Lab Sample ID: 160-36789-20

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/18/2019 10:48

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 93.4

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	9.7	0.19	0.085	mg/Kg			2	6020A
7440-61-1	Uranium	2.0	0.095	0.038	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB211_3-6

Lab Sample ID: 160-36789-21

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/18/2019 10:59

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 94.1

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	11	0.21	0.093	mg/Kg			2	6020A
7440-61-1	Uranium	2.1	0.10	0.041	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB211-FD_3-6

Lab Sample ID: 160-36789-22

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/18/2019 11:03

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 93.9

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	9.8	0.20	0.090	mg/Kg			2	6020A
7440-61-1	Uranium	2.0	0.10	0.040	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB211_6-15

Lab Sample ID: 160-36789-23

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/18/2019 11:07

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 92.8

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	11	0.19	0.085	mg/Kg			2	6020A
7440-61-1	Uranium	2.6	0.094	0.038	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB209_0-0.5

Lab Sample ID: 160-36789-24

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/18/2019 12:10

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 95.3

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	6.4	0.19	0.087	mg/Kg			2	6020A
7440-61-1	Uranium	1.5	0.096	0.039	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB209_0.5-3

Lab Sample ID: 160-36789-25

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/18/2019 12:15

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 95.3

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	9.4	0.19	0.086	mg/Kg			2	6020A
7440-61-1	Uranium	3.2	0.096	0.038	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB209_3-6

Lab Sample ID: 160-36789-26

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/18/2019 12:52

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 95.9

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	8.1	0.20	0.091	mg/Kg			2	6020A
7440-61-1	Uranium	10	0.10	0.040	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB209_6-15

Lab Sample ID: 160-36789-27

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/18/2019 13:07

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 95.1

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	11	0.19	0.088	mg/Kg			2	6020A
7440-61-1	Uranium	12	0.097	0.039	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB210_0-0.5

Lab Sample ID: 160-36789-28

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/18/2019 14:05

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 93.5

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	9.3	0.20	0.090	mg/Kg			2	6020A
7440-61-1	Uranium	1.2	0.10	0.040	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB210_0.5-3

Lab Sample ID: 160-36789-29

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/18/2019 14:12

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 95.6

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	6.7	0.19	0.087	mg/Kg			2	6020A
7440-61-1	Uranium	1.1	0.097	0.039	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB210_3-6

Lab Sample ID: 160-36789-30

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/18/2019 14:22

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 95.2

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	6.3	0.19	0.087	mg/Kg			2	6020A
7440-61-1	Uranium	2.1	0.096	0.039	mg/Kg			2	6020A

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: WRSB210_6-15

Lab Sample ID: 160-36789-31

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG ID.:

Matrix: Solid

Date Sampled: 12/18/2019 14:36

Reporting Basis: DRY

Date Received: 12/20/2019 11:00

% Solids: 96.4

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-29-1	Thorium	6.9	0.20	0.089	mg/Kg			2	6020A
7440-61-1	Uranium	2.7	0.099	0.039	mg/Kg			2	6020A

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

ICV Source: MS A ICV_01088 Concentration Units: ug/L

CCV Source: MS A CAL1 LLC_00421

Analyte	ICV 160-456435/7 01/09/2020 23:44				CCVL 160-456435/24 01/10/2020 01:40				CCVL 160-456435/37 01/10/2020 03:07			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Thorium	97.6		100	98	1.99	J	2.00	99	1.87	J	2.00	93
Uranium	98.4		100	98	0.854	J	1.00	85	0.862	J	1.00	86

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

ICV Source: MS A ICV_01088 Concentration Units: ug/L

CCV Source: MS A CAL1 LLC_00421

Analyte	CCVL 160-456435/50 01/10/2020 04:35				CCVL 160-456435/63 01/10/2020 06:03				CCVL 160-456435/76 01/10/2020 07:31			
	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Thorium	1.78	J	2.00	89	1.68	J	2.00	84	1.76	J	2.00	88
Uranium	0.835	J	1.00	84	0.818	J	1.00	82	0.843	J	1.00	84

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

ICV Source: MS A ICV_01088 Concentration Units: ug/L

CCV Source: MS A CAL1 LLC_00421

CCVL 160-456435/82
01/10/2020 08:11

Analyte	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Thorium	1.74	J	2.00	87								
Uranium	0.840	J	1.00	84								

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

ICV Source: MS A ICV_01088 Concentration Units: ug/L

CCV Source: MS A CAL2 CCV_00378

	ICV 160-456435/7 01/09/2020 23:44				CCV 160-456435/12 01/10/2020 00:18				CCV 160-456435/25 01/10/2020 01:47			
Analyte	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Thorium	97.6		100	98	101		100	101	100		100	100
Uranium	98.4		100	98	100		100	100	99.4		100	99

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

ICV Source: MS A ICV_01088 Concentration Units: ug/L

CCV Source: MS A CAL2 CCV_00378

	CCV 160-456435/38 01/10/2020 03:14				CCV 160-456435/51 01/10/2020 04:42				CCV 160-456435/64 01/10/2020 06:09			
Analyte	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Thorium	97.9		100	98	98.1		100	98	95.2		100	95
Uranium	97.3		100	97	97.6		100	98	94.9		100	95

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

ICV Source: MS A ICV_01088 Concentration Units: ug/L

CCV Source: MS A CAL2 CCV_00378

	CCV 160-456435/77 01/10/2020 07:37				CCV 160-456435/83 01/10/2020 08:18							
Analyte	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Thorium	94.1		100	94	93.2		100	93				
Uranium	93.5		100	93	93.5		100	94				

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.
Italicized analytes were not requested for this sequence.

2B-IN
CRQL CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

Method: 6020A Instrument ID: ICPMS7700

Lab Sample ID: CRI 160-456435/9 Concentration Units: ug/L

CRQL Check Standard Source: MS A CAL1 LLC_00421

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Thorium	2.00	1.87	J	93	70-130
Uranium	1.00	0.859	J	86	70-130

Note! Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IIB-IN

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

Concentration Units: ug/L

Analyte	RL	ICB 160-456435/8 01/09/2020 23:51		CCB 160-456435/13 01/10/2020 00:25		CCB 160-456435/26 01/10/2020 01:53		CCB 160-456435/39 01/10/2020 03:21	
		Found	C	Found	C	Found	C	Found	C
Thorium	2.0	ND		ND		ND		ND	
Uranium	1.0	ND		ND		ND		ND	

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

Concentration Units: ug/L

		CCB 160-456435/52 01/10/2020 04:48		CCB 160-456435/65 01/10/2020 06:16		CCB 160-456435/78 01/10/2020 07:44		CCB 160-456435/84 01/10/2020 08:25	
Analyte	RL	Found	C	Found	C	Found	C	Found	C
Thorium	2.0	ND		ND		ND		ND	
Uranium	1.0	ND		ND		ND		ND	

Italicized analytes were not requested for this sequence.

3-IN
METHOD BLANK
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

Concentration Units: mg/Kg Lab Sample ID: MB 160-455441/1-A

Instrument Code: ICPMS7700 Batch No.: 456435

CAS No.	Analyte	Concentration	C	Q	Method
7440-29-1	Thorium	ND			6020A
7440-61-1	Uranium	ND			6020A

✓

FORM III-IN

3-IN
METHOD BLANK
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

Concentration Units: mg/Kg Lab Sample ID: MB 160-455442/1-A

Instrument Code: ICPMS7700 Batch No.: 456435

CAS No.	Analyte	Concentration	C	Q	Method
7440-29-1	Thorium	ND			6020A
7440-61-1	Uranium	ND			6020A

FORM III-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

Lab Sample ID: ICSA 160-456435/10 Instrument ID: ICPMS7700

Lab File ID: 083ICSA.D ICS Source: MS A ICSA_00330

Concentration Units: ug/L

Analyte	True Solution A	Found Solution A	Percent Recovery
Thorium		**0.0980**	
Uranium		**0.0020**	
Titanium	*2000*	*2038*	*102*

No eval

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

Lab Sample ID: ICSAB 160-456435/11 Instrument ID: ICPMS7700

Lab File ID: 084ICSB.D ICS Source: MS A ICSAB 00342

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Thorium	**50.0**	**53.8**	**108**
Uranium	**50.0**	**53.1**	**106**

No eval

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM IVA-IN

5A-IN
MATRIX SPIKE SAMPLE RECOVERY
METALS

Client ID: WRSB218_3-6 MS

Lab ID: 160-36789-13 MS

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG No.:

Matrix: Solid

Concentration Units: mg/Kg

% Solids: 95.3

Analyte	SSR	C	Sample Result (SR)	C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Thorium	102		9.4		96.6	96	75-125		6020A
Uranium	93.9		1.4		96.6	96	75-125		6020A

SSR = Spiked Sample Result

Calculations are performed before rounding to avoid round-off errors in calculated results.
Note - Results and Reporting Limits have been adjusted for dry weight.

FORM VA - IN

5A-IN
MATRIX SPIKE SAMPLE RECOVERY
METALS

Client ID: WRSB209_3-6 MS

Lab ID: 160-36789-26 MS

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG No.:

Matrix: Solid

Concentration Units: mg/Kg

% Solids: 95.9

Analyte	SSR C	Sample Result (SR) C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Thorium	102	8.1	96.6	97	75-125		6020A
Uranium	106	10	96.6	99	75-125		6020A

SSR = Spiked Sample Result

Calculations are performed before rounding to avoid round-off errors in calculated results.
Note - Results and Reporting Limits have been adjusted for dry weight.

FORM VA - IN

5A-IN
MATRIX SPIKE DUPLICATE SAMPLE RECOVERY
METALS

Client ID: WRSB218_3-6 MSD

Lab ID: 160-36789-13 MSD

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG No.:

Matrix: Solid

Concentration Units: mg/Kg

% Solids: 95.3

Analyte	(SDR) C	Spike Added (SA)	%R	Control Limit %R	RPD	RPD Limit	Q	Method
Thorium	103	95.6	98	75-125	1	30		6020A
Uranium	95.2	95.6	98	75-125	1	30		6020A

SDR = Sample Duplicate Result

Calculations are performed before rounding to avoid round-off errors in calculated results.
Note - Results and Reporting Limits have been adjusted for dry weight.

FORM VD - IN

5A-IN
MATRIX SPIKE DUPLICATE SAMPLE RECOVERY
METALS

Client ID: WRSB209_3-6 MSD

Lab ID: 160-36789-26 MSD

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG No.:

Matrix: Solid

Concentration Units: mg/Kg

% Solids: 95.9

Analyte	(SDR) C	Spike Added (SA)	%R	Control Limit %R	RPD	RPD Limit	Q	Method
Thorium	102	99.1	95	75-125	0	30		6020A
Uranium	105	99.1	96	75-125	1	30		6020A

SDR = Sample Duplicate Result

Calculations are performed before rounding to avoid round-off errors in calculated results.
Note - Results and Reporting Limits have been adjusted for dry weight.

FORM VD - IN

6-IN
DUPLICATES
METALS

Client ID: WRSB218 3-6 DU

Lab ID: 160-36789-13 DU

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG No.:

% Solids for Sample: 95.3

% Solids for Duplicate: 95.3

Matrix: Solid

Concentration Units: mg/Kg

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Thorium	0.18	9.4		9.68		3		6020A
Uranium	0.092	1.4		1.42		3		6020A

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VI-IN

6-IN
DUPLICATES
METALS

Client ID: WRSB209_3-6 DU

Lab ID: 160-36789-26 DU

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36789-1

SDG No.:

% Solids for Sample: 95.9

% Solids for Duplicate: 95.9

Matrix: Solid

Concentration Units: mg/Kg

Analyte	Control Limit	Sample (S)	C	Duplicate (D)	C	RPD	Q	Method
Thorium	0.18	8.1		6.01		29		6020A
Uranium	0.092	10		10.6		3		6020A

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VI-IN

LINEAR RANGE CHECK STANDARD
METALS -

Lab ID: LRC 160-456435/2

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

Sample Matrix: Solid LCS Source: MS LDR 2_00189

Analyte	Solid(ug/L)							
	True	Found	C	%R	Limits		Q	Method
Thorium	2000	2010		100	90	110		6020A
Uranium	2000	1970		98	90	110		6020A

Calculations are performed before rounding to avoid round-off errors in calculated results.

7A-IN
LAB CONTROL SAMPLE
METALS

Lab ID: LCS 160-455442/2-A

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

Sample Matrix: Solid LCS Source: MPREP1-A_00004

Analyte	Solid(mg/Kg)								
	True	Found	C	%R	Limits		Q	Method
Thorium	93.1	91.1		98	80	120		6020A

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

7A-IN
LCS-CERTIFIED REFERENCE MATERIAL
METALS

Lab ID: LCSSRM 160-455442/3-A

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

Sample Matrix: Solid LCS Source: PR_LCSSRM_00024

Analyte	Solid(mg/Kg)							
	True	Found	C	%R	Limits		Q	Method
Uranium	70.9	58.5		82.5	62.6	110.0		6020A

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

7A-IN
LAB CONTROL SAMPLE
METALS

Lab ID: LCS 160-455441/2-A

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

Sample Matrix: Solid LCS Source: MPREP1-A_00004

Solid(mg/Kg)

Analyte	True	Found	C	%R	Limits		Q	Method
Thorium	91.7	91.2		99	80	120		6020A

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

7A-IN
LCS-CERTIFIED REFERENCE MATERIAL
METALS

Lab ID: LCSSRM 160-455441/3-A

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

Sample Matrix: Solid LCS Source: PR_LCSSRM_00024

Analyte	Solid(mg/Kg)							
	True	Found	C	%R	Limits		Q	Method
Uranium	70.9	58.7		82.8	62.6	110.0		6020A

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIIA - IN

8-IN
ICP-AES AND ICP-MS SERIAL DILUTIONS
METALS

Lab ID: 160-36789-13

SDG No:

Lab Name: Eurofins TestAmerica, St. Louis Job No: 160-36789-1

Matrix: Solid Concentration Units: mg/Kg

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Method
Thorium	9.4		7.41		21	V	6020A
Uranium	1.4		1.27		NC		6020A

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIII-IN

8-IN
ICP-AES AND ICP-MS SERIAL DILUTIONS
METALS

Lab ID: 160-36789-26

SDG No:

Lab Name: Eurofins TestAmerica, St. Louis Job No: 160-36789-1

Matrix: Solid Concentration Units: mg/Kg

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference	Q	Method
Thorium	8.1		6.72		17	V	6020A
Uranium	10		8.56		17	V	6020A

Calculations are performed before rounding to avoid round-off errors in calculated results.

FORM VIII-IN

9-IN
DETECTION LIMITS
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job Number: 160-36789-1

SDG Number:

Matrix: Solid Instrument ID: ICPMS7700

Method: 6020A MDL Date: 05/14/2018 10:39

Prep Method: 3050B

Analyte	Wavelength/ Mass	RL (mg/Kg)	MDL (mg/Kg)
Thorium	232	0.2	0.09
Uranium	238	0.1	0.04

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job Number: 160-36789-1

SDG Number:

Matrix: Solid Instrument ID: ICPMS7700

Method: 6020A XMDL Date: 06/27/2019 14:00

Analyte	Wavelength/ Mass	XRL (ug/L)	XMDL (ug/L)
Thorium	232	2	0.9
Uranium	238	1	0.4

FORM IX - IN

11-IN
LINEAR RANGES
METALS

Lab Name: Eurofins TestAmerica, St. Loui Job No: 160-36789-1

SDG No.:

Instrument ID: ICPMS7700 Date: 08/05/2019 16:42

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	Method
Thorium		2000	6020A
Uranium		2000	6020A

12-IN
PREPARATION LOG
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

Prep Method: 3050B

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight (g)	Initial Volume	Final Volume (mL)
MB 160-455441/1-A	12/27/2019 11:27	455441	0.5218		50
LCS 160-455441/2-A	12/27/2019 11:27	455441	0.5450		50
LCSSRM 160-455441/3-A	12/27/2019 11:27	455441	0.5434		50
160-36789-1	12/27/2019 11:27	455441	0.5302		50
160-36789-2	12/27/2019 11:27	455441	0.5637		50
160-36789-3	12/27/2019 11:27	455441	0.5190		50
160-36789-4	12/27/2019 11:27	455441	0.5252		50
160-36789-5	12/27/2019 11:27	455441	0.5784		50
160-36789-6	12/27/2019 11:27	455441	0.5384		50
160-36789-7	12/27/2019 11:27	455441	0.5350		50
160-36789-8	12/27/2019 11:27	455441	0.5246		50
160-36789-9	12/27/2019 11:27	455441	0.5848		50
160-36789-10	12/27/2019 11:27	455441	0.5545		50
160-36789-11	12/27/2019 11:27	455441	0.5147		50
160-36789-12	12/27/2019 11:27	455441	0.5579		50
160-36789-13	12/27/2019 11:27	455441	0.5782		50
160-36789-13 DU	12/27/2019 11:27	455441	0.5706		50
160-36789-13 MS	12/27/2019 11:27	455441	0.5433		50
160-36789-13 MSD	12/27/2019 11:27	455441	0.5488		50
160-36789-14	12/27/2019 11:27	455441	0.5344		50
160-36789-15	12/27/2019 11:27	455441	0.5223		50
160-36789-16	12/27/2019 11:27	455441	0.5372		50
160-36789-17	12/27/2019 11:27	455441	0.5456		50
160-36789-18	12/27/2019 11:27	455441	0.5703		50
160-36789-19	12/27/2019 11:28	455441	0.5751		50
160-36789-20	12/27/2019 11:34	455441	0.5654		50

FORM XII-IN

12-IN
PREPARATION LOG
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

Prep Method: 3050B

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight (g)	Initial Volume	Final Volume (mL)
MB 160-455442/1-A	12/27/2019 11:29	455442	0.5462		50
LCS 160-455442/2-A	12/27/2019 11:29	455442	0.5369		50
LCSSRM 160-455442/3-A	12/27/2019 11:29	455442	0.5269		50
160-36789-21	12/27/2019 11:29	455442	0.5153		50
160-36789-22	12/27/2019 11:29	455442	0.5328		50
160-36789-23	12/27/2019 11:29	455442	0.5724		50
160-36789-24	12/27/2019 11:29	455442	0.5451		50
160-36789-25	12/27/2019 11:29	455442	0.5495		50
160-36789-26	12/27/2019 11:29	455442	0.5171		50
160-36789-26 DU	12/27/2019 11:29	455442	0.5655		50
160-36789-26 MS	12/27/2019 11:29	455442	0.5399		50
160-36789-26 MSD	12/27/2019 11:29	455442	0.5261		50
160-36789-27	12/27/2019 11:29	455442	0.5409		50
160-36789-28	12/27/2019 11:29	455442	0.5364		50
160-36789-29	12/27/2019 11:29	455442	0.5406		50
160-36789-30	12/27/2019 11:29	455442	0.5446		50
160-36789-31	12/27/2019 11:34	455442	0.5266		50

FORM XII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

Instrument ID: ICPMS7700 Analysis Method: 6020A

Start Date: 01/09/2020 16:06 End Date: 01/10/2020 08:25

Lab Sample Id	D/F	Type	Time	Analytes Th	Analytes U
LRC 160-456435/1			16:06		
LRC 160-456435/2	1		16:13	X	X
ICIS 160-456435/3			23:17	X	X
IC 160-456435/4	1		23:24	X	X
IC 160-456435/5	1		23:31	X	X
IC 160-456435/6	1		23:38	X	X
ICV 160-456435/7	1		23:44	X	X
ICB 160-456435/8	1		23:51	X	X
CRI 160-456435/9	1		23:58	X	X
ICSA 160-456435/10	1		00:05	X	X
ICSAB 160-456435/11	1		00:12	X	X
CCV 160-456435/12	1		00:18	X	X
CCB 160-456435/13	1		00:25	X	X
ZZZZZZ			00:33		
ZZZZZZ			00:39		
ZZZZZZ			00:46		
ZZZZZZ			00:53		
ZZZZZZ			01:00		
ZZZZZZ			01:06		
ZZZZZZ			01:13		
ZZZZZZ			01:20		
MB 160-455442/1-A	2	T	01:26	X	X
LCS 160-455442/2-A	2	T	01:33	X	
CCVL 160-456435/24	1		01:40	X	X
CCV 160-456435/25	1		01:47	X	X
CCB 160-456435/26	1		01:53	X	X
LCSSRM 160-455442/3-A	10	T	02:00		X
160-36789-21	2	T	02:07	X	X
160-36789-22	2	T	02:13	X	X
160-36789-23	2	T	02:20	X	X
160-36789-24	2	T	02:27	X	X
160-36789-25	2	T	02:34	X	X
160-36789-26	2	T	02:40	X	X
160-36789-26 SD	10	T	02:47	X	X
160-36789-26 DU	2	T	02:54	X	X
160-36789-26 MS	2	T	03:01	X	X
CCVL 160-456435/37	1		03:07	X	X
CCV 160-456435/38	1		03:14	X	X
CCB 160-456435/39	1		03:21	X	X
160-36789-26 MSD	2	T	03:28	X	X
160-36789-27	2	T	03:34	X	X
160-36789-28	2	T	03:41	X	X

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

Instrument ID: ICPMS7700 Analysis Method: 6020A

Start Date: 01/09/2020 16:06 End Date: 01/10/2020 08:25

Lab Sample Id	D/F	Type	Time	Th	U	Analytes
160-36789-29	2	T	03:48	X	X	
160-36789-30	2	T	03:55	X	X	
160-36789-31	2	T	04:01	X	X	
MB 160-455441/1-A	2	T	04:08	X	X	
LCS 160-455441/2-A	2	T	04:15	X		
LCSSRM 160-455441/3-A	10	T	04:22		X	
160-36789-1	2	T	04:28	X	X	
CCVL 160-456435/50	1		04:35	X	X	
CCV 160-456435/51	1		04:42	X	X	
CCB 160-456435/52	1		04:48	X	X	
160-36789-2	2	T	04:55	X	X	
160-36789-3	2	T	05:02	X	X	
160-36789-4	2	T	05:09	X	X	
160-36789-5	2	T	05:15	X	X	
160-36789-6	2	T	05:22	X	X	
160-36789-7	2	T	05:29	X	X	
160-36789-8	2	T	05:36	X	X	
160-36789-9	2	T	05:42	X	X	
160-36789-10	2	T	05:49	X	X	
160-36789-11	2	T	05:56	X	X	
CCVL 160-456435/63	1		06:03	X	X	
CCV 160-456435/64	1		06:09	X	X	
CCB 160-456435/65	1		06:16	X	X	
160-36789-12	2	T	06:23	X	X	
160-36789-13	2	T	06:30	X	X	
160-36789-13 SD	10	T	06:36	X	X	
160-36789-13 DU	2	T	06:43	X	X	
160-36789-13 MS	2	T	06:50	X	X	
160-36789-13 MSD	2	T	06:57	X	X	
160-36789-14	2	T	07:03	X	X	
160-36789-15	2	T	07:10	X	X	
160-36789-16	2	T	07:17	X	X	
160-36789-17	2	T	07:24	X	X	
CCVL 160-456435/76	1		07:31	X	X	
CCV 160-456435/77	1		07:37	X	X	
CCB 160-456435/78	1		07:44	X	X	
160-36789-18	2	T	07:51	X	X	
160-36789-19	2	T	07:58	X	X	
160-36789-20	2	T	08:04	X	X	
CCVL 160-456435/82	1		08:11	X	X	
CCV 160-456435/83	1		08:18	X	X	
CCB 160-456435/84	1		08:25	X	X	

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

Instrument ID: ICPMS7700 Analysis Method: 6020A

Start Date: 01/09/2020 16:06 End Date: 01/10/2020 08:25

Lab Sample Id	D/F	Type	Time	Th	U	Analytes

Prep Types:
T = Total/NA

FORM XIII-IN

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

ICP-MS Instrument ID: ICPMS7700 Start Date: 01/09/2020 End Date: 01/10/2020

Lab Sample ID	Time	Internal Standards %RI For: Element In	Q	Element Ho/2	Q	Element Ho/3	Q	Element Ir/2	Q	Element Ir/3	Q
LRC 160-456435/2	16:13	89		94		94		85		87	
IC 160-456435/4	23:24	102		100		102		99		102	
IC 160-456435/5	23:31	107		101		109		102		108	
IC 160-456435/6	23:38	110		102		115		100		113	
ICV 160-456435/7	23:44	109		103		111		102		111	
ICB 160-456435/8	23:51	106		100		106		100		107	
CRI 160-456435/9	23:58	108		102		109		102		109	
ICSA 160-456435/10	00:05	88		93		95		86		89	
ICSAB 160-456435/11	00:12	85		94		92		85		86	
CCV 160-456435/12	00:18	95		97		97		96		96	
CCB 160-456435/13	00:25	101		100		101		99		101	
MB 160-455442/1-A	01:26	98		95		98		95		98	
LCS 160-455442/2-A	01:33	92		96		95		92		93	
CCVL 160-456435/24	01:40	97		95		97		96		97	
CCV 160-456435/25	01:47	99		97		100		97		100	
CCB 160-456435/26	01:53	100		98		100		98		100	
LCSSRM 160-455442/3-A	02:00	94		98		98		95		96	
160-36789-21	02:07	90		95		93		90		90	
160-36789-22	02:13	95		98		99		93		94	
160-36789-23	02:20	92		96		96		90		91	
160-36789-24	02:27	95		95		99		90		95	
160-36789-25	02:34	95		95		99		91		95	
160-36789-26	02:40	99		98		102		93		97	
160-36789-26 SD	02:47	99		98		100		95		98	
160-36789-26 DU	02:54	95		98		99		91		95	
160-36789-26 MS	03:01	85		92		90		85		84	
CCVL 160-456435/37	03:07	91		92		90		92		90	
CCV 160-456435/38	03:14	91		94		91		92		90	
CCB 160-456435/39	03:21	94		96		93		95		94	
160-36789-26 MSD	03:28	87		90		93		83		87	
160-36789-27	03:34	89		93		91		88		87	
160-36789-28	03:41	92		94		95		88		90	
160-36789-29	03:48	90		93		94		88		89	
160-36789-30	03:55	86		92		90		85		85	
160-36789-31	04:01	86		87		89		83		84	
MB 160-455441/1-A	04:08	91		90		91		91		90	
LCS 160-455441/2-A	04:15	84		86		85		83		83	
LCSSRM 160-455441/3-A	04:22	87		90		89		86		87	
160-36789-1	04:28	84		89		86		85		82	
CCVL 160-456435/50	04:35	93		92		92		91		91	
CCV 160-456435/51	04:42	90		96		90		95		89	

FORM XV - IN

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

ICP-MS Instrument ID: ICPMS7700 Start Date: 01/09/2020 End Date: 01/10/2020

Internal Standards %RI For:

Lab Sample ID	Time	Element In	Q	Element Ho/2	Q	Element Ho/3	Q	Element Ir/2	Q	Element Ir/3	Q
CCB 160-456435/52	04:48	89		93		88		93		88	
160-36789-2	04:55	88		93		91		88		87	
160-36789-3	05:02	91		96		94		91		89	
160-36789-4	05:09	91		95		94		90		89	
160-36789-5	05:15	99		93		102		88		97	
160-36789-6	05:22	95		97		98		91		94	
160-36789-7	05:29	97		98		99		93		94	
160-36789-8	05:36	88		92		90		87		86	
160-36789-9	05:42	86		89		87		84		83	
160-36789-10	05:49	92		96		94		90		89	
160-36789-11	05:56	94		98		96		92		90	
CCVL 160-456435/63	06:03	102		98		100		96		98	
CCV 160-456435/64	06:09	96		93		95		91		93	
CCB 160-456435/65	06:16	97		98		95		96		94	
160-36789-12	06:23	91		94		92		88		88	
160-36789-13	06:30	89		93		91		87		87	
160-36789-13 SD	06:36	97		97		96		93		94	
160-36789-13 DU	06:43	84		91		86		85		82	
160-36789-13 MS	06:50	83		93		86		85		81	
160-36789-13 MSD	06:57	78		90		81		82		77	
160-36789-14	07:03	79		90		81		85		77	
160-36789-15	07:10	86		90		89		88		84	
160-36789-16	07:17	83		88		87		84		82	
160-36789-17	07:24	86		89		89		85		84	
CCVL 160-456435/76	07:31	93		94		92		93		90	
CCV 160-456435/77	07:37	91		96		91		95		88	
CCB 160-456435/78	07:44	91		91		90		92		89	
160-36789-18	07:51	81		91		84		85		79	
160-36789-19	07:58	83		92		85		86		80	
160-36789-20	08:04	78		89		79		84		75	
CCVL 160-456435/82	08:11	82		89		79		87		78	
CCV 160-456435/83	08:18	84		90		82		88		80	
CCB 160-456435/84	08:25	81		86		79		86		78	

FORM XV - IN

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

ICP-MS Instrument ID: ICPMS7700 Start Date: 01/09/2020 End Date: 01/10/2020

Internal Standards %RI For:

Lab Sample ID	Time	Element	Q	Element Sc/2	Q	Element Sc/3	Q	Element Ge/2	Q	Element Ge/3	Q
LRC 160-456435/2	16:13			120		102		105		97	
IC 160-456435/4	23:24	108		97		99		99		101	
IC 160-456435/5	23:31	116		98		104		104		108	
IC 160-456435/6	23:38	122		102		108		110		114	
ICV 160-456435/7	23:44	119		104		108		108		111	
ICB 160-456435/8	23:51	112		102		106		103		107	
CRI 160-456435/9	23:58	119		104		106		104		108	
ICSA 160-456435/10	00:05	92		94		94		92		92	
ICSAB 160-456435/11	00:12	89		96		92		94		89	
CCV 160-456435/12	00:18	102		93		92		100		96	
CCB 160-456435/13	00:25	104		100		99		100		100	
MB 160-455442/1-A	01:26	103		94		95		97		99	
LCS 160-455442/2-A	01:33	97		93		90		93		92	
CCVL 160-456435/24	01:40	102		90		92		94		95	
CCV 160-456435/25	01:47	104		93		93		99		98	
CCB 160-456435/26	01:53	103		97		97		98		99	
LCSSRM 160-455442/3-A	02:00	85		99		99		94		94	
160-36789-21	02:07	90		137		133		99		94	
160-36789-22	02:13	95						101		98	
160-36789-23	02:20	92						99		96	
160-36789-24	02:27	97		127		130		97		98	
160-36789-25	02:34	98		124		126		101		100	
160-36789-26	02:40	100		122		124		103		103	
160-36789-26 SD	02:47	102		105		105		102		101	
160-36789-26 DU	02:54	95		117		117		103		100	
160-36789-26 MS	03:01	83		118		113		94		90	
CCVL 160-456435/37	03:07	94		92		90		93		90	
CCV 160-456435/38	03:14	90		92		90		97		92	
CCB 160-456435/39	03:21	93		94		93		95		92	
160-36789-26 MSD	03:28	84		115		114		91		90	
160-36789-27	03:34	88		103		103		96		93	
160-36789-28	03:41	88		127		126		96		95	
160-36789-29	03:48	87		120		122		96		95	
160-36789-30	03:55	83		120		119		93		91	
160-36789-31	04:01	85		108		111		88		88	
MB 160-455441/1-A	04:08	94		85		87		90		91	
LCS 160-455441/2-A	04:15	84		84		82		86		85	
LCSSRM 160-455441/3-A	04:22			93		95		89		89	
160-36789-1	04:28	78		131		131		91		87	
CCVL 160-456435/50	04:35	91		90		91		91		90	
CCV 160-456435/51	04:42	87		93		88		98		91	

FORM XV - IN

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36789-1

SDG No.:

ICP-MS Instrument ID: ICPMS7700 Start Date: 01/09/2020 End Date: 01/10/2020

Lab Sample ID	Time	Internal Standards %RI For: Element Li-6	Q	Element Sc/2	Q	Element Sc/3	Q	Element Ge/2	Q	Element Ge/3	Q
CCB 160-456435/52	04:48	87		88		86		90		87	
160-36789-2	04:55	84		128		129		93		92	
160-36789-3	05:02	82		128		129		98		94	
160-36789-4	05:09	86		129		127		98		94	
160-36789-5	05:15	92		122		131		96		99	
160-36789-6	05:22	91		125		126		99		98	
160-36789-7	05:29	92		123		125		99		99	
160-36789-8	05:36	85		121		120		95		93	
160-36789-9	05:42	80		131		127		95		91	
160-36789-10	05:49	84		132		131		97		95	
160-36789-11	05:56	85		130		128		99		96	
CCVL 160-456435/63	06:03	96		101		101		101		101	
CCV 160-456435/64	06:09	87		91		94		99		96	
CCB 160-456435/65	06:16	90		96		95		97		95	
160-36789-12	06:23	84		130		130		95		93	
160-36789-13	06:30	82		127		126		96		93	
160-36789-13 SD	06:36	89		105		105		99		98	
160-36789-13 DU	06:43	79		124		120		94		89	
160-36789-13 MS	06:50	74		133		123		93		86	
160-36789-13 MSD	06:57	71		128		119		88		82	
160-36789-14	07:03	71		117		113		89		82	
160-36789-15	07:10	80		95		97		86		85	
160-36789-16	07:17	78		111		109		85		83	
160-36789-17	07:24	76		120		121		87		86	
CCVL 160-456435/76	07:31	85		86		87		89		89	
CCV 160-456435/77	07:37	81		88		86		95		90	
CCB 160-456435/78	07:44	83		86		86		88		88	
160-36789-18	07:51	71		119		114		86		81	
160-36789-19	07:58	73		125		121		91		86	
160-36789-20	08:04			124		117		88		80	
CCVL 160-456435/82	08:11	74		84		79		87		81	
CCV 160-456435/83	08:18	72		84		80		90		83	
CCB 160-456435/84	08:25	71		81		78		84		78	

FORM XV - IN

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455441 Batch Start Date: 12/27/19 11:27 Batch Analyst: Mazariegos, Leonel A

Batch Method: 3050B Batch End Date: 01/06/20 17:14

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	MPREP1-A 00004	MPREP1-B 00004	MPREP2 00022	PR_LCSSRM 00024
MB 160-455441/1		3050B, 6020A		0.5218 g	50 mL				
LCS 160-455441/2		3050B, 6020A		0.5450 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
LCSSRM 160-455441/3		3050B, 6020A		0.5434 g	50 mL				0.5434 g
160-36789-A-1	WRSB235_0-0.5	3050B, 6020A	T	0.5302 g	50 mL				
160-36789-A-2	WRSB235_0.5-3	3050B, 6020A	T	0.5637 g	50 mL				
160-36789-A-3	WRSB235_3-6	3050B, 6020A	T	0.5190 g	50 mL				
160-36789-A-4	WRSB235_6-15	3050B, 6020A	T	0.5252 g	50 mL				
160-36789-A-5	WRSB217_0-0.5	3050B, 6020A	T	0.5784 g	50 mL				
160-36789-A-6	WRSB217-FD_0-0.5	3050B, 6020A	T	0.5384 g	50 mL				
160-36789-A-7	WRSB217_0.5-3	3050B, 6020A	T	0.5350 g	50 mL				
160-36789-A-8	WRSB217_3-6	3050B, 6020A	T	0.5246 g	50 mL				
160-36789-A-9	WRSB217_6-15	3050B, 6020A	T	0.5848 g	50 mL				
160-36789-A-10	WRSB218_0-0.5	3050B, 6020A	T	0.5545 g	50 mL				
160-36789-A-11	WRSB218_0.5-3	3050B, 6020A	T	0.5147 g	50 mL				
160-36789-A-12	WRSB218-FD_0.5-3	3050B, 6020A	T	0.5579 g	50 mL				
160-36789-A-13	WRSB218_3-6	3050B, 6020A	T	0.5782 g	50 mL				
160-36789-A-13 DU	WRSB218_3-6	3050B, 6020A	T	0.5706 g	50 mL				
160-36789-A-13 MS	WRSB218_3-6	3050B, 6020A	T	0.5433 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
160-36789-A-13 MSD	WRSB218_3-6	3050B, 6020A	T	0.5488 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
160-36789-A-14	WRSB218_6-15	3050B, 6020A	T	0.5344 g	50 mL				
160-36789-A-15	WRSB229_0-0.5	3050B, 6020A	T	0.5223 g	50 mL				
160-36789-A-16	WRSB229_0.5-3	3050B, 6020A	T	0.5372 g	50 mL				
160-36789-A-17	WRSB229_3-6	3050B, 6020A	T	0.5456 g	50 mL				
160-36789-A-18	WRSB229_6-15	3050B, 6020A	T	0.5703 g	50 mL				
160-36789-A-19	WRSB211_0-0.5	3050B, 6020A	T	0.5751 g	50 mL				
160-36789-A-20	WRSB211_0.5-3	3050B, 6020A	T	0.5654 g	50 mL				

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455441 Batch Start Date: 12/27/19 11:27 Batch Analyst: Mazariegos, Leonel A

Batch Method: 3050B Batch End Date: 01/06/20 17:14

	Batch Notes
Balance ID	27150420
Blank Soil Lot Number	25438819
Temperature - Corrected - End	C9: 92.5 Degrees C
Temperature - Corrected - Start	E4: 93.1 Degrees C
Digestion End Time	01/06/2020 16:30
Digestion Start Time	01/06/2020 11:54
Digestion Unit ID	HOTBLOCK 1
Digestion Tube/Cup ID	344749-4653
Hydrogen Peroxide ID	1852964
Hydrochloric Acid ID	1843669
Nitric Acid ID	1843694, 1847195
Pipette/Syringe/Dispenser ID	MET-12
Analyst ID - Spike Analyst	LAM
Sufficient Volume for Batch QC	YES
Thermometer ID	160322347

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455442 Batch Start Date: 12/27/19 11:29 Batch Analyst: Mazariegos, Leonel A

Batch Method: 3050B Batch End Date: 01/06/20 17:14

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	MPREP1-A 00004	MPREP1-B 00004	MPREP2 00022	PR_LCSSRM 00024
MB 160-455442/1		3050B, 6020A		0.5462 g	50 mL				
LCS 160-455442/2		3050B, 6020A		0.5369 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
LCSSRM 160-455442/3		3050B, 6020A		0.5269 g	50 mL				0.5269 g
160-36789-A-21	WRSB211_3-6	3050B, 6020A	T	0.5153 g	50 mL				
160-36789-A-22	WRSB211-FD_3-6	3050B, 6020A	T	0.5328 g	50 mL				
160-36789-A-23	WRSB211_6-15	3050B, 6020A	T	0.5724 g	50 mL				
160-36789-A-24	WRSB209_0-0.5	3050B, 6020A	T	0.5451 g	50 mL				
160-36789-A-25	WRSB209_0.5-3	3050B, 6020A	T	0.5495 g	50 mL				
160-36789-A-26	WRSB209_3-6	3050B, 6020A	T	0.5171 g	50 mL				
160-36789-A-26 DU	WRSB209_3-6	3050B, 6020A	T	0.5655 g	50 mL				
160-36789-A-26 MS	WRSB209_3-6	3050B, 6020A	T	0.5399 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
160-36789-A-26 MSD	WRSB209_3-6	3050B, 6020A	T	0.5261 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
160-36789-A-27	WRSB209_6-15	3050B, 6020A	T	0.5409 g	50 mL				
160-36789-A-28	WRSB210_0-0.5	3050B, 6020A	T	0.5364 g	50 mL				
160-36789-A-29	WRSB210_0.5-3	3050B, 6020A	T	0.5406 g	50 mL				
160-36789-A-30	WRSB210_3-6	3050B, 6020A	T	0.5446 g	50 mL				
160-36789-A-31	WRSB210_6-15	3050B, 6020A	T	0.5266 g	50 mL				

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455442 Batch Start Date: 12/27/19 11:29 Batch Analyst: Mazariegos, Leonel A

Batch Method: 3050B Batch End Date: 01/06/20 17:14

Batch Notes	
Balance ID	27150420
Blank Soil Lot Number	25438819
Temperature - Corrected - End	C9: 92.5 Degrees C
Temperature - Corrected - Start	E4: 93.1 Degrees C
Digestion End Time	01/06/2020 16:30
Digestion Start Time	01/06/2020 11:54
Digestion Unit ID	HOTBLOCK 1
Digestion Tube/Cup ID	344749-4653
Hydrogen Peroxide ID	1852964
Hydrochloric Acid ID	1843669
Nitric Acid ID	1843694, 1847195
Pipette/Syringe/Dispenser ID	MET-12
Analyst ID - Spike Analyst	LAM
Sufficient Volume for Batch QC	YES
Thermometer ID	160322347

Basis	Basis Description
T	Total/NA

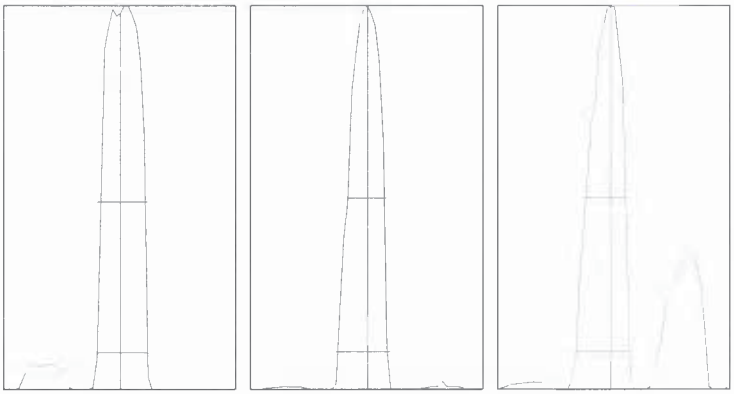
The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Tune Report

Tune File : autotune.u
Comment :

Integration Time:	0.1000 sec	
Sampling Period:	0.3100 sec	
n:	200	
Oxide:	156/140	0.636%
Doubly Charged:	70/140	1.185%

m/z	Range	Count	Mean	RSD%	Background
7	20,000	10745.0	11071.4	4.96	1.10
89	100,000	71035.0	69910.9	2.10	2.20
205	50,000	39606.0	40744.7	2.06	8.10



m/z:	7	89	205
Height:	10,796	69,983	40,485
Axis:	7.05	89.05	205.00
W-50%:	0.65	0.50	0.55
W-10%:	0.6500	0.700	0.700

Integration Time:	0.1000 sec
Acquisition Time:	22.7600 sec

Y axis : Linear

Tune Report

Tune File : autotune.u
Comment :

Tuning Parameters

===Plasma Condition===			===Ion Lenses===			===Q-Pole Parameters===		
RF Power	:	1550 W	Extract 1	:	0 V	AMU Gain	:	118
RF Matching	:	1.5 V	Extract 2	:	-150 V	AMU Offset	:	128
Smpl Depth	:	8 mm	Omega Bias	:	-75 V	Axis Gain	:	0.998
Torch-H	:	0.2 mm	Omega Lens	:	7 V	Axis Offset	:	0.11
Torch-V	:	0 mm	Cell Entrance	:	-30 V	QP Bias	:	-3 V
Carrier Gas	:	0.55 L/min	Cell Exit	:	-50 V			
Dilution Mode	:	ON	Deflect	:	12.2 V	===Detector Parameters===		
Dilution Gas	:	0.5 L/min	Plate Bias	:	-40 V	Discriminator	:	4.5 mV
Optional Gas	:	0 %	===Octopole Parameters===			Analog HV	:	1931 V
Nebulizer Pump	:	0.1 rps	OctP RF	:	190 V	Pulse HV	:	1184 V
Sample Pump	:	--- rps	OctP Bias	:	-8 V			
S/C Temp	:	2 degC						

===Reaction Cell===

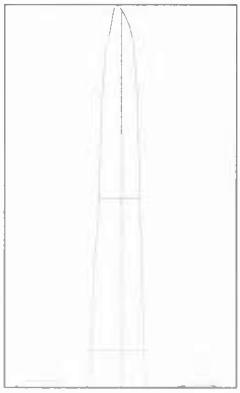
Reaction Mode	:	OFF						
H2 Gas	:	0 mL/min	He Gas	:	0 mL/min	Optional Gas	:	--- %

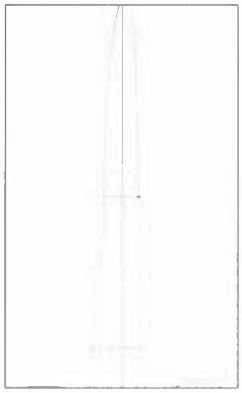
Tune Report

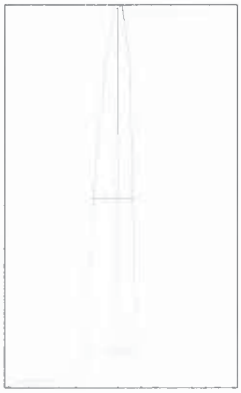
Tune File : he.u
Comment :

Integration Time:	0.1000 sec	
Sampling Period:	0.6200 sec	
n:	200	
Oxide:	156/140	0.322%
Doubly Charged:	70/140	1.229%

m/z	Range	Count	Mean	RSD%	Background
59	20,000	19946.0	19446.8	1.65	0.00
89	50,000	25414.0	25214.7	1.76	0.40
140	100,000	59315.0	60369.1	1.79	0.30
205	50,000	48099.0	47629.3	2.02	1.00
156/140	1	0.322%	0.282%	9.51	
70/140	2	1.285%	1.216%	4.88	







m/z:	59	89	205
Height:	19,435	25,609	47,409
Axis:	59.05	89.05	205.00
W-50%:	0.55	0.50	0.55
W-10%:	0.700	0.6500	0.700

Integration Time: 0.1000 sec
Acquisition Time: 22.5600 sec

Y axis : Linear

Tune Report

Tune File : he.u
Comment :

Tuning Parameters

===Plasma Condition===			===Ion Lenses===			===Q-Pole Parameters===		
RF Power	:	1550 W	Extract 1	:	0 V	AMU Gain	:	118
RF Matching	:	1.5 V	Extract 2	:	-120 V	AMU Offset	:	128
Smpl Depth	:	8 mm	Omega Bias	:	-80 V	Axis Gain	:	0.998
Torch-H	:	0.2 mm	Omega Lens	:	8.5 V	Axis Offset	:	0.11
Torch-V	:	0 mm	Cell Entrance	:	-40 V	QP Bias	:	-15 V
Carrier Gas	:	0.55 L/min	Cell Exit	:	-60 V			
Dilution Mode	:	ON	Deflect	:	-0.4 V	===Detector Parameters===		
Dilution Gas	:	0.5 L/min	Plate Bias	:	-60 V	Discriminator	:	4.5 mV
Optional Gas	:	0 %	===Octopole Parameters===			Analog HV	:	1931 V
Nebulizer Pump	:	0.1 rps	OctP RF	:	190 V	Pulse HV	:	1184 V
Sample Pump	:	--- rps	OctP Bias	:	-18 V			
S/C Temp	:	2 degC						

===Reaction Cell===								
Reaction Mode	:	ON						
H2 Gas	:	0 mL/min	He Gas	:	4.3 mL/min	Optional Gas	:	--- %

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 9 Jan 2020 02:51:03 pm
Operator: LP 7700
Misc Info:
Vial Number: 1307
Current Method: C:\ICPMH\1\METHODS\TN_6020.m

Minimum Response(CPS)

Element	Actual	Required	Flag

RSD (%)

Element	Actual	Required	Flag
6 Li	1.06	5.00	
59 Co	0.24	5.00	
115 In	0.41	5.00	
205 Tl	0.80	5.00	

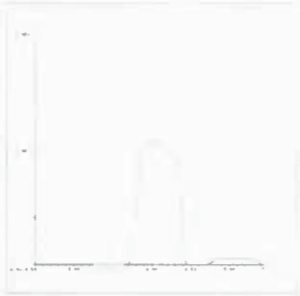
Ion Ratio

Element	Actual	Required	Flag

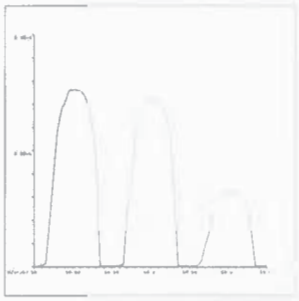
Maximum Bkg. Count(CPS)

Element	Actual	Required	Flag

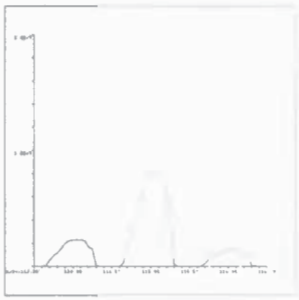
C:\ICPMH\1\DATA\010920B1.B\QCTUNE00.D



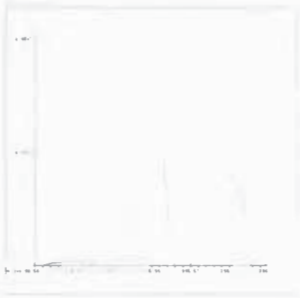
6 Li
Mass Calib.
Actual: 6.00
Required: 5.90-6.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:



115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.55
Required: 0.90
Flag:



205 Tl
Mass Calib.
Actual: 205.00
Required: 204.90-205.10
Flag:
Peak Width
Actual: 0.60
Required: 0.90
Flag:

QC Tune Result:Pass

C:\ICPMH\1\DATA\010920B1.B\QCTUNE00.D

Replicated Data: Tune #1

Mass	Count(CPS)				
6	2893788.00	2867032.00	2834956.00	2825192.00	2808697.00
7	158693.09	157256.00	156537.20	155552.30	156002.70
8	8.50	11.00	18.00	8.00	6.50
58	2045787.00	2039559.00	2031015.00	2025375.00	2024065.00
59	1906447.00	1900626.00	1889831.00	1884204.00	1878376.00
60	847142.13	844098.00	839409.31	834704.19	837322.31
95	1047323.00	1044872.00	1045212.00	1058862.00	1048418.00
111	1107940.00	1102781.00	1109689.00	1109456.00	1114908.00
114	2568392.00	2590804.00	2590251.00	2592052.00	2600892.00
115	8965002.00	8935894.00	9023117.00	9023063.00	9003974.00
116	1618077.00	1627371.00	1642995.00	1644872.00	1638215.00
118	1533851.00	1551089.00	1550010.00	1561772.00	1544024.00
204	88740.34	92651.15	94208.00	96191.44	97915.93
205	2652261.00	2680262.00	2725451.00	2742963.00	2717434.00
206	1876063.00	1898563.00	1882307.00	1914656.00	1921137.00
207	1666348.00	1677062.00	1695292.00	1707263.00	1704106.00
208	3953133.00	3999849.00	4052250.00	4071302.00	4094440.00

GAMMA SPECTROSCOPY

Method 901.1
Ra-226

Radium-226 & Other Gamma Emitters (GS) by Method 901.1

Prep Batch: 455482

Fill Geometry, 21-Day In-Growth

Gamma Spectroscopy Analysis Detail Report
Prep Batch: 455482

Lab Id: MB 160-455482/1-A | Analyzed: 01/21/20 11:55 | Ts: 30 | Sigma: 2
Client ID: | Detector: GV9 | Decay Corrected: No | Ingrowth:

Analyte	MB Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	0.02505	0.0348	0.0349	U	pCi/g	1.00	0.221	457408
Radium-228	0.09015	0.148	0.149	U	pCi/g	1.00	0.165	457408

Lab Id: LCS 160-455482/2-A | Analyzed: 01/21/20 11:56 | Ts: 30 | Sigma: 2
Client ID: | Detector: GV12 | Decay Corrected: No | Ingrowth:

Analyte	LCS Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Americium-241	99.82	1.46	11.7		pCi/g		1.05	457407
Cesium-137	30.85	0.758	3.24		pCi/g		0.267	457407
Cobalt-60	11.21	0.374	1.18		pCi/g		0.138	457407

Lab Id: 160-36789-1 | Analyzed: 01/21/20 11:59 | Ts: 30 | Sigma: 2
Client ID: WRSB235_0-0.5 | Detector: GV5 | Decay Corrected: No | Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.81	0.328	0.378		pCi/g	1.00	0.252	457420
Radium-228	2.03	0.313	0.375		pCi/g	1.00	0.284	457420

Lab Id: 160-36789-2 | Analyzed: 01/21/20 12:00 | Ts: 30 | Sigma: 2
Client ID: WRSB235_0.5-3 | Detector: GV8 | Decay Corrected: No | Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.40	0.228	0.271		pCi/g	1.00	0.218	457419
Radium-228	1.82	0.322	0.372		pCi/g	1.00	0.216	457419

Lab Id: 160-36789-3 | Analyzed: 01/21/20 12:27 | Ts: 30 | Sigma: 2
Client ID: WRSB235_3-6 | Detector: GV9 | Decay Corrected: No | Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.43	0.190	0.241		pCi/g	1.00	0.129	457408
Radium-228	1.68	0.246	0.300		pCi/g	1.00	0.166	457408

Lab Id: 160-36789-5 | Analyzed: 01/21/20 12:28 | Ts: 30 | Sigma: 2
Client ID: WRSB217_0-0.5 | Detector: GV12 | Decay Corrected: No | Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.23	0.210	0.245		pCi/g	1.00	0.150	457407
Radium-228	1.51	0.255	0.298		pCi/g	1.00	0.147	457407

Gamma Spectroscopy Analysis Detail Report
Prep Batch: 455482

Lab Id: 160-36789-6 Analyzed: 01/21/20 12:30 Ts: 30 Sigma: 2
Client ID: WRSB217-FD_0-0.5 Detector: GV5 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.21	0.229	0.261		pCi/g	1.00	0.181	457420
Radium-228	1.16	0.377	0.395		pCi/g	1.00	0.331	457420

Lab Id: 160-36789-7 Analyzed: 01/21/20 12:32 Ts: 30 Sigma: 2
Client ID: WRSB217_0.5-3 Detector: GV8 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.07	0.211	0.238		pCi/g	1.00	0.155	457419
Radium-228	1.15	0.216	0.246		pCi/g	1.00	0.155	457419

Lab Id: 160-36789-8 Analyzed: 01/21/20 12:24 Ts: 30 Sigma: 2
Client ID: WRSB217_3-6 Detector: GV14 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.28	0.212	0.250		pCi/g	1.00	0.149	457429
Radium-228	1.37	0.264	0.298		pCi/g	1.00	0.235	457429

Lab Id: 160-36789-9 Analyzed: 01/21/20 12:25 Ts: 30 Sigma: 2
Client ID: WRSB217_6-15 Detector: GV16 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.36	0.222	0.263		pCi/g	1.00	0.173	457430
Radium-228	1.36	0.260	0.295		pCi/g	1.00	0.219	457430

Lab Id: 160-36789-10 Analyzed: 01/21/20 13:04 Ts: 30 Sigma: 2
Client ID: WRSB218_0-0.5 Detector: GV9 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.73	0.202	0.270		pCi/g	1.00	0.124	457408
Radium-228	2.03	0.261	0.334		pCi/g	1.00	0.189	457408

Lab Id: 160-36789-11 Analyzed: 01/21/20 13:04 Ts: 30 Sigma: 2
Client ID: WRSB218_0.5-3 Detector: GV12 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.63	0.285	0.330		pCi/g	1.00	0.226	457407
Radium-228	2.04	0.366	0.420		pCi/g	1.00	0.184	457407

Gamma Spectroscopy Analysis Detail Report
Prep Batch: 455482

Lab Id: 160-36789-12 Analyzed: 01/21/20 13:06 Ts: 30 Sigma: 2
Client ID: WRSB218-FD_0.5-3 Detector: GV5 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.48	0.236	0.282		pCi/g	1.00	0.154	457420
Radium-228	1.33	0.395	0.417		pCi/g	1.00	0.588	457420

Lab Id: 160-36789-13 Analyzed: 01/21/20 13:08 Ts: 30 Sigma: 2
Client ID: WRSB218_3-6 Detector: GV14 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.48	0.269	0.310		pCi/g	1.00	0.209	457429
Radium-228	2.13	0.381	0.439		pCi/g	1.00	0.307	457429

Lab Id: 160-36789-13 DU Analyzed: 01/22/20 10:46 Ts: 30 Sigma: 2
Client ID: WRSB218_3-6 Detector: GV5 Decay Corrected: No Ingrowth:

Analyte	DU Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.572	0.298	0.340		pCi/g	1.00	0.224	457518
Radium-228	2.034	0.417	0.466		pCi/g	1.00	0.258	457518

Lab Id: 160-36789-14 Analyzed: 01/21/20 13:09 Ts: 30 Sigma: 2
Client ID: WRSB218_6-15 Detector: GV16 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.72	0.256	0.312		pCi/g	1.00	0.179	457430
Radium-228	2.05	0.327	0.389		pCi/g	1.00	0.239	457430

Lab Id: 160-36789-15 Analyzed: 01/21/20 13:11 Ts: 30 Sigma: 2
Client ID: WRSB229_0-0.5 Detector: GV17 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.63	0.224	0.281		pCi/g	1.00	0.145	457431
Radium-228	1.21	0.232	0.263		pCi/g	1.00	0.0837	457431

Lab Id: 160-36789-16 Analyzed: 01/21/20 13:07 Ts: 30 Sigma: 2
Client ID: WRSB229_0.5-3 Detector: GV8 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.40	0.234	0.275		pCi/g	1.00	0.154	457419
Radium-228	1.27	0.300	0.327		pCi/g	1.00	0.182	457419

Gamma Spectroscopy Analysis Detail Report
Prep Batch: 455482

Lab Id: 160-36789-17 Analyzed: 01/21/20 13:52 Ts: 30 Sigma: 2
Client ID: WRSB229_3-6 Detector: GV12 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.49	0.259	0.300		pCi/g	1.00	0.204	457407
Radium-228	1.01	0.233	0.254		pCi/g	1.00	0.100	457407

Lab Id: 160-36789-18 Analyzed: 01/21/20 13:53 Ts: 30 Sigma: 2
Client ID: WRSB229_6-15 Detector: GV5 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.65	0.297	0.343		pCi/g	1.00	0.212	457420
Radium-228	1.24	0.337	0.360		pCi/g	1.00	0.256	457420

Lab Id: 160-36789-19 Analyzed: 01/21/20 13:54 Ts: 30 Sigma: 2
Client ID: WRSB211_0-0.5 Detector: GV8 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	2.12	0.309	0.380		pCi/g	1.00	0.203	457419
Radium-228	2.17	0.320	0.389		pCi/g	1.00	0.232	457419

Lab Id: 160-36789-20 Analyzed: 01/22/20 06:47 Ts: 30 Sigma: 2
Client ID: WRSB211_0.5-3 Detector: GV9 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.89	0.223	0.297		pCi/g	1.00	0.200	457540
Radium-228	2.05	0.292	0.359		pCi/g	1.00	0.0777	457540

Lab Id: 160-36789-21 Analyzed: 01/22/20 06:48 Ts: 30 Sigma: 2
Client ID: WRSB211_3-6 Detector: GV12 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.88	0.283	0.342		pCi/g	1.00	0.210	457539
Radium-228	2.17	0.294	0.367		pCi/g	1.00	0.223	457539

Gamma Spectroscopy Analysis Detail Report
Prep Batch: 455482

Quality Control Summary

Method Blank ID:	Analyte	Parent Result	Spike Added	MB Result	Qualifier	Unit	% Rec	% Rec Limits	RPD	RER	DER	DER Limit	Z Factor
MB 160-455482/1-A	Radium-226			0.02505	U	pCi/g							1.4343
MB 160-455482/1-A	Radium-228			0.09015	U	pCi/g							1.2123
Lab Control Sample ID:	**Analyte**	**Parent Result**	**Spike Added**	**LCS Result**	**Qualifier**	**Unit**	**% Rec**	**% Rec Limits**	**RPD**	**RER**	**DER**	**DER Limit**	**Z Factor**
LCS 160-455482/2-A	Americium-241		96.6	99.82		pCi/g	103	75 - 125					.5325
LCS 160-455482/2-A	Cesium-137		27.3	30.85		pCi/g	113	75 - 125					2.1141
LCS 160-455482/2-A	Cobalt-60		10.6	11.21		pCi/g	105	75 - 125					.9006
Duplicate ID:	**Analyte**	**Parent Result**	**Spike Added**	**DU Result**	**Qualifier**	**Unit**	**% Rec**	**% Rec Limits**	**RPD**	**RER**	**DER**	**DER Limit**	**Z Factor**
160-36789-13	Radium-226	1.48		1.572		pCi/g			6	0.14	0.40	2	.3969
160-36789-13	Radium-228	2.13		2.034		pCi/g			5	0.11	0.31	2	.3062

Glossary:

Ts = Count Duration, Sample

GAMMA SPECTROSCOPY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455482 Batch Start Date: 12/27/19 14:47 Batch Analyst: Harris, Kayla L

Batch Method: Fill_Geo-21 Batch End Date: 12/27/19 15:44

Lab Sample ID	Client Sample ID	Method Chain	Basis	TareWeight	GrossWeight	InitialAmount	IngDecDate1	IngDecDate3	Geometry
MB 160-455482/1		Fill_Geo-21, 901.1				291.18 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
LCS 160-455482/2		Fill_Geo-21, 901.1				341.9 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-1-A	WRSB235_0-0.5	Fill_Geo-21, 901.1	T	46.4 g	403.7 g	357.3 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-2-A	WRSB235_0.5-3	Fill_Geo-21, 901.1	T	46.7 g	425.5 g	378.8 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-3-A	WRSB235_3-6	Fill_Geo-21, 901.1	T	46.3 g	451.4 g	405.1 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-5-A	WRSB217_0-0.5	Fill_Geo-21, 901.1	T	46.6 g	471.6 g	425 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-6-A	WRSB217-FD_0-0.5	Fill_Geo-21, 901.1	T	46.5 g	468.1 g	421.6 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-7-A	WRSB217_0.5-3	Fill_Geo-21, 901.1	T	46.0 g	466.7 g	420.7 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-8-A	WRSB217_3-6	Fill_Geo-21, 901.1	T	46.2 g	435.7 g	389.5 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-9-A	WRSB217_6-15	Fill_Geo-21, 901.1	T	46.4 g	466.0 g	419.6 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-10-A	WRSB218_0-0.5	Fill_Geo-21, 901.1	T	46.2 g	410.3 g	364.1 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-11-A	WRSB218_0.5-3	Fill_Geo-21, 901.1	T	46.4 g	452.1 g	405.7 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-12-A	WRSB218-FD_0.5-3	Fill_Geo-21, 901.1	T	46.6 g	430.1 g	383.5 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-13-A	WRSB218_3-6	Fill_Geo-21, 901.1	T	46.2 g	397.0 g	350.8 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-A-13-A DU	WRSB218_3-6	Fill_Geo-21, 901.1	T	46.2 g	397.0 g	350.8000 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-14-A	WRSB218_6-15	Fill_Geo-21, 901.1	T	46.5 g	430.5 g	384 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-15-A	WRSB229_0-0.5	Fill_Geo-21, 901.1	T	46.8 g	448.2 g	401.4 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-16-A	WRSB229_0.5-3	Fill_Geo-21, 901.1	T	46.3 g	416.3 g	370 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-17-A	WRSB229_3-6	Fill_Geo-21, 901.1	T	46.4 g	420.7 g	374.3 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-18-A	WRSB229_6-15	Fill_Geo-21, 901.1	T	46.2 g	418.0 g	371.8 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-19-A	WRSB211_0-0.5	Fill_Geo-21, 901.1	T	46.0 g	394.5 g	348.5 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GAMMA SPECTROSCOPY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455482 Batch Start Date: 12/27/19 14:47 Batch Analyst: Harris, Kayla L

Batch Method: Fill_Geo-21 Batch End Date: 12/27/19 15:44

Lab Sample ID	Client Sample ID	Method Chain	Basis	TareWeight	GrossWeight	InitialAmount	IngDecDate1	IngDecDate3	Geometry
160-36789-B-20-A	WRSB211_0.5-3	Fill_Geo-21, 901.1	T	46.0 g	392.3 g	346.3 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN
160-36789-B-21-A	WRSB211_3-6	Fill_Geo-21, 901.1	T	46.3 g	409.4 g	363.1 g	12/27/2019 15:42	01/17/2020 15:42	TUNA CAN

Lab Sample ID	Client Sample ID	Method Chain	Basis	Tuna Can LCS 00009
MB 160-455482/1		Fill_Geo-21, 901.1		
LCS 160-455482/2		Fill_Geo-21, 901.1		# g
160-36789-B-1-A	WRSB235_0-0.5	Fill_Geo-21, 901.1	T	
160-36789-B-2-A	WRSB235_0.5-3	Fill_Geo-21, 901.1	T	
160-36789-B-3-A	WRSB235_3-6	Fill_Geo-21, 901.1	T	
160-36789-B-5-A	WRSB217_0-0.5	Fill_Geo-21, 901.1	T	
160-36789-B-6-A	WRSB217-FD_0-0.5	Fill_Geo-21, 901.1	T	
160-36789-B-7-A	WRSB217_0.5-3	Fill_Geo-21, 901.1	T	
160-36789-B-8-A	WRSB217_3-6	Fill_Geo-21, 901.1	T	
160-36789-B-9-A	WRSB217_6-15	Fill_Geo-21, 901.1	T	
160-36789-B-10-A	WRSB218_0-0.5	Fill_Geo-21, 901.1	T	
160-36789-B-11-A	WRSB218_0.5-3	Fill_Geo-21, 901.1	T	
160-36789-B-12-A	WRSB218-FD_0.5-3	Fill_Geo-21, 901.1	T	
160-36789-B-13-A	WRSB218_3-6	Fill_Geo-21, 901.1	T	
160-36789-A-13-A DU	WRSB218_3-6	Fill_Geo-21, 901.1	T	
160-36789-B-14-A	WRSB218_6-15	Fill_Geo-21, 901.1	T	
160-36789-B-15-A	WRSB229_0-0.5	Fill_Geo-21, 901.1	T	

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GAMMA SPECTROSCOPY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455482 Batch Start Date: 12/27/19 14:47 Batch Analyst: Harris, Kayla L

Batch Method: Fill_Geo-21 Batch End Date: 12/27/19 15:44

Lab Sample ID	Client Sample ID	Method Chain	Basis	Tuna Can LCS 00009				
160-36789-B-16-A	WRSB229_0.5-3	Fill_Geo-21, 901.1	T					
160-36789-B-17-A	WRSB229_3-6	Fill_Geo-21, 901.1	T					
160-36789-B-18-A	WRSB229_6-15	Fill_Geo-21, 901.1	T					
160-36789-B-19-A	WRSB211_0-0.5	Fill_Geo-21, 901.1	T					
160-36789-B-20-A	WRSB211_0.5-3	Fill_Geo-21, 901.1	T					
160-36789-B-21-A	WRSB211_3-6	Fill_Geo-21, 901.1	T					

Batch Notes

Balance ID	1121432711
SOP Number	ST-RC-0025

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Gamma Spectroscopy Analysis Detail Report
Prep Batch: 455485

Lab Id: MB 160-455485/1-A Analyzed: 01/20/20 16:31 Ts: 30 Sigma: 2
Client ID: Detector: GV9 Decay Corrected: No Ingrowth:

Analyte	MB Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	-0.03648	0.107	0.107	U	pCi/g	1.00	0.276	457266
Radium-228	0.0000	0.0355	0.0355	U	pCi/g	1.00	0.0924	457266

Lab Id: LCS 160-455485/2-A Analyzed: 01/20/20 16:32 Ts: 30 Sigma: 2
Client ID: Detector: GV12 Decay Corrected: No Ingrowth:

Analyte	LCS Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Americium-241	98.88	1.74	11.6		pCi/g		1.30	457265
Cesium-137	30.09	0.714	3.15		pCi/g		0.271	457265
Cobalt-60	11.59	0.384	1.22		pCi/g		0.150	457265

Lab Id: 160-36789-22 Analyzed: 01/20/20 16:36 Ts: 30 Sigma: 2
Client ID: WRSB211-FD_3-6 Detector: GV14 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.72	0.242	0.300		pCi/g	1.00	0.214	457247
Radium-228	2.16	0.366	0.427		pCi/g	1.00	0.235	457247

Lab Id: 160-36789-23 Analyzed: 01/20/20 16:37 Ts: 30 Sigma: 2
Client ID: WRSB211_6-15 Detector: GV17 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	2.17	0.281	0.360		pCi/g	1.00	0.190	457250
Radium-228	1.69	0.392	0.428		pCi/g	1.00	0.375	457250

Lab Id: 160-36789-24 Analyzed: 01/20/20 17:43 Ts: 30 Sigma: 2
Client ID: WRSB209_0-0.5 Detector: GV9 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.76	0.220	0.286		pCi/g	1.00	0.133	457266
Radium-228	1.59	0.276	0.320		pCi/g	1.00	0.254	457266

Lab Id: 160-36789-25 Analyzed: 01/20/20 17:44 Ts: 30 Sigma: 2
Client ID: WRSB209_0.5-3 Detector: GV12 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	2.19	0.266	0.347		pCi/g	1.00	0.151	457265
Radium-228	1.83	0.289	0.343		pCi/g	1.00	0.234	457265

Gamma Spectroscopy Analysis Detail Report
Prep Batch: 455485

Lab Id: 160-36789-26 Analyzed: 01/20/20 17:45 Ts: 30 Sigma: 2
Client ID: WRSB209_3-6 Detector: GV14 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	3.66	0.325	0.500		pCi/g	1.00	0.212	457247
Radium-228	1.42	0.319	0.350		pCi/g	1.00	0.207	457247

Lab Id: 160-36789-26 DU Analyzed: 01/20/20 18:56 Ts: 30 Sigma: 2
Client ID: WRSB209_3-6 Detector: GV17 Decay Corrected: No Ingrowth:

Analyte	DU Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	3.981	0.371	0.556		pCi/g	1.00	0.240	457250
Radium-228	1.242	0.253	0.283		pCi/g	1.00	0.330	457250

Lab Id: 160-36789-27 Analyzed: 01/20/20 18:55 Ts: 30 Sigma: 2
Client ID: WRSB209_6-15 Detector: GV14 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	3.49	0.330	0.490		pCi/g	1.00	0.283	457247
Radium-228	1.63	0.287	0.332		pCi/g	1.00	0.257	457247

Lab Id: 160-36789-28 Analyzed: 01/20/20 17:46 Ts: 30 Sigma: 2
Client ID: WRSB210_0-0.5 Detector: GV17 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.14	0.189	0.223		pCi/g	1.00	0.131	457250
Radium-228	1.29	0.204	0.243		pCi/g	1.00	0.140	457250

Lab Id: 160-36789-29 Analyzed: 01/20/20 18:08 Ts: 30 Sigma: 2
Client ID: WRSB210_0.5-3 Detector: GV5 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	0.905	0.213	0.233		pCi/g	1.00	0.179	457267
Radium-228	1.03	0.259	0.280		pCi/g	1.00	0.214	457267

Lab Id: 160-36789-30 Analyzed: 01/20/20 18:09 Ts: 30 Sigma: 2
Client ID: WRSB210_3-6 Detector: GV8 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.15	0.189	0.224		pCi/g	1.00	0.124	457268
Radium-228	1.12	0.257	0.281		pCi/g	1.00	0.171	457268

Gamma Spectroscopy Analysis Detail Report
Prep Batch: 455485

Lab Id: 160-36789-31 | Analyzed: 01/20/20 18:54 | Ts: 30 | Sigma: 2
Client ID: WRSB210_6-15 | Detector: GV9 | Decay Corrected: No | Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.41	0.166	0.221		pCi/g	1.00	0.0930	457266
Radium-228	1.09	0.211	0.238		pCi/g	1.00	0.137	457266

Quality Control Summary

Method Blank ID:	Analyte	Parent Result	Spike Added	MB Result	Qualifier	Unit	% Rec	% Rec Limits	RPD	RER	DER	DER Limit	Z Factor
MB 160-455485/1-A	Radium-226			-0.03648	U	pCi/g							-.6787
MB 160-455485/1-A	Radium-228			0.0000	U	pCi/g							.
Lab Control Sample ID:	**Analyte**	**Parent Result**	**Spike Added**	**LCS Result**	**Qualifier**	**Unit**	**% Rec**	**% Rec Limits**	**RPD**	**RER**	**DER**	**DER Limit**	**Z Factor**
LCS 160-455485/2-A	Americium-241		96.6	98.88		pCi/g	102	75 - 125					.3803
LCS 160-455485/2-A	Cesium-137		27.3	30.09		pCi/g	110	75 - 125					1.7034
LCS 160-455485/2-A	Cobalt-60		10.7	11.59		pCi/g	109	75 - 125					1.4701
Duplicate ID:	**Analyte**	**Parent Result**	**Spike Added**	**DU Result**	**Qualifier**	**Unit**	**% Rec**	**% Rec Limits**	**RPD**	**RER**	**DER**	**DER Limit**	**Z Factor**
160-36789-26	Radium-226	3.66		3.981		pCi/g			8	0.30	0.86	2	.8595
160-36789-26	Radium-228	1.42		1.242		pCi/g			13	0.28	0.78	2	.7759

Glossary:
Ts = Count Duration, Sample

GAMMA SPECTROSCOPY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455485 Batch Start Date: 12/27/19 15:50 Batch Analyst: Bernsen, Sarah C

Batch Method: Fill_Geo-21 Batch End Date: 12/27/19 16:12

Lab Sample ID	Client Sample ID	Method Chain	Basis	TareWeight	GrossWeight	InitialAmount	IngDecDate1	IngDecDate3	Geometry
MB 160-455485/1		Fill_Geo-21, 901.1				291.18 g	12/27/2019 16:12	01/17/2020 16:12	tuna can
LCS 160-455485/2		Fill_Geo-21, 901.1				341.9 g	12/27/2019 16:12	01/17/2020 16:12	tuna can
160-36789-B-22-A	WRSB211-FD_3-6	Fill_Geo-21, 901.1	T	46.3 g	408.6 g	362.3 g	12/27/2019 16:12	01/17/2020 16:12	tuna can
160-36789-B-23-A	WRSB211_6-15	Fill_Geo-21, 901.1	T	46.2 g	378.9 g	332.7 g	12/27/2019 16:12	01/17/2020 16:12	tuna can
160-36789-B-24-A	WRSB209_0-0.5	Fill_Geo-21, 901.1	T	46.6 g	399.9 g	353.3 g	12/27/2019 16:12	01/17/2020 16:12	tuna can
160-36789-B-25-A	WRSB209_0.5-3	Fill_Geo-21, 901.1	T	46.2 g	432.0 g	385.8 g	12/27/2019 16:12	01/17/2020 16:12	tuna can
160-36789-B-26-A	WRSB209_3-6	Fill_Geo-21, 901.1	T	46.0 g	417.2 g	371.2 g	12/27/2019 16:12	01/17/2020 16:12	tuna can
160-36789-A-26-A DU	WRSB209_3-6	Fill_Geo-21, 901.1	T	46.0 g	417.2 g	371.2 g	12/27/2019 16:12	01/17/2020 16:12	tuna can
160-36789-B-27-A	WRSB209_6-15	Fill_Geo-21, 901.1	T	46.5 g	438.2 g	391.7 g	12/27/2019 16:12	01/17/2020 16:12	tuna can
160-36789-B-28-A	WRSB210_0-0.5	Fill_Geo-21, 901.1	T	46.8 g	439.8 g	393 g	12/27/2019 16:12	01/17/2020 16:12	tuna can
160-36789-B-29-A	WRSB210_0.5-3	Fill_Geo-21, 901.1	T	46.3 g	447.0 g	400.7 g	12/27/2019 16:12	01/17/2020 16:12	tuna can
160-36789-B-30-A	WRSB210_3-6	Fill_Geo-21, 901.1	T	46.4 g	463.9 g	417.5 g	12/27/2019 16:12	01/17/2020 16:12	tuna can
160-36789-B-31-A	WRSB210_6-15	Fill_Geo-21, 901.1	T	46.6 g	490.2 g	443.6 g	12/27/2019 16:12	01/17/2020 16:12	tuna can

Lab Sample ID	Client Sample ID	Method Chain	Basis	Tuna Can LCS 00009
MB 160-455485/1		Fill_Geo-21, 901.1		
LCS 160-455485/2		Fill_Geo-21, 901.1		# g
160-36789-B-22-A	WRSB211-FD_3-6	Fill_Geo-21, 901.1	T	
160-36789-B-23-A	WRSB211_6-15	Fill_Geo-21, 901.1	T	
160-36789-B-24-A	WRSB209_0-0.5	Fill_Geo-21, 901.1	T	
160-36789-B-25-A	WRSB209_0.5-3	Fill_Geo-21, 901.1	T	

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

GAMMA SPECTROSCOPY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455485 Batch Start Date: 12/27/19 15:50 Batch Analyst: Bernsen, Sarah C

Batch Method: Fill_Geo-21 Batch End Date: 12/27/19 16:12

Lab Sample ID	Client Sample ID	Method Chain	Basis	Tuna Can LCS 00009				
160-36789-B-26-A	WRSB209_3-6	Fill_Geo-21, 901.1	T					
160-36789-A-26-A DU	WRSB209_3-6	Fill_Geo-21, 901.1	T					
160-36789-B-27-A	WRSB209_6-15	Fill_Geo-21, 901.1	T					
160-36789-B-28-A	WRSB210_0-0.5	Fill_Geo-21, 901.1	T					
160-36789-B-29-A	WRSB210_0.5-3	Fill_Geo-21, 901.1	T					
160-36789-B-30-A	WRSB210_3-6	Fill_Geo-21, 901.1	T					
160-36789-B-31-A	WRSB210_6-15	Fill_Geo-21, 901.1	T					

Batch Notes

Balance ID	1121432711
SOP Number	ST-RC-0003, ST-RC-0025

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Prep Batch: 455678

Fill Geometry, 21-Day In-Growth

Gamma Spectroscopy Analysis Detail Report
Prep Batch: 455678

Lab Id: MB 160-455678/1-A Analyzed: 01/23/20 13:55 Ts: 60 Sigma: 2
Client ID: Detector: GV12 Decay Corrected: No Ingrowth:

Analyte	MB Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	0.09617	0.0608	0.0616	U	pCi/g	1.00	0.353	457643
Radium-228	0.04802	0.107	0.107	U	pCi/g	1.00	0.272	457643

Lab Id: LCS 160-455678/2-A Analyzed: 01/23/20 13:58 Ts: 60 Sigma: 2
Client ID: Detector: GV8 Decay Corrected: No Ingrowth:

Analyte	LCS Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Americium-241	92.43	1.17	10.8		pCi/g		0.825	457639
Cesium-137	29.72	0.687	3.11		pCi/g		0.249	457639
Cobalt-60	17.76	0.447	1.82		pCi/g		0.145	457639

Lab Id: 160-36789-4 Analyzed: 01/23/20 14:33 Ts: 60 Sigma: 2
Client ID: WRSB235_6-15 Detector: GV9 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.63	0.267	0.315		pCi/g	1.00	0.205	457644
Radium-228	2.03	0.266	0.336		pCi/g	1.00	0.206	457644

Lab Id: 160-36789-4 DU Analyzed: 01/23/20 15:35 Ts: 60 Sigma: 2
Client ID: WRSB235_6-15 Detector: GV8 Decay Corrected: No Ingrowth:

Analyte	DU Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.633	0.278	0.324		pCi/g	1.00	0.213	457639
Radium-228	1.973	0.339	0.394		pCi/g	1.00	0.372	457639

Quality Control Summary

Method Blank ID:	Analyte	Parent Result	Spike Added	MB Result	Qualifier	Unit	% Rec	% Rec Limits	RPD	RER	DER	DER Limit	Z Factor
MB 160-455678/1-A	Radium-226			0.09617	U	pCi/g							3.1221
MB 160-455678/1-A	Radium-228			0.04802	U	pCi/g							.894
Lab Control Sample ID:	**Analyte**	**Parent Result**	**Spike Added**	**LCS Result**	**Qualifier**	**Unit**	**% Rec**	**% Rec Limits**	**RPD**	**RER**	**DER**	**DER Limit**	**Z Factor**
LCS 160-455678/2-A	Americium-241		100	92.43		pCi/g	92	75 - 125					-1.3187
LCS 160-455678/2-A	Cesium-137		31.2	29.72		pCi/g	95	75 - 125					-.8758
LCS 160-455678/2-A	Cobalt-60		19.2	17.76		pCi/g	92	75 - 125					-1.4394
Duplicate ID:	**Analyte**	**Parent Result**	**Spike Added**	**DU Result**	**Qualifier**	**Unit**	**% Rec**	**% Rec Limits**	**RPD**	**RER**	**DER**	**DER Limit**	**Z Factor**
160-36789-4	Radium-226	1.63		1.633		pCi/g			0.1	0	0.01	2	.0086
160-36789-4	Radium-228	2.03		1.973		pCi/g			3	0.08	0.22	2	.2187

Gamma Spectroscopy Analysis Detail Report
Prep Batch: 455678

Glossary:

Ts = Count Duration, Sample

GAMMA SPECTROSCOPY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36789-1

SDG No.:

Batch Number: 455678 Batch Start Date: 12/30/19 15:30 Batch Analyst: Mazariegos, Chelsea M

Batch Method: Fill_Geo-21 Batch End Date: 12/30/19 15:40

Lab Sample ID	Client Sample ID	Method Chain	Basis	TareWeight	GrossWeight	InitialAmount	IngDecDate1	IngDecDate3	Geometry
MB 160-455678/1		Fill_Geo-21, 901.1				146.5 g	12/30/2019 15:39	01/20/2020 15:39	100mL solid
LCS 160-455678/2		Fill_Geo-21, 901.1				166.06 g	12/30/2019 15:39	01/20/2020 15:39	100mL solid
160-36789-A-4-B	WRSB235_6-15	Fill_Geo-21, 901.1	T	38.0 g	179.7 g	141.7 g	12/30/2019 15:39	01/20/2020 15:39	100mL solid
160-36789-A-4-B DU	WRSB235_6-15	Fill_Geo-21, 901.1	T	38.0 g	179.7 g	141.7 g	12/30/2019 15:39	01/20/2020 15:39	100mL solid

Lab Sample ID	Client Sample ID	Method Chain	Basis	100mLSolidLCS 00002
MB 160-455678/1		Fill_Geo-21, 901.1		
LCS 160-455678/2		Fill_Geo-21, 901.1		# mL
160-36789-A-4-B	WRSB235_6-15	Fill_Geo-21, 901.1	T	
160-36789-A-4-B DU	WRSB235_6-15	Fill_Geo-21, 901.1	T	

Batch Notes

Balance ID	1121432711
SOP Number	ST-RC-0025

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Initial Calibrations

Gamma Verification per Geometry

Detector: Ge5

Geometry: Tunacan

Reference date 1/1/2012

Calibration Standard: 90099

Standard volume g / vial 1550

Standard volume transferred in g / geometry 317.8

lab ID# of cal standard Rad12-0007

Isotope	Certified Activity gammas/sec	Geometry Activity gammas/sec	γ abundance	Bq/sample	Count Results	%recovery
Pb-210	3094	634	0.0425	14926	14353	96.2
Am-241	2037	418	0.3590	1163	1230.2	105.7
Cd-109	2881	591	0.0361	16363	16101	98.4
Co-57	1511	310	0.8560	362	347.72	96.1
Ce-139	2139	439	0.7990	549	538.4	98.1
Hg-203	4651	954	0.8146	1171	1208.4	103.2
Sn-113	3015	618	0.6400	966	972.07	100.6
Cs-137	1938	397	0.8510	467	462.35	99.0
Y-88	7264	1489	0.9370	1589	1559.3	98.1
Co-60	3580	734	0.9997	734	722.51	98.4
Co-60	3581	734	0.9999	734	739.67	100.7
Y-88	7690	1577	0.9920	1589	1613.8	101.5

Reviewed By: Jody Watson

Date: 3/27/2012

Gamma Verification per Geometry

Detector: Ge8
Geometry: Tunacan
Reference date 1/1/2012
Calibration Standard: 90099
Standard volume g / vial 1550
Standard volume transferred in g / geometry 317.8
lab ID# of cal standard 6699

Isotope	Certified Activity gammas/sec	Geometry Activity gammas/sec	γ abundance	Bq/sample	Count Results	%recovery
Pb-210	3094	634	0.0425	14926	14960	100.2
Am-241	2037	418	0.3590	1163	1240.5	106.6
Cd-109	2881	591	0.0361	16363	16066	98.2
Co-57	1511	310	0.8560	362	345.12	95.4
Ce-139	2139	439	0.7990	549	536.34	97.7
Hg-203	4651	954	0.8146	1171	1218.2	104.1
Sn-113	3015	618	0.6400	966	967.15	100.1
Cs-137	1938	397	0.8510	467	465.86	99.8
Y-88	7264	1489	0.9370	1589	1552.1	97.6
Co-60	3580	734	0.9997	734	724.48	98.7
Co-60	3581	734	0.9999	734	729.98	99.4
Y-88	7690	1577	0.9920	1589	1627.2	102.4

Reviewed By: Jody Watson

Date: 3/28/2012

Gamma Verification per Geometry

Detector: **Ge8**
Geometry: **100mL Soild**
Reference date: **1/1/2018**
Calibration Standard: **108513**
Standard volume g / vial: **1550**
Standard volume transferred in g / geometry: **166.5**
lab ID# of cal standard: **1402375 / 100mL Solid_00013**

Isotope	Certified Activity Bq	Bq/sample	Count results	%recovery
Pb-210	72410	7778	7602	97.7
Am-241	5770	620	601.4	97.0
Cd-109	79700	8561	8749	102.2
Co-57	1809	194	190.5	98.0
Ce-139	2723	293	281.2	96.1
Hg-203	5868	630	632.8	100.4
Sn-113	4658	500	509.9	101.9
Cs-137	2283	245	247.4	100.9
Y-88	7810	839	818.8	97.6
Co-60	3574	384	378.7	98.6
Co-60	3574	384	378.4	98.6
Y-88	7810	839	851.7	101.5

Reviewed By: Jody Watson

Date: 5/16/2018

Gamma Verification per Geometry

Detector: Ge9

Geometry: Tunacan

Reference date 1/1/2012

Calibration Standard: 90099

Standard volume g / vial 1550

Standard volume transferred in g / geometry 317.8

lab ID# of cal standard 6699

Isotope	Certified Activity gammas/sec	Geometry Activity gammas/sec	γ abundance	Bq/sample	Count Results	%recovery
Pb-210	3094	634	0.0425	14926	14240	95.4
Am-241	2037	418	0.3590	1163	1244.5	107.0
Cd-109	2881	591	0.0361	16363	15902	97.2
Co-57	1511	310	0.8560	362	347.48	96.0
Ce-139	2139	439	0.7990	549	535.87	97.6
Hg-203	4651	954	0.8146	1171	1216.7	103.9
Sn-113	3015	618	0.6400	966	970.65	100.5
Cs-137	1938	397	0.8510	467	466.58	99.9
Y-88	7264	1489	0.9370	1589	1552.5	97.7
Co-60	3580	734	0.9997	734	727.12	99.0
Co-60	3581	734	0.9999	734	719.75	98.0
Y-88	7690	1577	0.9920	1589	1638.8	103.1

Reviewed By: Jody Watson

Date: 6/14/2012

Gamma Verification per Geometry

Detector: **Ge9**
Geometry: **100mL Soild**
Reference date: **1/1/2018**
Calibration Standard: **108513**
Standard volume g / vial: **1550**
Standard volume transferred in g / geometry: **166.5**
lab ID# of cal standard: #1402375 / 100mL Solid_mixed gamma_2018

Isotope	Certified Activity Bq	Bq/sample	Count results	%recovery
Pb-210	72410	7778	7804	100.3
Am-241	5770	620	612.3	98.8
Cd-109	79700	8561	9011	105.3
Co-57	1809	194	192.2	98.9
Ce-139	2723	293	280.8	96.0
Hg-203	5868	630	643.4	102.1
Sn-113	4658	500	519.3	103.8
Cs-137	2283	245	251.8	102.7
Y-88	7810	839	813.1	96.9
Co-60	3574	384	377.8	98.4
Co-60	3574	384	374.7	97.6
Y-88	7810	839	862.4	102.8

Reviewed By: Jody Watson

Date: 5/15/2018

Gamma Verification per Geometry

Detector: **Ge12**
Geometry: **Tuna Can**
Reference date: **1/1/2018**
Calibration Standard: **108513**
Standard volume g / vial: **1550**
Standard volume transferred in g / geometry: **342.2**
lab ID# of cal standard: #1402359 / Tuna Can_2018_00001

Isotope	Certified Activity - Bq	Geometry Activity - Bq	Count Results	%recovery
Pb-210	72410	15986	16000	100.1
Am-241	5770	1274	1261	99.0
Cd-109	79700	17596	18250	103.7
Co-57	1809	399	393.1	98.4
Ce-139	2723	601	585.9	97.5
Hg-203	5868	1296	1312	101.3
Sn-113	4658	1028	1059	103.0
Cs-137	2283	504	509.8	101.1
Y-88	7810	1724	1705	98.9
Co-60	3574	789	776.5	98.4
Co-60	3574	789	765.4	97.0
Y-88	7810	1724	1769	102.6

Reviewed By: Jody Watson

Date: 4/23/2018

Gamma Verification per Geometry

Detector: **Ge12**
Geometry: **100mL Soild**
Reference date: **1/1/2018**
Calibration Standard: **108513**
Standard volume g / vial: **1550**
Standard volume transferred in g / geometry: **166.5**
lab ID# of cal standard: #1402375 / 100mL Solid_mixed gamma_2018

Isotope	Certified Activity Bq	Bq/sample	Count results	%recovery
Pb-210	72410	7778	7795	100.2
Am-241	5770	620	613.5	99.0
Cd-109	79700	8561	8840	103.3
Co-57	1809	194	193.6	99.6
Ce-139	2723	293	279.4	95.5
Hg-203	5868	630	648	102.8
Sn-113	4658	500	514.7	102.9
Cs-137	2283	245	247.2	100.8
Y-88	7810	839	821.4	97.9
Co-60	3574	384	380.9	99.2
Co-60	3574	384	379.8	98.9
Y-88	7810	839	858.4	102.3

Reviewed By: Jody Watson

Date: 4/23/2018

Gamma Verification per Geometry

Detector: Ge14

Geometry: Tunacan

Reference date 1/1/2012

Calibration Standard: 90099

Standard volume g / vial 1550

Standard volume transferred in g / geometry 317.8

lab ID# of cal standard 6699

Isotope	Certified Activity gammas/sec	Geometry Activity gammas/sec	γ abundance	Bq/sample	Count Results	%recovery
Pb-210	3094	634	0.0425	14926	14422	96.6
Am-241	2037	418	0.3590	1163	1222.5	105.1
Cd-109	2881	591	0.0361	16363	16145	98.7
Co-57	1511	310	0.8560	362	349.28	96.5
Ce-139	2139	439	0.7990	549	538.52	98.1
Hg-203	4651	954	0.8146	1171	1205.9	103.0
Sn-113	3015	618	0.6400	966	971.36	100.6
Cs-137	1938	397	0.8510	467	465.65	99.7
Y-88	7264	1489	0.9370	1589	1570	98.8
Co-60	3580	734	0.9997	734	724.16	98.6
Co-60	3581	734	0.9999	734	720.6	98.1
Y-88	7690	1577	0.9920	1589	1634	102.8

Reviewed By: Jody Watson

Date: 4/23/2012

Gamma Verification per Geometry

Detector:	Ge16
Geometry:	Tunacan
Reference date	1/1/2012
Calibration Standard:	90099
Standard volume g / vial	1550
Standard volume transferred in g / geometry	317.8
lab ID# of cal standard	6699

Isotope	Certified Activity gammas/sec	Geometry Activity gammas/sec	γ abundance	Bq/sample	Count Results	%recovery
Pb-210	3094	634	0.0425	14926	14377	96.3
Am-241	2037	418	0.3590	1163	1228.5	105.6
Cd-109	2881	591	0.0361	16363	16032	98.0
Co-57	1511	310	0.8560	362	349.8	96.7
Ce-139	2139	439	0.7990	549	538.18	98.0
Sn-113	3015	618	0.6400	966	969.68	100.4
Cs-137	1938	397	0.8510	467	468.24	100.3
Y-88	7264	1489	0.9370	1589	1552.4	97.7
Co-60	3580	734	0.9997	734	725.6	98.8
Co-60	3581	734	0.9999	734	726.23	98.9
Y-88	7690	1577	0.9920	1589	1629.1	102.5

Reviewed By: Jody Watson

Date: 7/13/2012

Gamma Verification per Geometry

Detector: Ge17

Geometry: Tunacan

Reference date 1/1/2012

Calibration Standard: 90099

Standard volume g / vial 1550

Standard volume transferred in g / geometry 317.8

lab ID# of cal standard 6699

Isotope	Certified Activity gammas/sec	Geometry Activity gammas/sec	γ abundance	Bq/sample	Count Results	%recovery
Pb-210	3094	634	0.0425	14926	14476	97.0
Am-241	2037	418	0.3590	1163	1217.3	104.6
Cd-109	2881	591	0.0361	16363	16121	98.5
Co-57	1511	310	0.8560	362	351.58	97.1
Ce-139	2139	439	0.7990	549	540.43	98.5
Hg-203	4651	954	0.8146	1171	1200.7	102.6
Sn-113	3015	618	0.6400	966	969.38	100.4
Cs-137	1938	397	0.8510	467	466.08	99.8
Y-88	7264	1489	0.9370	1589	1562.4	98.3
Co-60	3580	734	0.9997	734	724.88	98.7
Co-60	3581	734	0.9999	734	733.12	99.8
Y-88	7690	1577	0.9920	1589	1616.3	101.7

Reviewed By: Megan McAfee

Date: 4/13/2012

Initial Calibration Verifications

2nd Source Verification

Detector:	Ge5
Geometry:	Tunacan
Reference date	1/1/2010
Source:	81427-334
Standard volume g / vial	1550
Standard volume transferred in g / geometry	318.5
lab ID# of cal standard	6665

Isotope	Certified Activity gammas/sec	Geometry Activity	γ abundance	Bq/sample	Count Results	%recovery
Am-241	2034	418	0.359	1164	1160.9	99.7
Cs-137	1926	396	0.851	465	442.36	95.1
Co-60	3611	742	0.99974	742	700.21	94.3
Co-60	3612	742	0.999856	742	701.86	94.6

Reviewed By: Jody Watson

Date: 3/27/2012

2nd Source Verification

Detector:	Ge8
Geometry:	Tunacan
Reference date	1/1/2010
Source:	81427-334
Standard volume g / vial	1550
Standard volume transferred in g / geometry	318.5
lab ID# of cal standard	6665

Isotope	Certified Activity gammas/sec	Geometry Activity	γ abundance	Bq/sample	Count Results	%recovery
Am-241	2034	418	0.359	1164	1175.4	101.0
Cs-137	1926	396	0.851	465	446.61	96.0
Co-60	3611	742	0.99974	742	697.22	93.9
Co-60	3612	742	0.999856	742	691.92	93.2

Reviewed By: Jody Watson

Date: 3/29/2012

2nd Source Verification

Detector: **Ge8**
Geometry: **100mL solid**
Reference date: **1/1/2011**
Calibration Standard: **83814-334**
Standard volume g / vial: **1550**
Standard volume transferred in g / geometry: **166.06**
lab ID# of cal standard: **1278177 / 100mL Solid_00011**

Isotope	Certified Activity gammas/sec	Geometry Activity	γ abundance	Bq/sample	Count Results	%recovery
Am-241	2090	224	0.359	624	578.9	92.8
Cs-137	1877	201	0.851	236	224	94.8
Co-60	3627	389	0.999856	389	361	92.9

Reviewed By: Jody Watson

Date: 5/24/2018

2nd Source Verification

Detector:	Ge9
Geometry:	Tunacan
Reference date	1/1/2010
Source:	81427-334
Standard volume g / vial	1550
Standard volume transferred in g / geometry	318.5
lab ID# of cal standard	6665

Isotope	Certified Activity gammas/sec	Geometry Activity	γ abundance	Bq/sample	Count Results	%recovery
Am-241	2034	418	0.359	1164	1169.4	100.4
Cs-137	1926	396	0.851	465	444.52	95.6
Co-60	3611	742	0.99974	742	687.72	92.7
Co-60	3612	742	0.999856	742	692.56	93.3

Reviewed By: Jody Watson

Date: 6/14/2012

2nd Source Verification

Detector: **Ge9**
Geometry: **100mL solid**
Reference date: **1/1/2011**
Calibration Standard: **83814-334**
Standard volume g / vial: **1550**
Standard volume transferred in g / geometry: **166.06**
lab ID# of cal standard: **Rad11-0025**

Isotope	Certified Activity gammas/sec	Geometry Activity	γ abundance	Bq/sample	Count Results	%recovery
Am-241	2090	224	0.359	624	585.1	93.8
Cs-137	1877	201	0.851	236	227.3	96.2
Co-60	3627	389	0.999856	389	363	93.4

Reviewed By: Jody Watson

Date: 5/18/2018

2nd Source Verification

Detector: **Ge12**
Geometry: **Tunacan**
Reference date: **10/1/2006**
Calibration Standard: **74139-334**
Standard volume g / vial: **1550**
Standard volume transferred in g / geometry: **341.9**
lab ID# of cal standard: **1282974**

Isotope	Certified Activity gammas/sec	Geometry Activity	γ abundance	Bq/sample	Count Results	%recovery
Am-241	2034	449	0.359	1250	1288	103.1
Cs-137	1926	425	0.851	499	509.9	102.1
Co-60	3612	797	0.999856	797	833.8	104.6

Reviewed By: Jody Watson

Date: 4/24/2018

2nd Source Verification

Detector: **Ge12**
Geometry: **100mL solid**
Reference date: **1/1/2011**
Calibration Standard: **83814-334**
Standard volume g / vial: **1550**
Standard volume transferred in g / geometry: **166.06**
lab ID# of cal standard: **Rad11-0025**

Isotope	Certified Activity gammas/sec	Geometry Activity	γ abundance	Bq/sample	Count Results	%recovery
Am-241	2090	224	0.359	624	592	94.9
Cs-137	1877	201	0.851	236	227.7	96.4
Co-60	3627	389	0.999856	389	365.7	94.1

Reviewed By: Jody Watson

Date: 4/24/2018

2nd Source Verification

Detector:	Ge14
Geometry:	Tunacan
Reference date	1/1/2010
Source:	81427-334
Standard volume g / vial	1550
Standard volume transferred in g / geometry	318.5
lab ID# of cal standard	6665

Isotope	Certified Activity gammas/sec	Geometry Activity	γ abundance	Bq/sample	Count Results	%recovery
Am-241	2034	418	0.359	1164	1140.8	98.0
Cs-137	1926	396	0.851	465	447.55	96.2
Co-60	3611	742	0.99974	742	690.01	93.0
Co-60	3612	742	0.999856	742	699.61	94.2

Reviewed By: Jody Watson

Date: 4/24/2012

2nd Source Verification

Detector:	Ge16
Geometry:	Tunacan
Reference date	1/1/2010
Source:	81427-334
Standard volume g / vial	1550
Standard volume transferred in g / geometry	318.5
lab ID# of cal standard	6665

Isotope	Certified Activity gammas/sec	Geometry Activity	γ abundance	Bq/sample	Count Results	%recovery
Am-241	2034	418	0.359	1164	1175.5	101.0
Cs-137	1926	396	0.851	465	456.26	98.1
Co-60	3611	742	0.99974	742	696.55	93.8
Co-60	3612	742	0.999856	742	694.91	93.6

Reviewed By: Jody Watson

Date: 7/17/2012

2nd Source Verification

Detector:	Ge17
Geometry:	Tunacan
Reference date	1/1/2010
Source:	81427-334
Standard volume g / vial	1550
Standard volume transferred in g / geometry	318.5
lab ID# of cal standard	6665

Isotope	Certified Activity gammas/sec	Geometry Activity	γ abundance	Bq/sample	Count Results	%recovery
Am-241	2034	418	0.359	1164	1140.2	97.9
Cs-137	1926	396	0.851	465	440.98	94.8
Co-60	3611	742	0.99974	742	682.05	91.9
Co-60	3612	742	0.999856	742	689.63	92.9

Reviewed By: Megan McAfee

Date: 4/13/2012

Test America
St. Louis
Background Check

Spectrum: 5_20200110015_BGLong
Description: Background Long PBC Count
Acquired: 1/10/2020 2:08:33 PM
Detector: Detector # 5
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	1.45	1.30	1.35	1.49	1.55	1.60	PASS

Analyst: Kellene Robbs Reviewer:

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Test America
St. Louis
Background Check

Spectrum: 8_20200111001_BGLong
Description: Background Long PBC Count
Acquired: 1/11/2020 10:40:57 AM
Detector: Detector # 8
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	1.56	1.39	1.45	1.59	1.68	1.74	PASS

Analyst: Kellene Robbs Reviewer: Kellene Robbs

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Test America
St. Louis
Background Check

Spectrum: 9_20200110007_BGLong
Description: Background Long PBC Count
Acquired: 1/10/2020 2:02:01 PM
Detector: Detector # 9
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	1.89	1.53	1.65	1.83	2.14	2.26	PASS

Analyst: Kellene Robbs Reviewer:

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Test America
St. Louis
Background Check

Spectrum: 12_20200110008_BGLong
Description: Background Long PBC Count
Acquired: 1/10/2020 2:02:30 PM
Detector: Detector #12
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	2.00	1.89	1.93	2.01	2.07	2.10	PASS

Analyst: Kellene Robbs Reviewer:

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Test America
St. Louis
Background Check

Spectrum: 14_20200110006_BGLong
Description: Background Long PBC Count
Acquired: 1/10/2020 2:03:01 PM
Detector: Detector #14
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	1.80	1.66	1.71	1.78	1.90	1.94	PASS

Analyst: Kellene Robbs Reviewer:

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Test America
St. Louis
Background Check

Spectrum: 16_20200110006_BGLong
Description: Background Long PBC Count
Acquired: 1/10/2020 2:03:39 PM
Detector: Detector #16
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	2.68	2.51	2.56	2.70	2.80	2.86	PASS

Analyst: Kellene Robbs Reviewer:

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Test America
St. Louis
Background Check

Spectrum: 17_20200110006_BGLong
Description: Background Long PBC Count
Acquired: 1/10/2020 2:05:14 PM
Detector: Detector #17
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	2.32	2.18	2.23	2.42	2.42	2.46	PASS

Analyst: Kellene Robbs Reviewer:

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Daily Checks

Test America
St. Louis
Quality Control Check

Spectrum: 5_20200120001_QCAsLeft
Description: Quality control Check (QC Source 'A') Post Stabilization
Acquired: 1/20/2020 5:03:22 AM
Detector: Detector # 5
Quality Control Evaluation Criteria:
1) Notify Supervisor if 'AS FOUND' parameters exceed Tolerance or Control Limits.
2) Place out of service if 'AS LEFT' parameters exceed Tolerance or Control Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
QA-60							
Channel	238.00	236.00	237.00	237.80	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.56	59.79	60.04	PASS
FWHM	0.74	0.00	0.00	0.73	1.84	1.94	PASS
ActivityDiff	636.60	-5.00	-4.00	-0.24	4.00	5.00	PASS
QA-662							
FWHM	1.36	0.00	0.00	1.34	3.06	3.16	PASS
ActivityDiff	596.80	-5.00	-4.00	-0.28	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5328.80	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.26	1333.01	1333.26	PASS
FWHM	1.90	0.00	0.00	1.89	4.10	4.20	PASS
ActivityDiff	1164.20	-5.00	-4.00	-0.45	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: Jasmine Stewart

Test America
St. Louis
Background Check

Spectrum: 5_20200120002_BG
Description: Background Contamination Check
Acquired: 1/20/2020 5:50:26 AM
Detector: Detector # 5
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	1.45	1.30	1.35	1.48	1.55	1.60	PASS

Analyst: kody Saulters Reviewer: Jasmine Stewart

Test America
St. Louis
Quality Control Check

Spectrum: 5_20200121001_QCAsLeft
Description: Quality control Check (QC Source 'A') Post Stabilization
Acquired: 1/21/2020 5:20:21 AM
Detector: Detector # 5
Quality Control Evaluation Criteria:
1) Notify Supervisor if 'AS FOUND' parameters exceed Tolerance or Control Limits.
2) Place out of service if 'AS LEFT' parameters exceed Tolerance or Control Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
QA-60							
Channel	238.00	236.00	237.00	238.10	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.63	59.79	60.04	PASS
FWHM	0.74	0.00	0.00	0.73	1.84	1.94	PASS
ActivityDiff	636.60	-5.00	-4.00	0.42	4.00	5.00	PASS
QA-662							
FWHM	1.36	0.00	0.00	1.33	3.06	3.16	PASS
ActivityDiff	596.80	-5.00	-4.00	-0.71	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5328.80	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.25	1333.01	1333.26	PASS
FWHM	1.90	0.00	0.00	2.01	4.10	4.20	PASS
ActivityDiff	1164.20	-5.00	-4.00	-0.73	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 5_20200121002_BG
Description: Background Contamination Check
Acquired: 1/21/2020 5:53:35 AM
Detector: Detector # 5
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	1.45	1.30	1.35	1.42	1.55	1.60	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Quality Control Check

Spectrum: 5_20200122001_QCAsLeft
Description: Quality control Check (QC Source 'A') Post Stabilization
Acquired: 1/22/2020 5:22:53 AM
Detector: Detector # 5
Quality Control Evaluation Criteria:
1) Notify Supervisor if 'AS FOUND' parameters exceed Tolerance or Control Limits.
2) Place out of service if 'AS LEFT' parameters exceed Tolerance or Control Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
QA-60							
Channel	238.00	236.00	237.00	237.90	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.59	59.79	60.04	PASS
FWHM	0.74	0.00	0.00	0.72	1.84	1.94	PASS
ActivityDiff	636.60	-5.00	-4.00	-0.50	4.00	5.00	PASS
QA-662							
FWHM	1.36	0.00	0.00	1.33	3.06	3.16	PASS
ActivityDiff	596.80	-5.00	-4.00	-0.04	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5328.70	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.23	1333.01	1333.26	PASS
FWHM	1.90	0.00	0.00	1.92	4.10	4.20	PASS
ActivityDiff	1164.20	-5.00	-4.00	-0.14	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 5_20200122002_BG
Description: Background Contamination Check
Acquired: 1/22/2020 5:40:45 AM
Detector: Detector # 5
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	1.45	1.30	1.35	1.49	1.55	1.60	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Quality Control Check

Spectrum: 8_20200120002_QCAsLeft
Description: Quality control Check (QC Source 'D') Post Stabilization
Acquired: 1/20/2020 6:11:08 AM
Detector: Detector # 8
Quality Control Evaluation Criteria:
1) Notify Supervisor if 'AS FOUND' parameters exceed Tolerance or Control Limits.
2) Place out of service if 'AS LEFT' parameters exceed Tolerance or Control Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
QA-60							
Channel	238.00	236.00	237.00	237.80	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.51	59.79	60.04	PASS
FWHM	1.10	0.00	0.00	1.29	2.20	2.30	PASS
ActivityDiff	650.60	-5.00	-4.00	2.71	4.00	5.00	PASS
QA-662							
FWHM	1.53	0.00	0.00	1.75	3.23	3.33	PASS
ActivityDiff	609.90	-5.00	-4.00	3.01	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5329.50	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.38	1333.01	1333.26	PASS
FWHM	1.90	0.00	0.00	1.92	4.10	4.20	PASS
ActivityDiff	1189.70	-5.00	-4.00	3.76	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 8_20200120003_BG
Description: Background Contamination Check
Acquired: 1/20/2020 6:31:16 AM
Detector: Detector # 8
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	1.56	1.39	1.45	1.52	1.68	1.74	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Quality Control Check

Spectrum: 8_20200121001_QCAsLeft
Description: Quality control Check (QC Source 'D') Post Stabilization
Acquired: 1/21/2020 5:24:47 AM
Detector: Detector # 8
Quality Control Evaluation Criteria:
1) Notify Supervisor if 'AS FOUND' parameters exceed Tolerance or Control Limits.
2) Place out of service if 'AS LEFT' parameters exceed Tolerance or Control Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
QA-60							
Channel	238.00	236.00	237.00	237.80	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.52	59.79	60.04	PASS
FWHM	1.10	0.00	0.00	1.28	2.20	2.30	PASS
ActivityDiff	650.60	-5.00	-4.00	1.07	4.00	5.00	PASS
QA-662							
FWHM	1.53	0.00	0.00	1.69	3.23	3.33	PASS
ActivityDiff	609.90	-5.00	-4.00	3.53	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5329.40	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.34	1333.01	1333.26	PASS
FWHM	1.90	0.00	0.00	2.05	4.10	4.20	PASS
ActivityDiff	1189.70	-5.00	-4.00	2.18	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 8_20200121002_BG
Description: Background Contamination Check
Acquired: 1/21/2020 5:56:56 AM
Detector: Detector # 8
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	1.56	1.39	1.45	1.56	1.68	1.74	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Quality Control Check

Spectrum: 8_20200123001_QCAsLeft
Description: Quality control Check (QC Source 'D') Post Stabilization
Acquired: 1/23/2020 5:18:02 AM
Detector: Detector # 8
Quality Control Evaluation Criteria:
1) Notify Supervisor if 'AS FOUND' parameters exceed Tolerance or Control Limits.
2) Place out of service if 'AS LEFT' parameters exceed Tolerance or Control Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
QA-60							
Channel	238.00	236.00	237.00	237.80	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.51	59.79	60.04	PASS
FWHM	1.10	0.00	0.00	1.29	2.20	2.30	PASS
ActivityDiff	650.60	-5.00	-4.00	0.73	4.00	5.00	PASS
QA-662							
FWHM	1.53	0.00	0.00	1.71	3.23	3.33	PASS
ActivityDiff	609.90	-5.00	-4.00	3.97	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5329.40	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.35	1333.01	1333.26	PASS
FWHM	1.90	0.00	0.00	2.03	4.10	4.20	PASS
ActivityDiff	1189.70	-5.00	-4.00	2.30	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: Kellene Robbs

Test America
St. Louis
Background Check

Spectrum: 8_20200123002_BG
Description: Background Contamination Check
Acquired: 1/23/2020 5:45:05 AM
Detector: Detector # 8
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	1.56	1.39	1.45	1.58	1.68	1.74	PASS

Analyst: kody Saulters Reviewer: Kellene Robbs

Test America
St. Louis
Background Check

Spectrum: 9_20200120001_BG
Description: Background Contamination Check
Acquired: 1/20/2020 4:54:43 AM
Detector: Detector # 9
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	1.89	1.53	1.65	1.74	2.14	2.26	PASS

Analyst: kody Saulters Reviewer: Jasmine Stewart

Test America
St. Louis
Quality Control Check

Spectrum: 9_20200120002_QCAsLeft
Description: Quality control Check (QC Source 'E') Post Stabilization
Acquired: 1/20/2020 6:07:36 AM
Detector: Detector # 9
Quality Control Evaluation Criteria:
1) Notify Supervisor if 'AS FOUND' parameters exceed Tolerance or Control Limits.
2) Place out of service if 'AS LEFT' parameters exceed Tolerance or Control Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
QA-60							
Channel	238.00	236.00	237.00	238.00	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.59	59.79	60.04	PASS
FWHM	1.08	0.00	0.00	0.93	2.18	2.28	PASS
ActivityDiff	649.44	-5.00	-4.00	-0.63	4.00	5.00	PASS
QA-662							
FWHM	1.62	0.00	0.00	1.49	3.32	3.42	PASS
ActivityDiff	607.56	-5.00	-4.00	-1.36	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5329.10	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.19	1333.01	1333.26	PASS
FWHM	2.12	0.00	0.00	1.93	4.32	4.42	PASS
ActivityDiff	1191.31	-5.00	-4.00	-1.35	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: Jasmine Stewart

Test America
St. Louis
Background Check

Spectrum: 9_20200121001_BG
Description: Background Contamination Check
Acquired: 1/21/2020 5:02:48 AM
Detector: Detector # 9
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	1.89	1.53	1.65	1.70	2.14	2.26	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Quality Control Check

Spectrum: 9_20200121002_QCAsLeft
Description: Quality control Check (QC Source 'E') Post Stabilization
Acquired: 1/21/2020 6:17:14 AM
Detector: Detector # 9
Quality Control Evaluation Criteria:
1) Notify Supervisor if 'AS FOUND' parameters exceed Tolerance or Control Limits.
2) Place out of service if 'AS LEFT' parameters exceed Tolerance or Control Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
QA-60							
Channel	238.00	236.00	237.00	237.90	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.59	59.79	60.04	PASS
FWHM	1.08	0.00	0.00	0.93	2.18	2.28	PASS
ActivityDiff	649.44	-5.00	-4.00	-1.65	4.00	5.00	PASS
QA-662							
FWHM	1.62	0.00	0.00	1.50	3.32	3.42	PASS
ActivityDiff	607.56	-5.00	-4.00	0.03	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5329.40	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.26	1333.01	1333.26	PASS
FWHM	2.12	0.00	0.00	1.92	4.32	4.42	PASS
ActivityDiff	1191.31	-5.00	-4.00	-1.28	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 9_20200122001_BG
Description: Background Contamination Check
Acquired: 1/22/2020 4:59:00 AM
Detector: Detector # 9
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	1.89	1.53	1.65	1.76	2.14	2.26	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Quality Control Check

Spectrum: 9_20200122002_QCAsLeft
Description: Quality control Check (QC Source 'E') Post Stabilization
Acquired: 1/22/2020 6:06:42 AM
Detector: Detector # 9
Quality Control Evaluation Criteria:
1) Notify Supervisor if 'AS FOUND' parameters exceed Tolerance or Control Limits.
2) Place out of service if 'AS LEFT' parameters exceed Tolerance or Control Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
QA-60							
Channel	238.00	236.00	237.00	237.90	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.58	59.79	60.04	PASS
FWHM	1.08	0.00	0.00	0.92	2.18	2.28	PASS
ActivityDiff	649.44	-5.00	-4.00	-1.21	4.00	5.00	PASS
QA-662							
FWHM	1.62	0.00	0.00	1.51	3.32	3.42	PASS
ActivityDiff	607.56	-5.00	-4.00	0.41	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5329.30	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.24	1333.01	1333.26	PASS
FWHM	2.12	0.00	0.00	1.97	4.32	4.42	PASS
ActivityDiff	1191.31	-5.00	-4.00	-0.15	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 9_20200123001_BG
Description: Background Contamination Check
Acquired: 1/23/2020 4:50:45 AM
Detector: Detector # 9
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	1.89	1.53	1.65	1.78	2.14	2.26	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Quality Control Check

Spectrum: 9_20200123002_QCAsLeft
Description: Quality control Check (QC Source 'E') Post Stabilization
Acquired: 1/23/2020 5:57:08 AM
Detector: Detector # 9
Quality Control Evaluation Criteria:
1) Notify Supervisor if 'AS FOUND' parameters exceed Tolerance or Control Limits.
2) Place out of service if 'AS LEFT' parameters exceed Tolerance or Control Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
QA-60							
Channel	238.00	236.00	237.00	238.10	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.64	59.79	60.04	PASS
FWHM	1.08	0.00	0.00	0.94	2.18	2.28	PASS
ActivityDiff	649.44	-5.00	-4.00	-1.41	4.00	5.00	PASS
QA-662							
FWHM	1.62	0.00	0.00	1.44	3.32	3.42	PASS
ActivityDiff	607.56	-5.00	-4.00	-0.60	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5329.60	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.31	1333.01	1333.26	PASS
FWHM	2.12	0.00	0.00	1.95	4.32	4.42	PASS
ActivityDiff	1191.31	-5.00	-4.00	0.06	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 12_20200120001_BG
Description: Background Contamination Check
Acquired: 1/20/2020 4:56:15 AM
Detector: Detector #12
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	1.97	1.85	1.89	1.89	2.05	2.09	Low OOT

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Quality Control Check

Spectrum: 12_20200120002_QCAsLeft
Description: Quality control Check (QC Source 'H') Post Stabilization
Acquired: 1/20/2020 6:07:54 AM
Detector: Detector #12
Quality Control Evaluation Criteria:
1) Notify Supervisor if 'AS FOUND' parameters exceed Tolerance or Control Limits.
2) Place out of service if 'AS LEFT' parameters exceed Tolerance or Control Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
QA-60							
Channel	238.00	236.00	237.00	237.90	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.59	59.79	60.04	PASS
FWHM	0.90	0.00	0.00	0.85	2.00	2.10	PASS
ActivityDiff	691.00	-5.00	-4.00	-0.62	4.00	5.00	PASS
QA-662							
FWHM	1.48	0.00	0.00	1.45	3.18	3.28	PASS
ActivityDiff	659.00	-5.00	-4.00	0.74	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5329.90	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.45	1333.01	1333.26	PASS
FWHM	2.00	0.00	0.00	2.00	4.20	4.30	PASS
ActivityDiff	1274.00	-5.00	-4.00	0.05	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 12_20200121001_BG
Description: Background Contamination Check
Acquired: 1/21/2020 5:03:26 AM
Detector: Detector #12
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	1.97	1.85	1.89	1.92	2.05	2.09	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Quality Control Check

Spectrum: 12_20200121002_QCAsLeft
Description: Quality control Check (QC Source 'H') Post Stabilization
Acquired: 1/21/2020 6:17:43 AM
Detector: Detector #12
Quality Control Evaluation Criteria:
1) Notify Supervisor if 'AS FOUND' parameters exceed Tolerance or Control Limits.
2) Place out of service if 'AS LEFT' parameters exceed Tolerance or Control Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
QA-60							
Channel	238.00	236.00	237.00	237.90	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.58	59.79	60.04	PASS
FWHM	0.90	0.00	0.00	0.84	2.00	2.10	PASS
ActivityDiff	691.00	-5.00	-4.00	-0.54	4.00	5.00	PASS
QA-662							
FWHM	1.48	0.00	0.00	1.42	3.18	3.28	PASS
ActivityDiff	659.00	-5.00	-4.00	-0.55	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5330.00	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.47	1333.01	1333.26	PASS
FWHM	2.00	0.00	0.00	2.02	4.20	4.30	PASS
ActivityDiff	1274.00	-5.00	-4.00	-0.20	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 12_20200122001_BG
Description: Background Contamination Check
Acquired: 1/22/2020 4:59:42 AM
Detector: Detector #12
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	1.97	1.85	1.89	1.97	2.05	2.09	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Quality Control Check

Spectrum: 12_20200122002_QCAsLeft
Description: Quality control Check (QC Source 'H') Post Stabilization
Acquired: 1/22/2020 6:07:20 AM
Detector: Detector #12
Quality Control Evaluation Criteria:
1) Notify Supervisor if 'AS FOUND' parameters exceed Tolerance or Control Limits.
2) Place out of service if 'AS LEFT' parameters exceed Tolerance or Control Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
QA-60							
Channel	238.00	236.00	237.00	237.80	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.56	59.79	60.04	PASS
FWHM	0.90	0.00	0.00	0.83	2.00	2.10	PASS
ActivityDiff	691.00	-5.00	-4.00	0.68	4.00	5.00	PASS
QA-662							
FWHM	1.48	0.00	0.00	1.45	3.18	3.28	PASS
ActivityDiff	659.00	-5.00	-4.00	-0.53	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5330.00	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.47	1333.01	1333.26	PASS
FWHM	2.00	0.00	0.00	2.01	4.20	4.30	PASS
ActivityDiff	1274.00	-5.00	-4.00	0.32	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 12_20200123001_BG
Description: Background Contamination Check
Acquired: 1/23/2020 4:53:57 AM
Detector: Detector #12
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	1.97	1.85	1.89	2.00	2.05	2.09	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Quality Control Check

Spectrum: 12_20200123002_QCAsLeft
Description: Quality control Check (QC Source 'H') Post Stabilization
Acquired: 1/23/2020 6:00:15 AM
Detector: Detector #12
Quality Control Evaluation Criteria:
1) Notify Supervisor if 'AS FOUND' parameters exceed Tolerance or Control Limits.
2) Place out of service if 'AS LEFT' parameters exceed Tolerance or Control Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
QA-60							
Channel	238.00	236.00	237.00	238.10	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.64	59.79	60.04	PASS
FWHM	0.90	0.00	0.00	0.85	2.00	2.10	PASS
ActivityDiff	691.00	-5.00	-4.00	-1.10	4.00	5.00	PASS
QA-662							
FWHM	1.48	0.00	0.00	1.45	3.18	3.28	PASS
ActivityDiff	659.00	-5.00	-4.00	0.77	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5330.40	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.59	1333.01	1333.26	PASS
FWHM	2.00	0.00	0.00	1.88	4.20	4.30	PASS
ActivityDiff	1274.00	-5.00	-4.00	2.05	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Quality Control Check

Spectrum: 14_20200120001_QCAsLeft
Description: Quality control Check (QC Source 'E') Post Stabilization
Acquired: 1/20/2020 5:13:22 AM
Detector: Detector #14
Quality Control Evaluation Criteria:
1) Notify Supervisor if 'AS FOUND' parameters exceed Tolerance or Control Limits.
2) Place out of service if 'AS LEFT' parameters exceed Tolerance or Control Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
QA-60							
Channel	238.00	236.00	237.00	237.80	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.61	59.79	60.04	PASS
FWHM	0.76	0.00	0.00	0.89	1.86	1.96	PASS
ActivityDiff	671.90	-5.00	-4.00	-3.64	4.00	5.00	PASS
QA-662							
FWHM	1.35	0.00	0.00	1.45	3.05	3.15	PASS
ActivityDiff	628.85	-5.00	-4.00	-1.28	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5329.50	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.39	1333.01	1333.26	PASS
FWHM	1.91	0.00	0.00	1.93	4.11	4.21	PASS
ActivityDiff	1224.59	-5.00	-4.00	-2.62	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 14_20200120002_BG
Description: Background Contamination Check
Acquired: 1/20/2020 5:46:27 AM
Detector: Detector #14
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	1.80	1.66	1.71	1.78	1.90	1.94	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Quality Control Check

Spectrum: 14_20200121001_QCAsLeft
Description: Quality control Check (QC Source 'E') Post Stabilization
Acquired: 1/21/2020 5:32:29 AM
Detector: Detector #14
Quality Control Evaluation Criteria:
1) Notify Supervisor if 'AS FOUND' parameters exceed Tolerance or Control Limits.
2) Place out of service if 'AS LEFT' parameters exceed Tolerance or Control Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
QA-60							
Channel	238.00	236.00	237.00	238.00	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.65	59.79	60.04	PASS
FWHM	0.76	0.00	0.00	0.89	1.86	1.96	PASS
ActivityDiff	671.90	-5.00	-4.00	-2.10	4.00	5.00	PASS
QA-662							
FWHM	1.35	0.00	0.00	1.46	3.05	3.15	PASS
ActivityDiff	628.85	-5.00	-4.00	-2.10	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5329.80	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.47	1333.01	1333.26	PASS
FWHM	1.91	0.00	0.00	1.87	4.11	4.21	PASS
ActivityDiff	1224.59	-5.00	-4.00	-2.29	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 14_20200121002_BG
Description: Background Contamination Check
Acquired: 1/21/2020 5:56:13 AM
Detector: Detector #14
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	1.80	1.66	1.71	1.72	1.90	1.94	PASS

Analyst: Caleb Quinn Reviewer: kody Saulters

Test America
St. Louis
Quality Control Check

Spectrum: 16_20200121001_QCAsLeft
Description: Quality control Check (QC Source 'G') Post Stabilization
Acquired: 1/21/2020 5:34:54 AM
Detector: Detector #16
Quality Control Evaluation Criteria:
1) Notify Supervisor if 'AS FOUND' parameters exceed Tolerance or Control Limits.
2) Place out of service if 'AS LEFT' parameters exceed Tolerance or Control Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
QA-60							
Channel	238.00	236.00	237.00	237.90	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.56	59.79	60.04	PASS
FWHM	0.96	0.00	0.00	0.99	2.06	2.16	PASS
ActivityDiff	602.10	-5.00	-4.00	2.00	4.00	5.00	PASS
QA-662							
FWHM	1.53	0.00	0.00	1.74	3.23	3.33	PASS
ActivityDiff	571.13	-5.00	-4.00	0.97	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5330.90	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.85	1333.01	1333.26	PASS
FWHM	2.09	0.00	0.00	2.63	4.29	4.39	PASS
ActivityDiff	1139.05	-5.00	-4.00	0.43	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 16_20200121002_BG
Description: Background Contamination Check
Acquired: 1/21/2020 5:56:54 AM
Detector: Detector #16
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	2.68	2.51	2.56	2.56	2.80	2.86	PASS

Analyst: Caleb Quinn Reviewer: kody Saulters

Test America
St. Louis
Quality Control Check

Spectrum: 17_20200120001_QCAsLeft
Description: Quality control Check (QC Source 'H') Post Stabilization
Acquired: 1/20/2020 5:18:08 AM
Detector: Detector #17
Quality Control Evaluation Criteria:
1) Notify Supervisor if 'AS FOUND' parameters exceed Tolerance or Control Limits.
2) Place out of service if 'AS LEFT' parameters exceed Tolerance or Control Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
QA-60							
Channel	238.00	236.00	237.00	237.80	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.61	59.79	60.04	PASS
FWHM	0.77	0.00	0.00	1.25	1.87	1.97	PASS
ActivityDiff	691.00	-5.00	-4.00	2.87	4.00	5.00	PASS
QA-662							
FWHM	1.37	0.00	0.00	1.70	3.07	3.17	PASS
ActivityDiff	659.00	-5.00	-4.00	0.53	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5329.10	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.40	1333.01	1333.26	PASS
FWHM	1.88	0.00	0.00	2.03	4.08	4.18	PASS
ActivityDiff	1274.00	-5.00	-4.00	-1.42	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 17_20200120002_BG
Description: Background Contamination Check
Acquired: 1/20/2020 5:47:06 AM
Detector: Detector #17
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	2.32	2.18	2.23	2.28	2.42	2.46	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Quality Control Check

Spectrum: 17_20200121001_QCAsLeft
Description: Quality control Check (QC Source 'H') Post Stabilization
Acquired: 1/21/2020 5:36:16 AM
Detector: Detector #17
Quality Control Evaluation Criteria:
1) Notify Supervisor if 'AS FOUND' parameters exceed Tolerance or Control Limits.
2) Place out of service if 'AS LEFT' parameters exceed Tolerance or Control Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
QA-60							
Channel	238.00	236.00	237.00	237.90	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.62	59.79	60.04	PASS
FWHM	0.77	0.00	0.00	1.43	1.87	1.97	PASS
ActivityDiff	691.00	-5.00	-4.00	2.85	4.00	5.00	PASS
QA-662							
FWHM	1.37	0.00	0.00	1.78	3.07	3.17	PASS
ActivityDiff	659.00	-5.00	-4.00	0.35	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5329.10	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.40	1333.01	1333.26	PASS
FWHM	1.88	0.00	0.00	2.15	4.08	4.18	PASS
ActivityDiff	1274.00	-5.00	-4.00	-2.17	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 17_20200121002_BG
Description: Background Contamination Check
Acquired: 1/21/2020 5:58:07 AM
Detector: Detector #17
Background Evaluation Criteria:
1) Place instrument out of service if Countrate exceeds Control Limits.
2) Investigate high countrate and take corrective action as necessary if Countrate exceeds Tolerance Limits.

	Target	L_Ctrl	L_Tol	Measured	H_Tol	H_Ctrl	Results
Bkgd Countrate	2.32	2.18	2.23	2.35	2.42	2.46	PASS

Analyst: Caleb Quinn Reviewer: kody Saulters

Run Logs

Gamma Spectroscopy Run Log

Detector: GV5

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
03/26/12 15:05		IC 160-12297/1		12297			JLW
03/27/12 10:12		ICV 160-12297/2		12297			JLW
01/10/20 14:08		ICB 160-456553/1		456553			JLW
01/20/20 04:42		CCV 160-457267/1		457267			
01/20/20 05:03		CCV 160-457267/2		457267			AJD
01/20/20 05:50		CCB 160-457267/3		457267			AJD
01/20/20 06:32	30	ZZZZZ		457267			
01/20/20 07:16	30	ZZZZZ		457267			
01/20/20 07:50	30	ZZZZZ		457267			
01/20/20 08:25	30	ZZZZZ		457267			
01/20/20 08:59	30	ZZZZZ		457267			
01/20/20 09:52	30	ZZZZZ		457267			
01/20/20 10:31	30	ZZZZZ		457267			
01/20/20 11:07	30	ZZZZZ		457267			
01/20/20 11:43	30	ZZZZZ		457267			
01/20/20 12:15	30	ZZZZZ		457267			
01/20/20 13:35	30	ZZZZZ		457267			
01/20/20 14:11	30	ZZZZZ		457267			
01/20/20 14:52	30	ZZZZZ		457267			
01/20/20 15:36	30	ZZZZZ		457267			
01/20/20 18:08	30	160-36789-29	WRSB210_0.5-3	457267	455485	901.1	AJD
01/21/20 04:59		CCV 160-457420/1		457420			
01/21/20 05:20		CCV 160-457420/2		457420			AJD
01/21/20 05:53		CCB 160-457420/3		457420			AJD
01/21/20 06:32	60	ZZZZZ		457420			
01/21/20 07:34	60	ZZZZZ		457420			
01/21/20 08:56	30	ZZZZZ		457420			
01/21/20 09:28	30	ZZZZZ		457420			
01/21/20 10:06	30	ZZZZZ		457420			
01/21/20 10:44	30	ZZZZZ		457420			
01/21/20 11:59	30	160-36789-1	WRSB235_0-0.5	457420	455482	901.1	AJD
01/21/20 12:30	30	160-36789-6	WRSB217-FD_0-0.5	457420	455482	901.1	AJD
01/21/20 13:06	30	160-36789-12	WRSB218-FD_0.5-3	457420	455482	901.1	AJD
01/21/20 13:53	30	160-36789-18	WRSB229_6-15	457420	455482	901.1	AJD
01/21/20 14:41	60	ZZZZZ		457420			
01/21/20 15:58	60	ZZZZZ		457420			
01/21/20 17:09	60	ZZZZZ		457420			
01/21/20 19:01	60	ZZZZZ		457420			
01/22/20 05:02		CCV 160-457518/1		457518			
01/22/20 05:22		CCV 160-457518/2		457518			KLS
01/22/20 05:40		CCB 160-457518/3		457518			KLS
01/22/20 06:49	30	ZZZZZ		457518			
01/22/20 07:26	30	ZZZZZ		457518			
01/22/20 08:08	30	ZZZZZ		457518			
01/22/20 09:15	30	ZZZZZ		457518			
01/22/20 10:04	30	ZZZZZ		457518			
01/22/20 10:46	30	ZZZZZ		457518			
01/22/20 10:46	30	160-36789-13 DU	WRSB218_3-6 DU	457518	455482	901.1	KLS
01/22/20 11:27	30	ZZZZZ		457518			
01/22/20 12:09	30	ZZZZZ		457518			
01/22/20 12:48	30	ZZZZZ		457518			
01/22/20 13:37	30	ZZZZZ		457518			
01/22/20 14:12	30	ZZZZZ		457518			

Gamma Spectroscopy Run Log

Detector: GV5 (Continued)

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
01/22/20 14:58	30	ZZZZZ		457518			
01/22/20 15:43	30	ZZZZZ		457518			
01/22/20 16:37	30	ZZZZZ		457518			

Detector: GV8

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
03/27/12 10:58		IC 160-12311/1		12311			JLW
03/29/12 01:58		ICV 160-12311/2		12311			JLW
03/16/18 18:56		IC 160-367380/2		367380			JLW
05/23/18 00:34		CCV 160-367099/1		367099			
05/23/18 01:19		CCV 160-367099/2		367099			
05/23/18 01:45		CCB 160-367099/3		367099			
05/23/18 06:30	30	ZZZZZ		367099			
05/23/18 07:23	30	ZZZZZ		367099			
05/23/18 08:08	30	ZZZZZ		367099			
05/23/18 09:07	30	ZZZZZ		367099			
05/23/18 09:53	30	ZZZZZ		367099			
05/23/18 10:34	30	ZZZZZ		367099			
05/23/18 11:24	30	ZZZZZ		367099			
05/23/18 12:22		ICV 160-367099/11		367099			ALS
05/23/18 12:22		ICV 160-367380/1		367380			JLW
05/23/18 19:59	30	ZZZZZ		367099			
05/23/18 20:32	30	ZZZZZ		367099			
05/23/18 21:20	30	ZZZZZ		367099			
05/23/18 22:15	30	ZZZZZ		367099			
01/11/20 10:40		ICB 160-457661/1		457661			JLW
01/20/20 04:52		CCV 160-457268/1		457268			
01/20/20 05:14		CCV 160-457268/2		457268			
01/20/20 05:49		CCV 160-457268/3		457268			
01/20/20 06:11		CCV 160-457268/4		457268			KLS
01/20/20 06:31		CCB 160-457268/5		457268			KLS
01/20/20 07:17	30	ZZZZZ		457268			
01/20/20 07:51	30	ZZZZZ		457268			
01/20/20 08:26	30	ZZZZZ		457268			
01/20/20 09:00	30	ZZZZZ		457268			
01/20/20 09:53	60	ZZZZZ		457268			
01/20/20 11:08	30	ZZZZZ		457268			
01/20/20 11:44	30	ZZZZZ		457268			
01/20/20 12:16	30	ZZZZZ		457268			
01/20/20 12:59	30	ZZZZZ		457268			
01/20/20 13:36	30	ZZZZZ		457268			
01/20/20 14:12	30	ZZZZZ		457268			
01/20/20 14:53	30	ZZZZZ		457268			
01/20/20 16:28	30	ZZZZZ		457268			
01/20/20 18:09	30	160-36789-30	WRSB210_3-6	457268	455485	901.1	KLS
01/21/20 05:03		CCV 160-457419/1		457419			
01/21/20 05:24		CCV 160-457419/2		457419			AJD
01/21/20 05:56		CCB 160-457419/3		457419			AJD
01/21/20 06:41	30	ZZZZZ		457419			
01/21/20 07:16	30	ZZZZZ		457419			
01/21/20 07:48	30	ZZZZZ		457419			
01/21/20 08:23	30	ZZZZZ		457419			

Gamma Spectroscopy Run Log

Detector: GV8 (Continued)

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
01/21/20 08:57	30	ZZZZZ		457419			
01/21/20 09:29	30	ZZZZZ		457419			
01/21/20 10:07	30	ZZZZZ		457419			
01/21/20 10:45	30	ZZZZZ		457419			
01/21/20 12:00	30	160-36789-2	WRSB235_0.5-3	457419	455482	901.1	AJD
01/21/20 12:32	30	160-36789-7	WRSB217_0.5-3	457419	455482	901.1	AJD
01/21/20 13:07	30	160-36789-16	WRSB229_0.5-3	457419	455482	901.1	AJD
01/21/20 13:54	30	160-36789-19	WRSB211_0-0.5	457419	455482	901.1	AJD
01/21/20 14:42	60	ZZZZZ		457419			
01/21/20 15:58	60	ZZZZZ		457419			
01/21/20 17:10	60	ZZZZZ		457419			
01/23/20 04:56		CCV 160-457639/1		457639			
01/23/20 05:18		CCV 160-457639/2		457639			AJD
01/23/20 05:45		CCB 160-457639/3		457639			AJD
01/23/20 07:34	30	ZZZZZ		457639			
01/23/20 08:14	60	ZZZZZ		457639			
01/23/20 09:29	60	ZZZZZ		457639			
01/23/20 10:43	30	ZZZZZ		457639			
01/23/20 11:21	30	ZZZZZ		457639			
01/23/20 11:57	60	ZZZZZ		457639			
01/23/20 13:22	30	ZZZZZ		457639			
01/23/20 13:58	60	LCS 160-455678/2-A		457639	455678	901.1	AJD
01/23/20 15:35	60	160-36789-4 DU	WRSB235_6-15 DU	457639	455678	901.1	AJD
01/23/20 17:31	30	ZZZZZ		457639			

Detector: GV9

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
05/03/12 13:37		IC 160-12326/1		12326			JLW
06/14/12 10:54		ICV 160-12326/2		12326			JLW
03/16/18 17:35		IC 160-366437/1		366437			JLW
05/17/18 09:37		ICV 160-366437/2		366437			JLW
01/10/20 14:02		ICB 160-456551/1		456551			JLW
01/20/20 04:54		CCB 160-457266/1		457266			AJD
01/20/20 05:46		CCV 160-457266/2		457266			
01/20/20 06:07		CCV 160-457266/3		457266			AJD
01/20/20 06:29	30	ZZZZZ		457266			
01/20/20 07:15	30	ZZZZZ		457266			
01/20/20 07:49	30	ZZZZZ		457266			
01/20/20 08:23	30	ZZZZZ		457266			
01/20/20 08:56	30	ZZZZZ		457266			
01/20/20 09:32		ZZZZZ		457266			
01/20/20 09:50	30	ZZZZZ		457266			
01/20/20 10:29	30	ZZZZZ		457266			
01/20/20 11:06	30	ZZZZZ		457266			
01/20/20 11:42	30	ZZZZZ		457266			
01/20/20 12:14	30	ZZZZZ		457266			
01/20/20 12:57	30	ZZZZZ		457266			
01/20/20 13:32	30	ZZZZZ		457266			
01/20/20 14:09	30	ZZZZZ		457266			
01/20/20 15:34	30	ZZZZZ		457266			
01/20/20 16:31	30	MB 160-455485/1-A		457266	455485	901.1	AJD
01/20/20 17:43	30	160-36789-24	WRSB209_0-0.5	457266	455485	901.1	AJD

Gamma Spectroscopy Run Log

Detector: GV9 (Continued)

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
01/20/20 18:54	30	160-36789-31	WRSB210_6-15	457266	455485	901.1	AJD
01/21/20 05:02		CCB 160-457408/1		457408			KLS
01/21/20 05:56		CCV 160-457408/2		457408			
01/21/20 06:17		CCV 160-457408/3		457408			KLS
01/21/20 06:39	30	ZZZZZ		457408			
01/21/20 07:14	30	ZZZZZ		457408			
01/21/20 07:50	30	ZZZZZ		457408			
01/21/20 08:21	30	ZZZZZ		457408			
01/21/20 08:55	30	ZZZZZ		457408			
01/21/20 09:28	30	ZZZZZ		457408			
01/21/20 10:04	30	ZZZZZ		457408			
01/21/20 10:41	30	ZZZZZ		457408			
01/21/20 11:19	30	ZZZZZ		457408			
01/21/20 11:55	30	MB 160-455482/1-A		457408	455482	901.1	KLS
01/21/20 12:27	30	160-36789-3	WRSB235_3-6	457408	455482	901.1	KLS
01/21/20 13:04	30	160-36789-10	WRSB218_0-0.5	457408	455482	901.1	KLS
01/21/20 13:52	30	ZZZZZ		457408			
01/21/20 14:41	60	ZZZZZ		457408			
01/21/20 15:57	60	ZZZZZ		457408			
01/21/20 17:07	60	ZZZZZ		457408			
01/21/20 19:01	60	ZZZZZ		457408			
01/22/20 04:59		CCB 160-457540/1		457540			KLS
01/22/20 05:46		CCV 160-457540/2		457540			
01/22/20 06:06		CCV 160-457540/3		457540			KLS
01/22/20 06:47	30	160-36789-20	WRSB211_0.5-3	457540	455482	901.1	KLS
01/22/20 07:24	30	ZZZZZ		457540			
01/22/20 08:05	30	ZZZZZ		457540			
01/22/20 08:41	30	ZZZZZ		457540			
01/22/20 09:17	30	ZZZZZ		457540			
01/22/20 10:00	30	ZZZZZ		457540			
01/22/20 10:50	30	ZZZZZ		457540			
01/22/20 11:31	30	ZZZZZ		457540			
01/22/20 12:07	30	ZZZZZ		457540			
01/22/20 12:44	30	ZZZZZ		457540			
01/22/20 13:25	30	ZZZZZ		457540			
01/22/20 14:11	30	ZZZZZ		457540			
01/22/20 14:56	30	ZZZZZ		457540			
01/22/20 15:41	30	ZZZZZ		457540			
01/22/20 16:36	30	ZZZZZ		457540			
01/22/20 17:19	30	ZZZZZ		457540			
01/23/20 04:50		CCB 160-457644/1		457644			KLS
01/23/20 05:36		CCV 160-457644/2		457644			
01/23/20 05:57		CCV 160-457644/3		457644			KLS
01/23/20 06:19	30	ZZZZZ		457644			
01/23/20 06:51	30	ZZZZZ		457644			
01/23/20 07:30	30	ZZZZZ		457644			
01/23/20 08:10	30	ZZZZZ		457644			
01/23/20 08:47	30	ZZZZZ		457644			
01/23/20 09:25	30	ZZZZZ		457644			
01/23/20 09:57	30	ZZZZZ		457644			
01/23/20 10:40	30	ZZZZZ		457644			
01/23/20 11:19	30	ZZZZZ		457644			
01/23/20 11:55	30	ZZZZZ		457644			

Gamma Spectroscopy Run Log

Detector: GV9 (Continued)

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
01/23/20 12:45	30	ZZZZZ		457644			
01/23/20 13:17	30	ZZZZZ		457644			
01/23/20 13:53	30	ZZZZZ		457644			
01/23/20 14:33	60	160-36789-4	WRSB235_6-15	457644	455678	901.1	KLS
01/23/20 17:32	30	ZZZZZ		457644			
01/23/20 18:16	30	ZZZZZ		457644			

Detector: GV12

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
04/18/18 13:54		IC 160-364854/1		364854			JLW
04/18/18 18:31		IC 160-364929/1		364929			JLW
04/24/18 09:26		ICV 160-364854/2		364854			JLW
04/24/18 11:36		ICV 160-364929/2		364929			JLW
01/10/20 07:20		ZZZZZ		456552			
01/10/20 09:52		ZZZZZ		456552			
01/10/20 10:28		ZZZZZ		456552			
01/10/20 11:27		ZZZZZ		456552			
01/10/20 14:02		ICB 160-456552/5		456552			JLW
01/20/20 04:56		CCB 160-457265/1		457265			
01/20/20 05:47		CCV 160-457265/2		457265			
01/20/20 06:07		CCV 160-457265/3		457265			
01/20/20 06:31	30	ZZZZZ		457265			
01/20/20 07:16	30	ZZZZZ		457265			
01/20/20 07:48	30	ZZZZZ		457265			
01/20/20 08:22	30	ZZZZZ		457265			
01/20/20 08:57	30	ZZZZZ		457265			
01/20/20 09:33		ZZZZZ		457265			
01/20/20 09:51	30	ZZZZZ		457265			
01/20/20 10:30	30	ZZZZZ		457265			
01/20/20 11:04	60	ZZZZZ		457265			
01/20/20 12:12	30	ZZZZZ		457265			
01/20/20 12:58	30	ZZZZZ		457265			
01/20/20 13:33	30	ZZZZZ		457265			
01/20/20 14:10	30	ZZZZZ		457265			
01/20/20 15:35	30	ZZZZZ		457265			
01/20/20 16:32	30	LCS 160-455485/2-A		457265	455485	901.1	AJD
01/20/20 17:44	30	160-36789-25	WRSB209_0.5-3	457265	455485	901.1	AJD
01/21/20 05:03		CCB 160-457407/1		457407			AJD
01/21/20 05:57		CCV 160-457407/2		457407			
01/21/20 06:17		CCV 160-457407/3		457407			AJD
01/21/20 06:40	30	ZZZZZ		457407			
01/21/20 07:15	30	ZZZZZ		457407			
01/21/20 07:47	30	ZZZZZ		457407			
01/21/20 08:22	30	ZZZZZ		457407			
01/21/20 08:55	30	ZZZZZ		457407			
01/21/20 09:26	30	ZZZZZ		457407			
01/21/20 10:05	30	ZZZZZ		457407			
01/21/20 10:42	30	ZZZZZ		457407			
01/21/20 11:19	30	ZZZZZ		457407			
01/21/20 11:56	30	LCS 160-455482/2-A		457407	455482	901.1	AJD
01/21/20 12:28	30	160-36789-5	WRSB217_0-0.5	457407	455482	901.1	AJD
01/21/20 13:04	30	160-36789-11	WRSB218_0.5-3	457407	455482	901.1	AJD

Gamma Spectroscopy Run Log

Detector: GV12 (Continued)

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
01/21/20 13:52	30	160-36789-17	WRSB229_3-6	457407	455482	901.1	AJD
01/22/20 04:59		CCB 160-457539/1		457539			KLS
01/22/20 05:46		CCV 160-457539/2		457539			
01/22/20 06:07		CCV 160-457539/3		457539			KLS
01/22/20 06:48	30	160-36789-21	WRSB211_3-6	457539	455482	901.1	KLS
01/22/20 07:25	30	ZZZZZ		457539			
01/22/20 08:06	30	ZZZZZ		457539			
01/22/20 08:42	30	ZZZZZ		457539			
01/22/20 09:18	30	ZZZZZ		457539			
01/22/20 10:01	30	ZZZZZ		457539			
01/22/20 10:51	30	ZZZZZ		457539			
01/22/20 11:31	30	ZZZZZ		457539			
01/22/20 12:08	30	ZZZZZ		457539			
01/22/20 12:45	30	ZZZZZ		457539			
01/22/20 13:35	30	ZZZZZ		457539			
01/22/20 14:11	30	ZZZZZ		457539			
01/22/20 14:56	30	ZZZZZ		457539			
01/22/20 15:42	30	ZZZZZ		457539			
01/22/20 16:37	30	ZZZZZ		457539			
01/22/20 17:14	30	ZZZZZ		457539			
01/23/20 04:53		CCB 160-457643/1		457643			KLS
01/23/20 05:39		CCV 160-457643/2		457643			
01/23/20 06:00		CCV 160-457643/3		457643			KLS
01/23/20 06:20	30	ZZZZZ		457643			
01/23/20 07:31	30	ZZZZZ		457643			
01/23/20 08:11	30	ZZZZZ		457643			
01/23/20 08:48		ZZZZZ		457643			
01/23/20 09:57	30	ZZZZZ		457643			
01/23/20 10:41	30	ZZZZZ		457643			
01/23/20 11:20	30	ZZZZZ		457643			
01/23/20 11:56	30	ZZZZZ		457643			
01/23/20 12:46	30	ZZZZZ		457643			
01/23/20 13:18	30	ZZZZZ		457643			
01/23/20 13:55	60	MB 160-455678/1-A		457643	455678	901.1	KLS
01/23/20 17:33	30	ZZZZZ		457643			
01/23/20 18:16	30	ZZZZZ		457643			

Detector: GV14

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
04/23/12 09:56		IC 160-12359/1		12359			JLW
04/24/12 08:12		ICV 160-12359/2		12359			JLW
01/10/20 14:03		ICB 160-456549/1		456549			JLW
01/20/20 04:52		CCV 160-457247/1		457247			
01/20/20 05:13		CCV 160-457247/2		457247			KLS
01/20/20 05:46		CCB 160-457247/3		457247			KLS
01/20/20 06:22	30	ZZZZZ		457247			
01/20/20 07:14	30	ZZZZZ		457247			
01/20/20 07:52	30	ZZZZZ		457247			
01/20/20 08:31	120	ZZZZZ		457247			
01/20/20 10:36	120	ZZZZZ		457247			
01/20/20 13:16	60	ZZZZZ		457247			
01/20/20 14:23	60	ZZZZZ		457247			

Gamma Spectroscopy Run Log

Detector: GV14 (Continued)

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
01/20/20 15:28	30	ZZZZZ		457247			
01/20/20 16:36	30	160-36789-22	WRSB211-FD_3-6	457247	455485	901.1	KLS
01/20/20 17:45	30	160-36789-26	WRSB209_3-6	457247	455485	901.1	KLS
01/20/20 18:55	30	160-36789-27	WRSB209_6-15	457247	455485	901.1	KLS
01/21/20 05:10		CCV 160-457429/1		457429			
01/21/20 05:32		CCV 160-457429/2		457429			JS
01/21/20 05:56		CCB 160-457429/3		457429			JS
01/21/20 06:43	30	ZZZZZ		457429			
01/21/20 07:16	30	ZZZZZ		457429			
01/21/20 07:49	30	ZZZZZ		457429			
01/21/20 08:24	30	ZZZZZ		457429			
01/21/20 08:57	30	ZZZZZ		457429			
01/21/20 09:30	30	ZZZZZ		457429			
01/21/20 10:06		TCCLBA 160-457286/1-A		457429	457286	901.1	JS
01/21/20 10:20		TCCLBB 160-457286/2-A		457429	457286	901.1	JS
01/21/20 10:37		TCCLBC 160-457286/3-A		457429	457286	901.1	JS
01/21/20 10:54		ZZZZZ		457429			
01/21/20 11:09		ZZZZZ		457429			
01/21/20 11:25		ZZZZZ		457429			
01/21/20 11:49		ZZZZZ		457429			
01/21/20 12:03		ZZZZZ		457429			
01/21/20 12:24	30	160-36789-8	WRSB217_3-6	457429	455482	901.1	JS
01/21/20 13:08	30	160-36789-13	WRSB218_3-6	457429	455482	901.1	JS
01/21/20 13:44		ZZZZZ		457429			
01/21/20 14:31	60	ZZZZZ		457429			
01/21/20 15:50		ZZZZZ		457429			
01/21/20 16:07	60	ZZZZZ		457429			
01/21/20 17:15	60	ZZZZZ		457429			

Detector: GV16

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
07/10/12 10:35		IC 160-12382/1		12382			JLW
07/17/12 11:27		ICV 160-12382/2		12382			JLW
01/10/20 14:03		ICB 160-456548/1		456548			JLW
01/21/20 05:12		CCV 160-457430/1		457430			
01/21/20 05:34		CCV 160-457430/2		457430			JS
01/21/20 05:56		CCB 160-457430/3		457430			JS
01/21/20 06:44	30	ZZZZZ		457430			
01/21/20 07:18	30	ZZZZZ		457430			
01/21/20 07:51	30	ZZZZZ		457430			
01/21/20 08:25	30	ZZZZZ		457430			
01/21/20 08:58	30	ZZZZZ		457430			
01/21/20 09:31	30	ZZZZZ		457430			
01/21/20 10:07		TCCLBB 160-457286/2-A		457430	457286	901.1	JS
01/21/20 10:21		TCCLBC 160-457286/3-A		457430	457286	901.1	JS
01/21/20 10:35		TCCLBA 160-457286/1-A		457430	457286	901.1	JS

Gamma Spectroscopy Run Log

Detector: GV16 (Continued)

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
01/21/20 10:55		ZZZZZ		457430			
01/21/20 11:10		ZZZZZ		457430			
01/21/20 11:26		ZZZZZ		457430			
01/21/20 11:50		ZZZZZ		457430			
01/21/20 12:03		ZZZZZ		457430			
01/21/20 12:25	30	160-36789-9	WRSB217_6-15	457430	455482	901.1	JS
01/21/20 13:09	30	160-36789-14	WRSB218_6-15	457430	455482	901.1	JS
01/21/20 13:46		ZZZZZ		457430			
01/21/20 14:33	60	ZZZZZ		457430			
01/21/20 15:51		ZZZZZ		457430			
01/21/20 16:08	60	ZZZZZ		457430			
01/21/20 17:15	60	ZZZZZ		457430			

Detector: GV17

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
03/26/12 06:29		IC 160-12390/1		12390			JLW
03/26/12 09:29		ICV 160-12390/2		12390			JLW
01/10/20 14:05		ICB 160-456550/1		456550			JLW
01/20/20 04:56		CCV 160-457250/1		457250			
01/20/20 05:18		CCV 160-457250/2		457250			KLS
01/20/20 05:47		CCB 160-457250/3		457250			KLS
01/20/20 06:26	120	ZZZZZ		457250			
01/20/20 08:32	120	ZZZZZ		457250			
01/20/20 10:37	120	ZZZZZ		457250			
01/20/20 13:17	60	ZZZZZ		457250			
01/20/20 14:25	60	ZZZZZ		457250			
01/20/20 15:29	30	ZZZZZ		457250			
01/20/20 16:37	30	160-36789-23	WRSB211_6-15	457250	455485	901.1	KLS
01/20/20 17:46	30	160-36789-28	WRSB210_0-0.5	457250	455485	901.1	KLS
01/20/20 18:56	30	160-36789-26 DU	WRSB209_3-6 DU	457250	455485	901.1	KLS
01/21/20 05:13		CCV 160-457431/1		457431			
01/21/20 05:36		CCV 160-457431/2		457431			JS
01/21/20 05:58		CCB 160-457431/3		457431			JS
01/21/20 06:31	60	ZZZZZ		457431			
01/21/20 07:37	60	ZZZZZ		457431			
01/21/20 08:59	30	ZZZZZ		457431			
01/21/20 09:32	30	ZZZZZ		457431			
01/21/20 10:08		TCCLBC 160-457286/3-A		457431	457286	901.1	JS
01/21/20 10:22		TCCLBA 160-457286/1-A		457431	457286	901.1	JS
01/21/20 10:36		TCCLBB 160-457286/2-A		457431	457286	901.1	JS
01/21/20 10:57		ZZZZZ		457431			
01/21/20 11:12		ZZZZZ		457431			
01/21/20 11:27		ZZZZZ		457431			
01/21/20 11:51		ZZZZZ		457431			
01/21/20 12:23	30	ZZZZZ		457431			
01/21/20 13:11	30	160-36789-15	WRSB229_0-0.5	457431	455482	901.1	JS
01/21/20 13:47		ZZZZZ		457431			
01/21/20 14:34	60	ZZZZZ		457431			
01/21/20 16:11	60	ZZZZZ		457431			