ENVIRONMENTAL STANDARDS

Setting the Standards for Innovative Environmental Solutions

QUALITY ASSURANCE REVIEW

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

COLLECTED ON JANUARY 7 AND 8, 2020

AT THE ANACONDA COPPER MINE SITE

IN YERINGTON, NEVADA

March 30, 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 January 7 and 8, 2020, 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	Parameters Examined
STSB07_0-0.5	160-36942-1	160-36942-2	Soil	1/8/20	^{226}Ra, ^{228}Ra, Th, U
STSB07_0-0.5MS (Matrix Spike)	160-36942-1MS	160-36942-2	Soil	1/8/20	Th, U
STSB07_0-0.5MSD (Matrix Spike Duplicate)	160-36942-1MSD	160-36942-2	Soil	1/8/20	Th, U
STSB07_0-0.5DUP (Laboratory Duplicate)	160-36942-1DUP	160-36942-2	Soil	1/8/20	^{226}Ra, ^{228}Ra
STSB07_0.5-3	160-36942-2	160-36942-2	Soil	1/8/20	^{226}Ra, ^{228}Ra, Th, U
STSB07-FD_0.5-3 (Field Duplicate of STSB07_0.5-3)	160-36942-3	160-36942-2	Soil	1/8/20	^{226}Ra, ^{228}Ra, Th, U
STSB07_3-6	160-36942-4	160-36942-2	Soil	1/8/20	^{226}Ra, ^{228}Ra, Th, U
STSB07_6-15	160-36942-5	160-36942-2	Soil	1/8/20	^{226}Ra, ^{228}Ra, Th, U
WRSB208_0-0.5	160-36942-6	160-36942-1	Soil	1/7/20	^{226}Ra, ^{228}Ra, Th, U
WRSB208_0.5-3	160-36942-7	160-36942-1	Soil	1/7/20	^{226}Ra, ^{228}Ra, Th, U
WRSB208_3-6	160-36942-8	160-36942-1	Soil	1/7/20	^{226}Ra, ^{228}Ra, Th, U
WRSB208_6-15	160-36942-9	160-36942-1	Soil	1/7/20	^{226}Ra, ^{228}Ra, Th, U
WRSB208_15-25	160-36942-10	160-36942-1	Soil	1/7/20	^{226}Ra, ^{228}Ra, Th, U
WRSB208-FD_15-25 (Field Duplicate of WRSB208_15-25)	160-36942-11	160-36942-1	Soil	1/7/20	^{226}Ra, ^{228}Ra, Th, U
WRSB208_25-35	160-36942-12	160-36942-1	Soil	1/7/20	^{226}Ra, ^{228}Ra, Th, U
WRSB208_35-45	160-36942-13	160-36942-1	Soil	1/7/20	^{226}Ra, ^{228}Ra, Th, U
WRSB208_45-55	160-36942-14	160-36942-1	Soil	1/7/20	^{226}Ra, ^{228}Ra, Th, U
WRSB208_55-65	160-36942-15	160-36942-1	Soil	1/7/20	^{226}Ra, ^{228}Ra, Th, U
WRSB208_65-75	160-36942-16	160-36942-1	Soil	1/7/20	^{226}Ra, ^{228}Ra, Th, U
WRSB208-FD_65-75 (Field Duplicate of WRSB208_65-75)	160-36942-17	160-36942-1	Soil	1/7/20	^{226}Ra, ^{228}Ra, Th, U
WRSB208_75-85	160-36942-18	160-36942-1	Soil	1/7/20	^{226}Ra, ^{228}Ra, Th, U
WRSB208_85-95	160-36942-19	160-36942-1	Soil	1/7/20	^{226}Ra, ^{228}Ra, Th, U

TABLE 1 (Cont.)

Field Sample Identification	Laboratory Sample Identification	SDG	Matrix	Date Sample Collected	Parameters Examined
WRSB208_95-105	160-36942-20	160-36942-1	Soil	1/8/20	^{226}Ra, ^{228}Ra, Th, U
WRSB208_105-115	160-36942-21	160-36942-1	Soil	1/8/20	^{226}Ra, ^{228}Ra, Th, U
WRSB208_105-115MS (Matrix Spike)	160-36942-21MS	160-36942-1	Soil	1/8/20	Th, U
WRSB208_105-115MSD (Matrix Spike Duplicate)	160-36942-21MSD	160-36942-1	Soil	1/8/20	Th, U
WRSB208_105-115DUP (Laboratory Duplicate)	160-36942-21DUP	160-36942-1	Soil	1/8/20	^{226}Ra, ^{228}Ra
WRSB208_115-125	160-36942-22	160-36942-1	Soil	1/8/20	^{226}Ra, ^{228}Ra, Th, U
WRSB208_125-131.5	160-36942-23	160-36942-1	Soil	1/8/20	^{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

Twenty-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	√		

<u>MS/MSD Results:</u> Low recoveries (< 75%) were observed for total thorium and total uranium in the associated matrix spike/matrix spike (MS/MSD) analyses, indicating a low bias. The reported positive results for thorium and uranium in Sample Delivery Group (SDG) 160-36942-1 samples WRSB208_0-0.5, WRSB208_0.5-3, WRSB208_3-6, WRSB208_6-15, WRSB208_15-25, WRSB208-FD_15-25, WRSB208_25-35, WRSB208_35-45, WRSB208_45-55, WRSB208_55-65, WRSB208_65-75, WRSB208-FD_65-75, WRSB208_75-85, WRSB208_85-95, WRSB208_95-105, and in all SDG 160-36942-2 samples, should be considered estimated and have been flagged “J” on the data tables.

<u>Serial Dilution Analysis:</u> 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 in an associated serial dilution analysis. The positive results for total thorium in SDG 160-36942-1 samples WRSB208_105-115, WRSB208_115-125, and WRSB208_125-131.5 should be considered estimated and have been flagged “J” on the data tables.

B. Radiological Analyses

Twenty-five 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	√		
Quantitation of Results	√		
Evaluation of Raw Data	√		

No issues were identified in this fraction.

3.0 Qualifier Summary

A. Inorganic Analyses

Analyte(s)	SDG(s)	Sample(s)	Validation Qualifier(s)	Reason(s) for Qualification
total thorium and total uranium	160-36942-1 160-36942-2	WRSB208_0-0.5, WRSB208_0.5-3, WRSB208_3-6, WRSB208_6-15, WRSB208_15-25, WRSB208-FD_15-25, WRSB208_25-35, WRSB208_35-45, WRSB208_45-55, WRSB208_55-65, WRSB208_65-75, WRSB208-FD_65-75, WRSB208_75-85, WRSB208_85-95, and WRSB208_95-105 All samples	J	4L – Low MS/MSD recoveries
total thorium	160-36942-1	WRSB208_105-115, WRSB208_115-125, and WRSB208_125-131.5	J	G – Serial dilution imprecision

B. Radiological Analyses

Qualification of data was not warranted.

4.0 Overall Assessment

Based on this QA review, the results for total thorium and total uranium in several samples were qualified as estimated due to low MS/MSD recoveries. In addition, the total thorium results in a few samples were qualified as estimated due to serial dilution imprecision.

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

A. SDG 160-36942-1

Yerington
SDG: 160-36942-1

					Lab Sample	160-36942-10						160-36942-11					
					Field Sample	WRSB208_15-25						WRSB208-FD_15-25					
					Collect Date	1/7/2020 11:53:00 AM						1/7/2020 11:58:00 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	1.10		0.130	1.00	0.213	Y	1.41		0.119	1.00	0.236	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	1.25		0.135	1.00	0.254	Y	1.52		0.224	1.00	0.264	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	5.4	J/4L	0.080	0.18		Y	6.0	J/4L	0.088	0.20		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	1.3	J/4L	0.036	0.089		Y	1.5	J/4L	0.039	0.098		Y

					Lab Sample	160-36942-12						160-36942-13					
					Field Sample	WRSB208_25-35						WRSB208_35-45					
					Collect Date	1/7/2020 12:10:00 PM						1/7/2020 12:21:00 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	1.75		0.198	1.00	0.332	Y	1.34		0.202	1.00	0.291	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	1.71		0.404	1.00	0.363	Y	1.55		0.260	1.00	0.334	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	6.3	J/4L	0.080	0.18		Y	6.9	J/4L	0.089	0.20		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	1.4	J/4L	0.035	0.089		Y	1.3	J/4L	0.040	0.099		Y

					Lab Sample	160-36942-14						160-36942-15					
					Field Sample	WRSB208_45-55						WRSB208_55-65					
					Collect Date	1/7/2020 2:16:00 PM						1/7/2020 2:33:00 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	1.47		0.145	1.00	0.281	Y	1.61		0.160	1.00	0.292	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	1.94		0.339	1.00	0.400	Y	1.53		0.277	1.00	0.341	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	7.5	J/4L	0.084	0.19		Y	7.4	J/4L	0.082	0.18		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	1.2	J/4L	0.037	0.093		Y	1.2	J/4L	0.036	0.091		Y

					Lab Sample	160-36942-16						160-36942-17					
					Field Sample	WRSB208_65-75						WRSB208-FD_65-75					
					Collect Date	1/7/2020 2:53:00 PM						1/7/2020 3:03:00 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	1.64		0.216	1.00	0.348	Y	1.40		0.207	1.00	0.262	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	1.41		0.324	1.00	0.362	Y	1.78		0.294	1.00	0.404	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	7.7	J/4L	0.087	0.19		Y	8.7	J/4L	0.089	0.20		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	1.1	J/4L	0.039	0.097		Y	1.3	J/4L	0.040	0.099		Y

					Lab Sample	160-36942-18						160-36942-19					
					Field Sample	WRSB208_75-85						WRSB208_85-95					
					Collect Date	1/7/2020 3:17:00 PM						1/7/2020 3:50:00 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	1.39		0.194	1.00	0.288	Y	1.26		0.248	1.00	0.280	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	1.79		0.263	1.00	0.334	Y	1.80		0.369	1.00	0.386	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	8.2	J/4L	0.091	0.20		Y	9.5	J/4L	0.094	0.21		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	1.3	J/4L	0.040	0.10		Y	1.4	J/4L	0.042	0.10		Y

					Lab Sample	160-36942-20						160-36942-21					
					Field Sample	WRSB208_95-105						WRSB208_105-115					
					Collect Date	1/8/2020 12:06:00 PM						1/8/2020 12:23:00 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	1.59		0.148	1.00	0.296	Y	1.22		0.173	1.00	0.257	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	1.73		0.281	1.00	0.319	Y	1.65		0.239	1.00	0.295	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	8.9	J/4L	0.094	0.21		Y	7.3	J/G	0.085	0.19		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	1.5	J/4L	0.042	0.10		Y	1.3		0.038	0.094		Y

					Lab Sample	160-36942-22						160-36942-23					
					Field Sample	WRSB208_115-125						WRSB208_125-131.5					
					Collect Date	1/8/2020 12:42:00 PM						1/8/2020 3:57:00 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	1.00		0.183	1.00	0.244	Y	1.09		0.136	1.00	0.216	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	1.40		0.110	1.00	0.294	Y	1.07		0.194	1.00	0.252	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	6.4	J/G	0.085	0.19		Y	5.6	J/G	0.084	0.19		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	1.5		0.038	0.095		Y	1.2		0.037	0.094		Y

					Lab Sample	160-36942-6						160-36942-7					
					Field Sample	WRSB208_0-0.5						WRSB208_0.5-3					
					Collect Date	1/7/2020 11:15:00 AM						1/7/2020 11:25:00 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	1.04		0.215	1.00	0.229	Y	1.28		0.156	1.00	0.253	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	1.50		0.105	1.00	0.324	Y	1.33		0.0897	1.00	0.232	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	9.5	J/4L	0.089	0.20		Y	6.1	J/4L	0.080	0.18		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	1.1	J/4L	0.040	0.099		Y	0.95	J/4L	0.036	0.089		Y

					Lab Sample	160-36942-8						160-36942-9					
					Field Sample	WRSB208_3-6						WRSB208_6-15					
					Collect Date	1/7/2020 11:35:00 AM						1/7/2020 11:42:00 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	0.140	U	0.581	1.00	0.242	N	1.24		0.151	1.00	0.237	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	1.50		0.189	1.00	0.367	Y	1.17		0.261	1.00	0.331	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	5.4	J/4L	0.089	0.20		Y	8.2	J/4L	0.088	0.20		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	0.92	J/4L	0.040	0.099		Y	1.2	J/4L	0.039	0.098		Y

B. SDG 160-36942-2

Yerington
SDG: 160-36942-2

					Lab Sample	160-36942-1						160-36942-2					
					Field Sample	STSB07_0-0.5						STSB07_0.5-3					
					Collect Date	1/8/2020 2:50:00 PM						1/8/2020 2:56:00 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	1.42		0.226	1.00	0.260	Y	2.02		0.211	1.00	0.354	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	4.55		0.315	1.00	0.611	Y	3.42		0.209	1.00	0.552	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	83	J/4L	0.088	0.20		Y	21	J/4L	0.083	0.18		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	62	J/4L	0.039	0.098		Y	7.0	J/4L	0.037	0.092		Y

					Lab Sample	160-36942-3						160-36942-4					
					Field Sample	STSB07-FD_0.5-3						STSB07_3-6					
					Collect Date	1/8/2020 3:00:00 PM						1/8/2020 3:11:00 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	1.87		0.220	1.00	0.358	Y	1.21		0.199	1.00	0.279	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	3.47		0.333	1.00	0.602	Y	1.45		0.257	1.00	0.419	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	26	J/4L	0.089	0.20		Y	10	J/4L	0.084	0.19		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	10	J/4L	0.039	0.099		Y	3.8	J/4L	0.037	0.093		Y

Lab Sample	160-36942-5
Field Sample	STSB07_6-15
Collect Date	1/8/2020 3:17:00 PM
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	1.29		0.163	1.00	0.267	Y
	15262-20-1	Radium-228	T	INITIAL	PCI/G	1.88		0.122	1.00	0.349	Y
SW-846 6020A	7440-29-1	Thorium	T	INITIAL	MG/KG	6.9	J/4L	0.090	0.20		Y
	7440-61-1	Uranium	T	INITIAL	MG/KG	5.5	J/4L	0.040	0.10		Y

8.0 SUPPORTING DOCUMENTATION

A. SDG 160-36942-1

ENVIRONMENTAL STANDARDS

INORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name:	ARCO Yerington	Reviewed by:	DC
Sample Collection Dates:	1/7/20, 1/8/20	Approved by:	
Job Number:	20115675.GW20	Completion Date:	
Project Manager:	KV		
Laboratory:	TestAmerica- St. Louis		

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

Deliverable:			Sample No.	Lab Control No.
	CLP (Full)	( )		
	Level IV (Full)	(X)	160-36942-1	
	Limited	( )		
	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				
	6020A					6020A					6020A				
Holding Times	X										X				
Blank Analysis Results	X										X				
Matrix Spike (Predigestion) Results	X					X					X				
Duplicate Analysis: (x) Field (x) Lab	X										X				
Quantitation of Results	X										X				
Detection Limit/Sensitivity															
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	X										X				
GFAA Standard Additions															
CRDL Standards	X										X				
Condition on Receipt	X										X				
Percent Solids															
Others: ICPMS internal standards	X										X				

Comments:

ENVIRONMENTAL STANDARDS

RADIOLOGICAL ANALYSIS SUPPORT DOCUMENTATION

ESI project name:	ARCO Yerington	Reviewed by:	DC
Sample Collection Dates:	1/7/20, 1/8/20	Approved by:	
Job Number:	20115675.GW20	Completion Date:	
Project Manager:	KV		
Laboratory:	TestAmerica- 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)	(X)	160-36942-1, 160-36942-2	
	Limited	( )		
	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				
	901.1					901.1					901.1				
Holding Times	X										X				
Blank Analysis Results	X										X				
Laboratory Control Standard (LCS)	X										X				
Tracer/Chemical Yield															
Duplicate Analysis: (X) Field (X) Lab	X										X				
Matrix Spike Results															
Quantitation of Results	X										X				
Detection Limit															
Efficiency/Energy Calibrations	X										X				
Initial Calibration Verifications	X										X				
Annual Calibration Verifications															
Continuing Calibration Checks	X										X				
Continuing Calibration Backgrounds	X										X				
Sample Preservation	X										X				
Condition on Receipt	X										X				
Others: Headspace	X										X				

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	WRSB208_15-25 Analyte Concentration	Qual	RL	WRSB208-FD_15-25 Analyte Concentration	Qual	RL	Difference	RPD	Notes
Thorium	mg/Kg	5.4		0.18	6		0.2	NA	10.5%	IN
Uranium	mg/Kg	1.3		0.089	1.5		0.1	NA	14.3%	IN
% solids	%	96.2		0.1	96		0.1	NA	0.2%	IN
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
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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" res

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	WRSB208_65-75 Analyte Concentration	Qual	RL	WRSB208-FD_65-75 Analyte Concentration	Qual	RL	Difference	RPD	Notes
Thorium	mg/Kg	7.7		0.19	8.7		0.2	NA	12.2%	IN
Uranium	mg/Kg	1.1		0.1	1.3		0.099	NA	16.7%	IN
% solids	%	95.2		0.1	95		0.1	NA	0.2%	IN
								NA	#DIV/0!	#DIV/0!
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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" res

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]

160-36942-1

Samples: WRSB208_15-25 and WRSB208-FD_15-25

Analyte	Sample Act	Sample TPU	Duplicate Act	Duplicate TPU	DER 2-s
Ra-226	1.1	0.213	1.41	0.236	1.95
Ra-228	1.25	0.254	1.52	0.264	1.47

Samples: WRSB208_65-75 and WRSB208-FD_65-75

Analyte	Sample Act	Sample TPU	Duplicate Act	Duplicate TPU	DER 2-s
Ra-226	1.64	0.348	1.4	0.262	1.10
Ra-228	1.41	0.362	1.78	0.404	1.36

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ANALYTICAL REPORT

Eurofins TestAmerica, St. Louis
13715 Rider Trail North
Earth City, MO 63045
Tel: (314)298-8566

Level 4
Rep 234

Laboratory Job ID: 160-36942-1
Laboratory Sample Delivery Group: 160-36942-1
Client Project/Site: ACMS - Yerington OU-4b_OU-5_Soil

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

Attn: Kent Parrish

Jayna Awalt

Authorized for release by:
2/10/2020 11:59:16 AM

Jayna Awalt, Project Manager II
(314)298-8566
jayna.awalt@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

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.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Sample Summary

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

Job ID: 160-36942-1
SDG: 160-36942-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
160-36942-6	WRSB208_0-0.5	Solid	01/07/20 11:15	01/10/20 09:20	
160-36942-7	WRSB208_0.5-3	Solid	01/07/20 11:25	01/10/20 09:20	
160-36942-8	WRSB208_3-6	Solid	01/07/20 11:35	01/10/20 09:20	
160-36942-9	WRSB208_6-15	Solid	01/07/20 11:42	01/10/20 09:20	
160-36942-10	WRSB208_15-25	Solid	01/07/20 11:53	01/10/20 09:20	
160-36942-11	WRSB208-FD_15-25	Solid	01/07/20 11:58	01/10/20 09:20	
160-36942-12	WRSB208_25-35	Solid	01/07/20 12:10	01/10/20 09:20	
160-36942-13	WRSB208_35-45	Solid	01/07/20 12:21	01/10/20 09:20	
160-36942-14	WRSB208_45-55	Solid	01/07/20 14:16	01/10/20 09:20	
160-36942-15	WRSB208_55-65	Solid	01/07/20 14:33	01/10/20 09:20	
160-36942-16	WRSB208_65-75	Solid	01/07/20 14:53	01/10/20 09:20	
160-36942-17	WRSB208-FD_65-75	Solid	01/07/20 15:03	01/10/20 09:20	
160-36942-18	WRSB208_75-85	Solid	01/07/20 15:17	01/10/20 09:20	
160-36942-19	WRSB208_85-95	Solid	01/07/20 15:50	01/10/20 09:20	
160-36942-20	WRSB208_95-105	Solid	01/08/20 12:06	01/10/20 09:20	
160-36942-21	WRSB208_105-115	Solid	01/08/20 12:23	01/10/20 09:20	
160-36942-22	WRSB208_115-125	Solid	01/08/20 12:42	01/10/20 09:20	
160-36942-23	WRSB208_125-131.5	Solid	01/08/20 15:57	01/10/20 09:20	

Job ID: 160-36942-1

Laboratory: Eurofins TestAmerica, St. Louis

Narrative

CASE NARRATIVE

Client: Wood E&I Solutions Inc

Project: ACMS - Yerington OU-4b_OU-5_Soil

Report Number: 160-36942-1

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.

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.

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

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

RECEIPT

The samples were received on 01/10/2020; the samples arrived in good condition, properly preserved and on ice. The temperatures of the 6 coolers at receipt time were 1.0° C, 1.0° C, 1.0° C, 1.0° C, 1.0° C and 1.0° C.

METALS (ICPMS)

Job ID: 160-36942-1 (Continued)

Laboratory: Eurofins TestAmerica, St. Louis (Continued)

Samples WRSB208_0-0.5 (160-36942-6), WRSB208_0.5-3 (160-36942-7), WRSB208_3-6 (160-36942-8), WRSB208_6-15 (160-36942-9), WRSB208_15-25 (160-36942-10), WRSB208-FD_15-25 (160-36942-11), WRSB208_25-35 (160-36942-12), WRSB208_35-45 (160-36942-13), WRSB208_45-55 (160-36942-14), WRSB208_55-65 (160-36942-15), WRSB208_65-75 (160-36942-16), WRSB208-FD_65-75 (160-36942-17), WRSB208_75-85 (160-36942-18), WRSB208_85-95 (160-36942-19), WRSB208_95-105 (160-36942-20), WRSB208_105-115 (160-36942-21), WRSB208_115-125 (160-36942-22) and WRSB208_125-131.5 (160-36942-23) were analyzed for metals (ICPMS) in accordance with EPA SW-846 Methods 6020A. The samples were prepared on 01/23/2020 and analyzed on 01/29/2020 and 01/30/2020.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 160-457936 and analytical batch 160-458484 were outside control limits for Thorium and Uranium. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits. (160-36942-B-1-B MS) and (160-36942-B-1-C MSD)

The serial dilution performed for the following samples associated with batch preparation batch 160-457937 and analytical batch 160-458662 was outside control limits for Thorium indicating a potential matrix interference: (160-36942-B-21-A SD)

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

PERCENT SOLIDS

Samples WRSB208_0-0.5 (160-36942-6), WRSB208_0.5-3 (160-36942-7), WRSB208_3-6 (160-36942-8), WRSB208_6-15 (160-36942-9), WRSB208_15-25 (160-36942-10), WRSB208-FD_15-25 (160-36942-11), WRSB208_25-35 (160-36942-12), WRSB208_35-45 (160-36942-13), WRSB208_45-55 (160-36942-14), WRSB208_55-65 (160-36942-15), WRSB208_65-75 (160-36942-16), WRSB208-FD_65-75 (160-36942-17), WRSB208_75-85 (160-36942-18), WRSB208_85-95 (160-36942-19), WRSB208_95-105 (160-36942-20), WRSB208_105-115 (160-36942-21), WRSB208_115-125 (160-36942-22) and WRSB208_125-131.5 (160-36942-23) were analyzed for percent solids in accordance with EPA Method 160.3 MOD. The samples were analyzed on 01/13/2020 and 01/15/2020.

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 WRSB208_0-0.5 (160-36942-6), WRSB208_0.5-3 (160-36942-7), WRSB208_3-6 (160-36942-8), WRSB208_6-15 (160-36942-9), WRSB208_15-25 (160-36942-10), WRSB208-FD_15-25 (160-36942-11), WRSB208_25-35 (160-36942-12), WRSB208_35-45 (160-36942-13), WRSB208_45-55 (160-36942-14), WRSB208_55-65 (160-36942-15), WRSB208_65-75 (160-36942-16), WRSB208-FD_65-75 (160-36942-17), WRSB208_75-85 (160-36942-18), WRSB208_85-95 (160-36942-19), WRSB208_95-105 (160-36942-20), WRSB208_105-115 (160-36942-21), WRSB208_115-125 (160-36942-22) and WRSB208_125-131.5 (160-36942-23) were analyzed for Radium-226 by gamma spec (21 day ingrowth) in accordance with EPA 901.1. The samples were dried on 01/12/2020, prepared on 01/14/2020 and analyzed on 02/04/2020.

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

Job ID: 160-36942-1 (Continued)

Laboratory: Eurofins TestAmerica, St. Louis (Continued)

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
2/10/2020 11:59:16 AM

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.)
	WRSB208_0-0.5	1/7/20	11:15	X			2	2			X	X	X		Report soil on dry weight basis.
	WRSB208_0.5-3	1/7/20	11:25	X			2	2			X	X	X		
	WRSB208_3-6	1/7/20	11:35	X			2	2			X	X	X		
	WRSB208_6-15	1/7/20	11:42	X			2	2			X	X	X		
	WRSB208_15-25	1/7/20	11:53	X			2	2			X	X	X		
	WRSB208-FD_15-25	1/7/20	11:58	X			2	2			X	X	X		
	WRSB208_25-35	1/7/20	12:10	X			2	2			X	X	X		
	WRSB208_35-45	1/7/20	12:21	X			2	2			X	X	X		
	WRSB208_45-55	1/7/20	14:16	X			2	2			X	X	X		
	WRSB208_55-65	1/7/20	14:33	X			2	2			X	X	X		

Sampler's Name: Rachael Klier
Sampler's Company: Wood
Shipment Method: Fed Ex Ship Date: 1/9/20
Shipment Tracking No: ~~7774~~ 1316 5310 / 7774 1299 3761

Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
[signature] / Wood	1/9/20	1200	Nicholas Perry / TASTL	1-10-20	0900

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
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.)
	WRSB208_65-75	1/7/20	14:53	X				2	2						X	X	X								Report soil on dry weight basis.
	WRSB208-FD_65-75	1/7/20	15:03	X				2	2						X	X	X								
	WRSB208_75-85	1/7/20	15:17	X				2	2						X	X	X								
	WRSB208_85-95	1/7/20	15:50	X				2	2						X	X	X								
	WRSB208_95-105	1/8/20	12:06	X				2	2						X	X	X								
	WRSB208_105-115	1/8/20	12:23	X				2	2						X	X	X								
	WRSB208_115-125	1/8/20	12:42	X				2	2						X	X	X								
	WRSB208_125-131.5	1/8/20	16:57	X				2	2						X	X	X								
								RK	1/8/20																

Sampler's Name:	Rachael Klier	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company:	Wood	[signature] / Wood	1/9/20	1200	[signature] / TASTL	1/10/20	0920
Shipment Method:	Fed Ex Ship Date: 1/9/20						
Shipment Tracking No:	7774 1316 6310 / 7774 1299 3761						

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: 160-36942-1
SDG Number: 160-36942-1

Login Number: 36942
List Number: 1
Creator: Press, Nicholas B

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.	True	
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.	N/A	
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.	True	
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
160-36942	1	STSB07_0-0.5	Solid	160-1861026	160-36942-A-1	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	1	STSB07_0-0.5	Solid	160-1861026	160-36942-A-1	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	1	STSB07_0-0.5	Solid	160-1861026	160-36942-A-1	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	1	STSB07_0-0.5	Solid	160-1861026	160-36942-A-1	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	1	STSB07_0-0.5	Solid	160-1861026	160-36942-A-1	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	1	STSB07_0-0.5	Solid	160-1861027	160-36942-B-1	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	1	STSB07_0-0.5	Solid	160-1861027	160-36942-B-1	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	1	STSB07_0-0.5	Solid	160-1861027	160-36942-B-1	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	1	STSB07_0-0.5	Solid	160-1861027	160-36942-B-1	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	1	STSB07_0-0.5	Solid	160-1861027	160-36942-B-1	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189726	01/13/20 07:42
160-36942	1	STSB07_0-0.5	Solid	160-1861027	160-36942-B-1	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	2	STSB07_0.5-3	Solid	160-1861028	160-36942-A-2	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	2	STSB07_0.5-3	Solid	160-1861028	160-36942-A-2	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	2	STSB07_0.5-3	Solid	160-1861028	160-36942-A-2	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	2	STSB07_0.5-3	Solid	160-1861028	160-36942-A-2	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	2	STSB07_0.5-3	Solid	160-1861028	160-36942-A-2	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	2	STSB07_0.5-3	Solid	160-1861029	160-36942-B-2	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	2	STSB07_0.5-3	Solid	160-1861029	160-36942-B-2	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	2	STSB07_0.5-3	Solid	160-1861029	160-36942-B-2	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	2	STSB07_0.5-3	Solid	160-1861029	160-36942-B-2	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	2	STSB07_0.5-3	Solid	160-1861029	160-36942-B-2	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189726	01/13/20 07:42
160-36942	2	STSB07_0.5-3	Solid	160-1861029	160-36942-B-2	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	3	STSB07-FD_0.5-3	Solid	160-1861030	160-36942-A-3	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	3	STSB07-FD_0.5-3	Solid	160-1861030	160-36942-A-3	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	3	STSB07-FD_0.5-3	Solid	160-1861030	160-36942-A-3	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	3	STSB07-FD_0.5-3	Solid	160-1861030	160-36942-A-3	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	3	STSB07-FD_0.5-3	Solid	160-1861030	160-36942-A-3	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	3	STSB07-FD_0.5-3	Solid	160-1861031	160-36942-B-3	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	3	STSB07-FD_0.5-3	Solid	160-1861031	160-36942-B-3	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	3	STSB07-FD_0.5-3	Solid	160-1861031	160-36942-B-3	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	3	STSB07-FD_0.5-3	Solid	160-1861031	160-36942-B-3	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	3	STSB07-FD_0.5-3	Solid	160-1861031	160-36942-B-3	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189726	01/13/20 07:42
160-36942	3	STSB07-FD_0.5-3	Solid	160-1861031	160-36942-B-3	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	4	STSB07_3-6	Solid	160-1861032	160-36942-A-4	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	4	STSB07_3-6	Solid	160-1861032	160-36942-A-4	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	4	STSB07_3-6	Solid	160-1861032	160-36942-A-4	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	4	STSB07_3-6	Solid	160-1861032	160-36942-A-4	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	4	STSB07_3-6	Solid	160-1861032	160-36942-A-4	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	4	STSB07_3-6	Solid	160-1861033	160-36942-B-4	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	4	STSB07_3-6	Solid	160-1861033	160-36942-B-4	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09

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
160-36942	4	STSB07_3-6	Solid	160-1861033	160-36942-B-4	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	4	STSB07_3-6	Solid	160-1861033	160-36942-B-4	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	5	STSB07_6-15	Solid	160-1861034	160-36942-A-5	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	5	STSB07_6-15	Solid	160-1861034	160-36942-A-5	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	5	STSB07_6-15	Solid	160-1861034	160-36942-A-5	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	5	STSB07_6-15	Solid	160-1861034	160-36942-A-5	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	5	STSB07_6-15	Solid	160-1861034	160-36942-A-5	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	5	STSB07_6-15	Solid	160-1861035	160-36942-B-5	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	5	STSB07_6-15	Solid	160-1861035	160-36942-B-5	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	5	STSB07_6-15	Solid	160-1861035	160-36942-B-5	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	5	STSB07_6-15	Solid	160-1861035	160-36942-B-5	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	5	STSB07_6-15	Solid	160-1861035	160-36942-B-5	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189726	01/13/20 07:42
160-36942	5	STSB07_6-15	Solid	160-1861035	160-36942-B-5	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	6	WRSB208_0-0.5	Solid	160-1861036	160-36942-A-6	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	6	WRSB208_0-0.5	Solid	160-1861036	160-36942-A-6	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	6	WRSB208_0-0.5	Solid	160-1861036	160-36942-A-6	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	6	WRSB208_0-0.5	Solid	160-1861036	160-36942-A-6	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	6	WRSB208_0-0.5	Solid	160-1861036	160-36942-A-6	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	6	WRSB208_0-0.5	Solid	160-1861037	160-36942-B-6	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	6	WRSB208_0-0.5	Solid	160-1861037	160-36942-B-6	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	6	WRSB208_0-0.5	Solid	160-1861037	160-36942-B-6	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	6	WRSB208_0-0.5	Solid	160-1861037	160-36942-B-6	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	6	WRSB208_0-0.5	Solid	160-1861037	160-36942-B-6	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189726	01/13/20 07:42
160-36942	6	WRSB208_0-0.5	Solid	160-1861037	160-36942-B-6	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	7	WRSB208_0.5-3	Solid	160-1861038	160-36942-A-7	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	7	WRSB208_0.5-3	Solid	160-1861038	160-36942-A-7	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	7	WRSB208_0.5-3	Solid	160-1861038	160-36942-A-7	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	7	WRSB208_0.5-3	Solid	160-1861038	160-36942-A-7	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	7	WRSB208_0.5-3	Solid	160-1861038	160-36942-A-7	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	7	WRSB208_0.5-3	Solid	160-1861039	160-36942-B-7	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	7	WRSB208_0.5-3	Solid	160-1861039	160-36942-B-7	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	7	WRSB208_0.5-3	Solid	160-1861039	160-36942-B-7	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	7	WRSB208_0.5-3	Solid	160-1861039	160-36942-B-7	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	7	WRSB208_0.5-3	Solid	160-1861039	160-36942-B-7	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189726	01/13/20 07:42
160-36942	7	WRSB208_0.5-3	Solid	160-1861039	160-36942-B-7	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	8	WRSB208_3-6	Solid	160-1861040	160-36942-A-8	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	8	WRSB208_3-6	Solid	160-1861040	160-36942-A-8	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	8	WRSB208_3-6	Solid	160-1861040	160-36942-A-8	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	8	WRSB208_3-6	Solid	160-1861040	160-36942-A-8	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	8	WRSB208_3-6	Solid	160-1861040	160-36942-A-8	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07

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
160-36942	8	WRSB208_3-6	Solid	160-1861041	160-36942-B-8	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	8	WRSB208_3-6	Solid	160-1861041	160-36942-B-8	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	8	WRSB208_3-6	Solid	160-1861041	160-36942-B-8	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	8	WRSB208_3-6	Solid	160-1861041	160-36942-B-8	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	9	WRSB208_6-15	Solid	160-1861042	160-36942-A-9	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	9	WRSB208_6-15	Solid	160-1861042	160-36942-A-9	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	9	WRSB208_6-15	Solid	160-1861042	160-36942-A-9	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	9	WRSB208_6-15	Solid	160-1861042	160-36942-A-9	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	9	WRSB208_6-15	Solid	160-1861042	160-36942-A-9	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	9	WRSB208_6-15	Solid	160-1861043	160-36942-B-9	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	9	WRSB208_6-15	Solid	160-1861043	160-36942-B-9	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	9	WRSB208_6-15	Solid	160-1861043	160-36942-B-9	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	9	WRSB208_6-15	Solid	160-1861043	160-36942-B-9	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	9	WRSB208_6-15	Solid	160-1861043	160-36942-B-9	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189726	01/13/20 07:42
160-36942	9	WRSB208_6-15	Solid	160-1861043	160-36942-B-9	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	10	WRSB208_15-25	Solid	160-1861044	160-36942-A-10	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	10	WRSB208_15-25	Solid	160-1861044	160-36942-A-10	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	10	WRSB208_15-25	Solid	160-1861044	160-36942-A-10	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	10	WRSB208_15-25	Solid	160-1861044	160-36942-A-10	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	10	WRSB208_15-25	Solid	160-1861044	160-36942-A-10	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	10	WRSB208_15-25	Solid	160-1861045	160-36942-B-10	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	10	WRSB208_15-25	Solid	160-1861045	160-36942-B-10	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	10	WRSB208_15-25	Solid	160-1861045	160-36942-B-10	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	10	WRSB208_15-25	Solid	160-1861045	160-36942-B-10	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	11	WRSB208-FD_15-25	Solid	160-1861046	160-36942-A-11	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	11	WRSB208-FD_15-25	Solid	160-1861046	160-36942-A-11	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	11	WRSB208-FD_15-25	Solid	160-1861046	160-36942-A-11	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	11	WRSB208-FD_15-25	Solid	160-1861046	160-36942-A-11	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	11	WRSB208-FD_15-25	Solid	160-1861046	160-36942-A-11	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	11	WRSB208-FD_15-25	Solid	160-1861047	160-36942-B-11	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	11	WRSB208-FD_15-25	Solid	160-1861047	160-36942-B-11	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	11	WRSB208-FD_15-25	Solid	160-1861047	160-36942-B-11	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	11	WRSB208-FD_15-25	Solid	160-1861047	160-36942-B-11	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	11	WRSB208-FD_15-25	Solid	160-1861047	160-36942-B-11	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189726	01/13/20 07:42
160-36942	11	WRSB208-FD_15-25	Solid	160-1861047	160-36942-B-11	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	12	WRSB208_25-35	Solid	160-1861048	160-36942-A-12	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	12	WRSB208_25-35	Solid	160-1861048	160-36942-A-12	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	12	WRSB208_25-35	Solid	160-1861048	160-36942-A-12	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	12	WRSB208_25-35	Solid	160-1861048	160-36942-A-12	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	12	WRSB208_25-35	Solid	160-1861048	160-36942-A-12	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07

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
160-36942	12	WRSB208_25-35	Solid	160-1861049	160-36942-B-12	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	12	WRSB208_25-35	Solid	160-1861049	160-36942-B-12	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	12	WRSB208_25-35	Solid	160-1861049	160-36942-B-12	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	12	WRSB208_25-35	Solid	160-1861049	160-36942-B-12	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	13	WRSB208_35-45	Solid	160-1861050	160-36942-A-13	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	13	WRSB208_35-45	Solid	160-1861050	160-36942-A-13	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	13	WRSB208_35-45	Solid	160-1861050	160-36942-A-13	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	13	WRSB208_35-45	Solid	160-1861050	160-36942-A-13	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	13	WRSB208_35-45	Solid	160-1861050	160-36942-A-13	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	13	WRSB208_35-45	Solid	160-1861051	160-36942-B-13	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	13	WRSB208_35-45	Solid	160-1861051	160-36942-B-13	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	13	WRSB208_35-45	Solid	160-1861051	160-36942-B-13	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	13	WRSB208_35-45	Solid	160-1861051	160-36942-B-13	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	13	WRSB208_35-45	Solid	160-1861051	160-36942-B-13	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189726	01/13/20 07:42
160-36942	13	WRSB208_35-45	Solid	160-1861051	160-36942-B-13	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	14	WRSB208_45-55	Solid	160-1861052	160-36942-A-14	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	14	WRSB208_45-55	Solid	160-1861052	160-36942-A-14	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	14	WRSB208_45-55	Solid	160-1861052	160-36942-A-14	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	14	WRSB208_45-55	Solid	160-1861052	160-36942-A-14	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	14	WRSB208_45-55	Solid	160-1861052	160-36942-A-14	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	14	WRSB208_45-55	Solid	160-1861053	160-36942-B-14	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	14	WRSB208_45-55	Solid	160-1861053	160-36942-B-14	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	14	WRSB208_45-55	Solid	160-1861053	160-36942-B-14	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	14	WRSB208_45-55	Solid	160-1861053	160-36942-B-14	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	14	WRSB208_45-55	Solid	160-1861053	160-36942-B-14	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189726	01/13/20 07:42
160-36942	14	WRSB208_45-55	Solid	160-1861053	160-36942-B-14	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	15	WRSB208_55-65	Solid	160-1861054	160-36942-A-15	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	15	WRSB208_55-65	Solid	160-1861054	160-36942-A-15	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	15	WRSB208_55-65	Solid	160-1861054	160-36942-A-15	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	15	WRSB208_55-65	Solid	160-1861054	160-36942-A-15	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	15	WRSB208_55-65	Solid	160-1861054	160-36942-A-15	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	15	WRSB208_55-65	Solid	160-1861055	160-36942-B-15	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	15	WRSB208_55-65	Solid	160-1861055	160-36942-B-15	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	15	WRSB208_55-65	Solid	160-1861055	160-36942-B-15	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	15	WRSB208_55-65	Solid	160-1861055	160-36942-B-15	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	15	WRSB208_55-65	Solid	160-1861055	160-36942-B-15	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189726	01/13/20 07:42
160-36942	15	WRSB208_55-65	Solid	160-1861055	160-36942-B-15	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	16	WRSB208_65-75	Solid	160-1861056	160-36942-A-16	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	16	WRSB208_65-75	Solid	160-1861056	160-36942-A-16	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	16	WRSB208_65-75	Solid	160-1861056	160-36942-A-16	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28

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
160-36942	16	WRSB208_65-75	Solid	160-1861056	160-36942-A-16	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	16	WRSB208_65-75	Solid	160-1861056	160-36942-A-16	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	16	WRSB208_65-75	Solid	160-1861057	160-36942-B-16	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	16	WRSB208_65-75	Solid	160-1861057	160-36942-B-16	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	16	WRSB208_65-75	Solid	160-1861057	160-36942-B-16	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	16	WRSB208_65-75	Solid	160-1861057	160-36942-B-16	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	17	WRSB208-FD_65-75	Solid	160-1861058	160-36942-A-17	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	17	WRSB208-FD_65-75	Solid	160-1861058	160-36942-A-17	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	17	WRSB208-FD_65-75	Solid	160-1861058	160-36942-A-17	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	17	WRSB208-FD_65-75	Solid	160-1861058	160-36942-A-17	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	17	WRSB208-FD_65-75	Solid	160-1861058	160-36942-A-17	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	17	WRSB208-FD_65-75	Solid	160-1861059	160-36942-B-17	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	17	WRSB208-FD_65-75	Solid	160-1861059	160-36942-B-17	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	17	WRSB208-FD_65-75	Solid	160-1861059	160-36942-B-17	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	17	WRSB208-FD_65-75	Solid	160-1861059	160-36942-B-17	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	17	WRSB208-FD_65-75	Solid	160-1861059	160-36942-B-17	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	17	WRSB208-FD_65-75	Solid	160-1861059	160-36942-B-17	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189726	01/13/20 07:42
160-36942	18	WRSB208_75-85	Solid	160-1861060	160-36942-A-18	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	18	WRSB208_75-85	Solid	160-1861060	160-36942-A-18	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	18	WRSB208_75-85	Solid	160-1861060	160-36942-A-18	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	18	WRSB208_75-85	Solid	160-1861060	160-36942-A-18	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	18	WRSB208_75-85	Solid	160-1861060	160-36942-A-18	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	18	WRSB208_75-85	Solid	160-1861061	160-36942-B-18	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	18	WRSB208_75-85	Solid	160-1861061	160-36942-B-18	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	18	WRSB208_75-85	Solid	160-1861061	160-36942-B-18	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	18	WRSB208_75-85	Solid	160-1861061	160-36942-B-18	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	18	WRSB208_75-85	Solid	160-1861061	160-36942-B-18	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	19	WRSB208_85-95	Solid	160-1861062	160-36942-A-19	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	19	WRSB208_85-95	Solid	160-1861062	160-36942-A-19	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	19	WRSB208_85-95	Solid	160-1861062	160-36942-A-19	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	19	WRSB208_85-95	Solid	160-1861062	160-36942-A-19	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	19	WRSB208_85-95	Solid	160-1861063	160-36942-B-19	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	19	WRSB208_85-95	Solid	160-1861063	160-36942-B-19	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	19	WRSB208_85-95	Solid	160-1861063	160-36942-B-19	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	19	WRSB208_85-95	Solid	160-1861063	160-36942-B-19	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	20	WRSB208_95-105	Solid	160-1861064	160-36942-A-20	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	20	WRSB208_95-105	Solid	160-1861064	160-36942-A-20	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	20	WRSB208_95-105	Solid	160-1861064	160-36942-A-20	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	20	WRSB208_95-105	Solid	160-1861064	160-36942-A-20	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	20	WRSB208_95-105	Solid	160-1861064	160-36942-A-20	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07

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
160-36942	20	WRSB208_95-105	Solid	160-1861065	160-36942-B-20	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	20	WRSB208_95-105	Solid	160-1861065	160-36942-B-20	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	20	WRSB208_95-105	Solid	160-1861065	160-36942-B-20	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	20	WRSB208_95-105	Solid	160-1861065	160-36942-B-20	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	20	WRSB208_95-105	Solid	160-1861065	160-36942-B-20	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	21	WRSB208_105-115	Solid	160-1861066	160-36942-A-21	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	21	WRSB208_105-115	Solid	160-1861066	160-36942-A-21	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	21	WRSB208_105-115	Solid	160-1861066	160-36942-A-21	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	21	WRSB208_105-115	Solid	160-1861067	160-36942-B-21	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	21	WRSB208_105-115	Solid	160-1861067	160-36942-B-21	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	21	WRSB208_105-115	Solid	160-1861067	160-36942-B-21	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189730	01/13/20 09:00
160-36942	21	WRSB208_105-115	Solid	160-1861067	160-36942-B-21	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189735	01/13/20 09:57
160-36942	22	WRSB208_115-125	Solid	160-1861068	160-36942-A-22	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	22	WRSB208_115-125	Solid	160-1861068	160-36942-A-22	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	22	WRSB208_115-125	Solid	160-1861068	160-36942-A-22	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	22	WRSB208_115-125	Solid	160-1861069	160-36942-B-22	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	22	WRSB208_115-125	Solid	160-1861069	160-36942-B-22	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	22	WRSB208_115-125	Solid	160-1861069	160-36942-B-22	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189730	01/13/20 09:00
160-36942	22	WRSB208_115-125	Solid	160-1861069	160-36942-B-22	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189735	01/13/20 09:57
160-36942	23	WRSB208_125-131.5	Solid	160-1861070	160-36942-A-23	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	23	WRSB208_125-131.5	Solid	160-1861070	160-36942-A-23	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	23	WRSB208_125-131.5	Solid	160-1861070	160-36942-A-23	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	23	WRSB208_125-131.5	Solid	160-1861071	160-36942-B-23	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	23	WRSB208_125-131.5	Solid	160-1861071	160-36942-B-23	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	23	WRSB208_125-131.5	Solid	160-1861071	160-36942-B-23	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189730	01/13/20 09:00
160-36942	23	WRSB208_125-131.5	Solid	160-1861071	160-36942-B-23	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189735	01/13/20 09:57

Definitions/Glossary

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

Job ID: 160-36942-1
SDG: 160-36942-1

Qualifiers

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.

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: 160-36942-1
SDG: 160-36942-1

Client Sample ID: WRSB208_0-0.5

Lab Sample ID: 160-36942-6
Date Collected: 01/07/20 11:15
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 95.4

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	9.5		0.20	0.089	mg/Kg	☼	01/23/20 16:12	01/29/20 04:11	2
Uranium	1.1		0.099	0.040	mg/Kg	☼	01/23/20 16:12	01/29/20 04:11	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	1.04		0.203	0.229	1.00	0.215	pCi/g	01/14/20 09:54	02/04/20 11:24	1
Radium-228	1.50		0.286	0.324	1.00	0.105	pCi/g	01/14/20 09:54	02/04/20 11:24	1

Client Sample ID: WRSB208_0.5-3

Lab Sample ID: 160-36942-7
Date Collected: 01/07/20 11:25
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 95.9

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	6.1		0.18	0.080	mg/Kg	☼	01/23/20 16:12	01/29/20 04:18	2
Uranium	0.95		0.089	0.036	mg/Kg	☼	01/23/20 16:12	01/29/20 04:18	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		0.215	0.253	1.00	0.156	pCi/g	01/14/20 09:54	02/04/20 11:26	1
Radium-228	1.33		0.188	0.232	1.00	0.0897	pCi/g	01/14/20 09:54	02/04/20 11:26	1

Client Sample ID: WRSB208_3-6

Lab Sample ID: 160-36942-8
Date Collected: 01/07/20 11:35
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 96.1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	5.4		0.20	0.089	mg/Kg	☼	01/23/20 16:12	01/29/20 04:25	2
Uranium	0.92		0.099	0.040	mg/Kg	☼	01/23/20 16:12	01/29/20 04:25	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	0.140	U	0.242	0.242	1.00	0.581	pCi/g	01/14/20 09:54	02/04/20 11:27	1
Radium-228	1.50		0.333	0.367	1.00	0.189	pCi/g	01/14/20 09:54	02/04/20 11:27	1

Client Sample ID: WRSB208_6-15

Lab Sample ID: 160-36942-9
Date Collected: 01/07/20 11:42
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 96.1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	8.2		0.20	0.088	mg/Kg	☼	01/23/20 16:12	01/29/20 04:31	2
Uranium	1.2		0.098	0.039	mg/Kg	☼	01/23/20 16:12	01/29/20 04:31	2

Client Sample Results

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

Job ID: 160-36942-1
SDG: 160-36942-1

Client Sample ID: WRSB208_6-15

Lab Sample ID: 160-36942-9
Date Collected: 01/07/20 11:42
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 96.1

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	1.24		0.198	0.237	1.00	0.151	pCi/g	01/14/20 09:54	02/04/20 11:28	1
Radium-228	1.17		0.308	0.331	1.00	0.261	pCi/g	01/14/20 09:54	02/04/20 11:28	1

Client Sample ID: WRSB208_15-25

Lab Sample ID: 160-36942-10
Date Collected: 01/07/20 11:53
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 96.2

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	5.4		0.18	0.080	mg/Kg	☼	01/23/20 16:12	01/29/20 04:38	2
Uranium	1.3		0.089	0.036	mg/Kg	☼	01/23/20 16:12	01/29/20 04:38	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	1.10		0.180	0.213	1.00	0.130	pCi/g	01/14/20 09:54	02/04/20 11:29	1
Radium-228	1.25		0.220	0.254	1.00	0.135	pCi/g	01/14/20 09:54	02/04/20 11:29	1

Client Sample ID: WRSB208-FD_15-25

Lab Sample ID: 160-36942-11
Date Collected: 01/07/20 11:58
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 96.0

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	6.0		0.20	0.088	mg/Kg	☼	01/23/20 16:12	01/29/20 04:45	2
Uranium	1.5		0.098	0.039	mg/Kg	☼	01/23/20 16:12	01/29/20 04:45	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		0.186	0.236	1.00	0.119	pCi/g	01/14/20 09:54	02/04/20 12:06	1
Radium-228	1.52		0.214	0.264	1.00	0.224	pCi/g	01/14/20 09:54	02/04/20 12:06	1

Client Sample ID: WRSB208_25-35

Lab Sample ID: 160-36942-12
Date Collected: 01/07/20 12:10
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 96.4

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	6.3		0.18	0.080	mg/Kg	☼	01/23/20 16:12	01/29/20 05:12	2
Uranium	1.4		0.089	0.035	mg/Kg	☼	01/23/20 16:12	01/29/20 05:12	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	1.75		0.280	0.332	1.00	0.198	pCi/g	01/14/20 09:54	02/04/20 12:07	1
Radium-228	1.71		0.319	0.363	1.00	0.404	pCi/g	01/14/20 09:54	02/04/20 12:07	1

Client Sample Results

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

Job ID: 160-36942-1
SDG: 160-36942-1

Client Sample ID: WRSB208_35-45

Lab Sample ID: 160-36942-13
Date Collected: 01/07/20 12:21
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 97.0

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	☼	01/23/20 16:12	01/29/20 05:18	2
Uranium	1.3		0.099	0.040	mg/Kg	☼	01/23/20 16:12	01/29/20 05:18	2

J,M-

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	1.34		0.256	0.291	1.00	0.202	pCi/g	01/14/20 09:54	02/04/20 12:08	1
Radium-228	1.55		0.295	0.334	1.00	0.260	pCi/g	01/14/20 09:54	02/04/20 12:08	1

Client Sample ID: WRSB208_45-55

Lab Sample ID: 160-36942-14
Date Collected: 01/07/20 14:16
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 94.9

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	7.5		0.19	0.084	mg/Kg	☼	01/23/20 16:12	01/29/20 05:25	2
Uranium	1.2		0.093	0.037	mg/Kg	☼	01/23/20 16:12	01/29/20 05:25	2

J,M-

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	1.47		0.236	0.281	1.00	0.145	pCi/g	01/14/20 09:54	02/04/20 12:09	1
Radium-228	1.94		0.347	0.400	1.00	0.339	pCi/g	01/14/20 09:54	02/04/20 12:09	1

Client Sample ID: WRSB208_55-65

Lab Sample ID: 160-36942-15
Date Collected: 01/07/20 14:33
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 95.8

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	7.4		0.18	0.082	mg/Kg	☼	01/23/20 16:12	01/29/20 05:32	2
Uranium	1.2		0.091	0.036	mg/Kg	☼	01/23/20 16:12	01/29/20 05:32	2

J,M-

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	1.61		0.239	0.292	1.00	0.160	pCi/g	01/14/20 09:54	02/04/20 12:09	1
Radium-228	1.53		0.303	0.341	1.00	0.277	pCi/g	01/14/20 09:54	02/04/20 12:09	1

Client Sample ID: WRSB208_65-75

Lab Sample ID: 160-36942-16
Date Collected: 01/07/20 14:53
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 95.2

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	☼	01/23/20 16:12	01/29/20 05:39	2
Uranium	1.1		0.097	0.039	mg/Kg	☼	01/23/20 16:12	01/29/20 05:39	2

J,M-

Client Sample Results

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

Job ID: 160-36942-1
SDG: 160-36942-1

Client Sample ID: WRSB208_65-75

Lab Sample ID: 160-36942-16
Date Collected: 01/07/20 14:53
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 95.2

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	1.64		0.304	0.348	1.00	0.216	pCi/g	01/14/20 09:54	02/04/20 12:10	1
Radium-228	1.41		0.332	0.362	1.00	0.324	pCi/g	01/14/20 09:54	02/04/20 12:10	1

Client Sample ID: WRSB208-FD_65-75

Lab Sample ID: 160-36942-17
Date Collected: 01/07/20 15:03
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 95.0

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	8.7		0.20	0.089	mg/Kg	☼	01/23/20 16:12	01/29/20 05:45	2
Uranium	1.3		0.099	0.040	mg/Kg	☼	01/23/20 16:12	01/29/20 05:45	2

J, M-

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		0.218	0.262	1.00	0.207	pCi/g	01/14/20 09:54	02/04/20 12:11	1
Radium-228	1.78		0.361	0.404	1.00	0.294	pCi/g	01/14/20 09:54	02/04/20 12:11	1

Client Sample ID: WRSB208_75-85

Lab Sample ID: 160-36942-18
Date Collected: 01/07/20 15:17
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 94.0

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	8.2		0.20	0.091	mg/Kg	☼	01/23/20 16:12	01/29/20 05:52	2
Uranium	1.3		0.10	0.040	mg/Kg	☼	01/23/20 16:12	01/29/20 05:52	2

J, M-

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	1.39		0.249	0.288	1.00	0.194	pCi/g	01/14/20 09:54	02/04/20 12:13	1
Radium-228	1.79		0.280	0.334	1.00	0.263	pCi/g	01/14/20 09:54	02/04/20 12:13	1

Client Sample ID: WRSB208_85-95

Lab Sample ID: 160-36942-19
Date Collected: 01/07/20 15:50
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 94.0

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	9.5		0.21	0.094	mg/Kg	☼	01/23/20 16:12	01/29/20 05:59	2
Uranium	1.4		0.10	0.042	mg/Kg	☼	01/23/20 16:12	01/29/20 05:59	2

J, M-

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	1.26		0.248	0.280	1.00	0.248	pCi/g	01/14/20 09:54	02/04/20 12:49	1
Radium-228	1.80		0.340	0.386	1.00	0.369	pCi/g	01/14/20 09:54	02/04/20 12:49	1

Client Sample Results

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

Job ID: 160-36942-1
SDG: 160-36942-1

Client Sample ID: WRSB208_95-105

Lab Sample ID: 160-36942-20
Date Collected: 01/08/20 12:06
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 94.0

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium } J,M-	8.9		0.21	0.094	mg/Kg	☼	01/23/20 16:13	01/29/20 06:05	2
Uranium	1.5		0.10	0.042	mg/Kg	☼	01/23/20 16:13	01/29/20 06:05	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	1.59		0.246	0.296	1.00	0.148	pCi/g	01/14/20 09:54	02/04/20 12:50	1
Radium-228	1.73		0.265	0.319	1.00	0.281	pCi/g	01/14/20 09:54	02/04/20 12:50	1

Client Sample ID: WRSB208_105-115

Lab Sample ID: 160-36942-21
Date Collected: 01/08/20 12:23
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 95.2 ✓

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium J,G	7.3		0.19	0.085	mg/Kg	☼	01/23/20 16:14	01/30/20 07:40	2
Uranium	1.3		0.094	0.038	mg/Kg	☼	01/23/20 16:14	01/30/20 07:40	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	1.22		0.223	0.257	1.00	0.173	pCi/g	01/14/20 16:58	02/04/20 12:47	1
Radium-228	1.65		0.242	0.295	1.00	0.239	pCi/g	01/14/20 16:58	02/04/20 12:47	1

Client Sample ID: WRSB208_115-125

Lab Sample ID: 160-36942-22
Date Collected: 01/08/20 12:42
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 95.7

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium J,G	6.4		0.19	0.085	mg/Kg	☼	01/23/20 16:14	01/30/20 08:27	2
Uranium	1.5		0.095	0.038	mg/Kg	☼	01/23/20 16:14	01/30/20 08:27	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	1.00		0.221	0.244	1.00	0.183	pCi/g	01/14/20 16:58	02/04/20 12:47	1
Radium-228	1.40		0.257	0.294	1.00	0.110	pCi/g	01/14/20 16:58	02/04/20 12:47	1

Client Sample ID: WRSB208_125-131.5

Lab Sample ID: 160-36942-23
Date Collected: 01/08/20 15:57
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 96.8 ✓

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium J,G	5.6		0.19	0.084	mg/Kg	☼	01/23/20 16:14	01/30/20 08:34	2
Uranium	1.2		0.094	0.037	mg/Kg	☼	01/23/20 16:14	01/30/20 08:34	2

Client Sample Results

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

Job ID: 160-36942-1
SDG: 160-36942-1

Client Sample ID: WRSB208_125-131.5
Date Collected: 01/08/20 15:57
Date Received: 01/10/20 09:20

Lab Sample ID: 160-36942-23
Matrix: Solid
Percent Solids: 96.8

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	1.09		0.184	0.216	1.00	0.136	pCi/g	01/14/20 16:58	02/04/20 12:48	1
Radium-228	1.07		0.227	0.252	1.00	0.194	pCi/g	01/14/20 16:58	02/04/20 12:48	1

QC Sample Results

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

Job ID: 160-36942-1
SDG: 160-36942-1

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 160-457936/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 458484 — **Prep Batch: 457936**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	ND		0.19	0.088	mg/Kg		01/23/20 16:12	01/29/20 02:37	2
Uranium	ND		0.097	0.039	mg/Kg		01/23/20 16:12	01/29/20 02:37	2

Clear

Lab Sample ID: LCS 160-457936/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 458484 — **Prep Batch: 457936**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Thorium	87.2	82.4		mg/Kg		94	80 - 120

Lab Sample ID: LCSSRM 160-457936/3-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 458484 — **Prep Batch: 457936**

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Uranium	70.9	57.9		mg/Kg		81.6	62.6 - 110.0

80-120%

Lab Sample ID: 160-36942-B-1-B MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 458484 — **Prep Batch: 457936**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Thorium	83	F1	91.6	134	F1	mg/Kg	☼	55	75 - 125
Uranium	62	F1	91.6	120	F1	mg/Kg	☼	64	75 - 125

J,M- : 6-20

Lab Sample ID: 160-36942-B-1-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 458484 — **Prep Batch: 457936**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Thorium	83	F1	95.9	148	F1	mg/Kg	☼	68	75 - 125	10	30
Uranium	62	F1	95.9	135		mg/Kg	☼	76	75 - 125	11	30

35%

Lab Sample ID: MB 160-457937/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 458662 — **Prep Batch: 457937**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	ND		0.19	0.085	mg/Kg		01/23/20 16:14	01/30/20 07:20	2
Uranium	ND		0.094	0.038	mg/Kg		01/23/20 16:14	01/30/20 07:20	2

Clear

Lab Sample ID: LCS 160-457937/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 458662 — **Prep Batch: 457937**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Thorium	96.5	94.3		mg/Kg		98	80 - 120

QC Sample Results

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

Job ID: 160-36942-1
SDG: 160-36942-1

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

Lab Sample ID: LCSSRM 160-457937/3-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 458662 — **Prep Batch: 457937**

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec Limits
Uranium	70.9	62.5		mg/Kg		88.1	62.6 - 110.0

Lab Sample ID: 160-36942-21 MS — **Client Sample ID: WRSB208_105-115**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 458662 — **Prep Batch: 457937**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Thorium	7.3		101	102		mg/Kg	☼	94	75 - 125
Uranium	1.3		101	99.2		mg/Kg	☼	97	75 - 125

Lab Sample ID: 160-36942-21 MSD — **Client Sample ID: WRSB208_105-115**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 458662 — **Prep Batch: 457937**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Thorium	7.3		94.9	99.5		mg/Kg	☼	97	75 - 125	3	30
Uranium	1.3		94.9	94.8		mg/Kg	☼	99	75 - 125	5	30

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

Lab Sample ID: MB 160-456720/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 459110 — **Prep Batch: 456720**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.1255	U	0.119	0.119	1.00	0.360	pCi/g	01/14/20 09:54	02/04/20 10:38	1
Radium-228	0.08826	U	0.0789	0.0795	1.00	0.129	pCi/g	01/14/20 09:54	02/04/20 10:38	1

Lab Sample ID: LCS 160-456720/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 459382 — **Prep Batch: 456720**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	96.6	97.24		10.2		0.973	pCi/g	101	75 - 125
Cesium-137	27.3	26.61		2.83		0.175	pCi/g	98	75 - 125
Cobalt-60	10.6	10.26		1.07		0.0623	pCi/g	97	75 - 125

Lab Sample ID: 160-36942-A-1-C DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 459118 — **Prep Batch: 456720**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	DER	DER Limit
Radium-226	1.42		1.731		0.300	1.00	0.176	pCi/g	1.56	2
Radium-228	4.55		4.622		0.598	1.00	0.174	pCi/g	0.16	2

QC Sample Results

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

Job ID: 160-36942-1
SDG: 160-36942-1

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

Lab Sample ID: MB 160-456756/1-A
Matrix: Solid
Analysis Batch: 459118

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 456756

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226 clear	0.009099	U	0.0453	0.0453	1.00	0.237	pCi/g	01/14/20 16:58	02/04/20 12:45	1
Radium-228	0.0000	U	0.0251	0.0251	1.00	0.0924	pCi/g	01/14/20 16:58	02/04/20 12:45	1

Lab Sample ID: LCS 160-456756/2-A
Matrix: Solid
Analysis Batch: 459117

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 456756

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	96.6	99.44		11.7		1.10	pCi/g	103	75 - 125
Cesium-137	27.3	30.78		3.23		0.284	pCi/g	113	75 - 125
Cobalt-60	10.6	11.57		1.21		0.141	pCi/g	109	75 - 125

Lab Sample ID: 160-36942-21 DU
Matrix: Solid
Analysis Batch: 459118

Client Sample ID: WRSB208_105-115
Prep Type: Total/NA
Prep Batch: 456756

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	DER	DER Limit
Radium-226	1.22		1.321		0.259	1.00	0.156	pCi/g	0.57	2
Radium-228	1.65		1.566		0.305	1.00	0.122	pCi/g	0.41	2

QC Association Summary

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

Job ID: 160-36942-1
SDG: 160-36942-1

Metals

Prep Batch: 457936

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-6	WRSB208_0-0.5	Total/NA	Solid	3050B	
160-36942-7	WRSB208_0.5-3	Total/NA	Solid	3050B	
160-36942-8	WRSB208_3-6	Total/NA	Solid	3050B	
160-36942-9	WRSB208_6-15	Total/NA	Solid	3050B	
160-36942-10	WRSB208_15-25	Total/NA	Solid	3050B	
160-36942-11	WRSB208-FD_15-25	Total/NA	Solid	3050B	
160-36942-12	WRSB208_25-35	Total/NA	Solid	3050B	
160-36942-13	WRSB208_35-45	Total/NA	Solid	3050B	
160-36942-14	WRSB208_45-55	Total/NA	Solid	3050B	
160-36942-15	WRSB208_55-65	Total/NA	Solid	3050B	
160-36942-16	WRSB208_65-75	Total/NA	Solid	3050B	
160-36942-17	WRSB208-FD_65-75	Total/NA	Solid	3050B	
160-36942-18	WRSB208_75-85	Total/NA	Solid	3050B	
160-36942-19	WRSB208_85-95	Total/NA	Solid	3050B	
160-36942-20	WRSB208_95-105	Total/NA	Solid	3050B	
MB 160-457936/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 160-457936/2-A	Lab Control Sample	Total/NA	Solid	3050B	
LCSSRM 160-457936/3-A	Lab Control Sample	Total/NA	Solid	3050B	
160-36942-B-1-B MS	Matrix Spike	Total/NA	Solid	3050B	
160-36942-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	3050B	

Prep Batch: 457937

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-21	WRSB208_105-115	Total/NA	Solid	3050B	
160-36942-22	WRSB208_115-125	Total/NA	Solid	3050B	
160-36942-23	WRSB208_125-131.5	Total/NA	Solid	3050B	
MB 160-457937/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 160-457937/2-A	Lab Control Sample	Total/NA	Solid	3050B	
LCSSRM 160-457937/3-A	Lab Control Sample	Total/NA	Solid	3050B	
160-36942-21 MS	WRSB208_105-115	Total/NA	Solid	3050B	
160-36942-21 MSD	WRSB208_105-115	Total/NA	Solid	3050B	

Analysis Batch: 458484

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-6	WRSB208_0-0.5	Total/NA	Solid	6020A	457936
160-36942-7	WRSB208_0.5-3	Total/NA	Solid	6020A	457936
160-36942-8	WRSB208_3-6	Total/NA	Solid	6020A	457936
160-36942-9	WRSB208_6-15	Total/NA	Solid	6020A	457936
160-36942-10	WRSB208_15-25	Total/NA	Solid	6020A	457936
160-36942-11	WRSB208-FD_15-25	Total/NA	Solid	6020A	457936
160-36942-12	WRSB208_25-35	Total/NA	Solid	6020A	457936
160-36942-13	WRSB208_35-45	Total/NA	Solid	6020A	457936
160-36942-14	WRSB208_45-55	Total/NA	Solid	6020A	457936
160-36942-15	WRSB208_55-65	Total/NA	Solid	6020A	457936
160-36942-16	WRSB208_65-75	Total/NA	Solid	6020A	457936
160-36942-17	WRSB208-FD_65-75	Total/NA	Solid	6020A	457936
160-36942-18	WRSB208_75-85	Total/NA	Solid	6020A	457936
160-36942-19	WRSB208_85-95	Total/NA	Solid	6020A	457936
160-36942-20	WRSB208_95-105	Total/NA	Solid	6020A	457936
MB 160-457936/1-A	Method Blank	Total/NA	Solid	6020A	457936
LCS 160-457936/2-A	Lab Control Sample	Total/NA	Solid	6020A	457936

QC Association Summary

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

Job ID: 160-36942-1
SDG: 160-36942-1

Metals (Continued)

Analysis Batch: 458484 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSSRM 160-457936/3-A	Lab Control Sample	Total/NA	Solid	6020A	457936
160-36942-B-1-B MS	Matrix Spike	Total/NA	Solid	6020A	457936
160-36942-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	6020A	457936

Analysis Batch: 458662

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-21	WRSB208_105-115	Total/NA	Solid	6020A	457937
160-36942-22	WRSB208_115-125	Total/NA	Solid	6020A	457937
160-36942-23	WRSB208_125-131.5	Total/NA	Solid	6020A	457937
MB 160-457937/1-A	Method Blank	Total/NA	Solid	6020A	457937
LCS 160-457937/2-A	Lab Control Sample	Total/NA	Solid	6020A	457937
LCSSRM 160-457937/3-A	Lab Control Sample	Total/NA	Solid	6020A	457937
160-36942-21 MS	WRSB208_105-115	Total/NA	Solid	6020A	457937
160-36942-21 MSD	WRSB208_105-115	Total/NA	Solid	6020A	457937

General Chemistry

Analysis Batch: 456585

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-21	WRSB208_105-115	Total/NA	Solid	Moisture	
160-36942-22	WRSB208_115-125	Total/NA	Solid	Moisture	
160-36942-23	WRSB208_125-131.5	Total/NA	Solid	Moisture	
160-36942-21 DU	WRSB208_105-115	Total/NA	Solid	Moisture	

Analysis Batch: 456781

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-6	WRSB208_0-0.5	Total/NA	Solid	Moisture	
160-36942-7	WRSB208_0.5-3	Total/NA	Solid	Moisture	
160-36942-8	WRSB208_3-6	Total/NA	Solid	Moisture	
160-36942-9	WRSB208_6-15	Total/NA	Solid	Moisture	
160-36942-10	WRSB208_15-25	Total/NA	Solid	Moisture	
160-36942-11	WRSB208-FD_15-25	Total/NA	Solid	Moisture	
160-36942-12	WRSB208_25-35	Total/NA	Solid	Moisture	
160-36942-13	WRSB208_35-45	Total/NA	Solid	Moisture	
160-36942-14	WRSB208_45-55	Total/NA	Solid	Moisture	
160-36942-15	WRSB208_55-65	Total/NA	Solid	Moisture	
160-36942-16	WRSB208_65-75	Total/NA	Solid	Moisture	
160-36942-17	WRSB208-FD_65-75	Total/NA	Solid	Moisture	
160-36942-18	WRSB208_75-85	Total/NA	Solid	Moisture	
160-36942-19	WRSB208_85-95	Total/NA	Solid	Moisture	
160-36942-20	WRSB208_95-105	Total/NA	Solid	Moisture	
160-36942-B-1 DU	Duplicate	Total/NA	Solid	Moisture	

Rad

Leach Batch: 456564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-6	WRSB208_0-0.5	Total/NA	Solid	Dry and Grind	
160-36942-7	WRSB208_0.5-3	Total/NA	Solid	Dry and Grind	
160-36942-8	WRSB208_3-6	Total/NA	Solid	Dry and Grind	
160-36942-9	WRSB208_6-15	Total/NA	Solid	Dry and Grind	
160-36942-10	WRSB208_15-25	Total/NA	Solid	Dry and Grind	

Rad (Continued)

Leach Batch: 456564 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-11	WRSB208-FD_15-25	Total/NA	Solid	Dry and Grind	
160-36942-12	WRSB208_25-35	Total/NA	Solid	Dry and Grind	
160-36942-13	WRSB208_35-45	Total/NA	Solid	Dry and Grind	
160-36942-14	WRSB208_45-55	Total/NA	Solid	Dry and Grind	
160-36942-15	WRSB208_55-65	Total/NA	Solid	Dry and Grind	
160-36942-16	WRSB208_65-75	Total/NA	Solid	Dry and Grind	
160-36942-17	WRSB208-FD_65-75	Total/NA	Solid	Dry and Grind	
160-36942-18	WRSB208_75-85	Total/NA	Solid	Dry and Grind	
160-36942-19	WRSB208_85-95	Total/NA	Solid	Dry and Grind	
160-36942-20	WRSB208_95-105	Total/NA	Solid	Dry and Grind	
160-36942-21	WRSB208_105-115	Total/NA	Solid	Dry and Grind	
160-36942-22	WRSB208_115-125	Total/NA	Solid	Dry and Grind	
160-36942-23	WRSB208_125-131.5	Total/NA	Solid	Dry and Grind	
160-36942-21 DU	WRSB208_105-115	Total/NA	Solid	Dry and Grind	
160-36942-A-1-C DU	Duplicate	Total/NA	Solid	Dry and Grind	

Prep Batch: 456720

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-6	WRSB208_0-0.5	Total/NA	Solid	Fill_Geo-21	456564
160-36942-7	WRSB208_0.5-3	Total/NA	Solid	Fill_Geo-21	456564
160-36942-8	WRSB208_3-6	Total/NA	Solid	Fill_Geo-21	456564
160-36942-9	WRSB208_6-15	Total/NA	Solid	Fill_Geo-21	456564
160-36942-10	WRSB208_15-25	Total/NA	Solid	Fill_Geo-21	456564
160-36942-11	WRSB208-FD_15-25	Total/NA	Solid	Fill_Geo-21	456564
160-36942-12	WRSB208_25-35	Total/NA	Solid	Fill_Geo-21	456564
160-36942-13	WRSB208_35-45	Total/NA	Solid	Fill_Geo-21	456564
160-36942-14	WRSB208_45-55	Total/NA	Solid	Fill_Geo-21	456564
160-36942-15	WRSB208_55-65	Total/NA	Solid	Fill_Geo-21	456564
160-36942-16	WRSB208_65-75	Total/NA	Solid	Fill_Geo-21	456564
160-36942-17	WRSB208-FD_65-75	Total/NA	Solid	Fill_Geo-21	456564
160-36942-18	WRSB208_75-85	Total/NA	Solid	Fill_Geo-21	456564
160-36942-19	WRSB208_85-95	Total/NA	Solid	Fill_Geo-21	456564
160-36942-20	WRSB208_95-105	Total/NA	Solid	Fill_Geo-21	456564
MB 160-456720/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	
LCS 160-456720/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
160-36942-A-1-C DU	Duplicate	Total/NA	Solid	Fill_Geo-21	456564

Prep Batch: 456756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-21	WRSB208_105-115	Total/NA	Solid	Fill_Geo-21	456564
160-36942-22	WRSB208_115-125	Total/NA	Solid	Fill_Geo-21	456564
160-36942-23	WRSB208_125-131.5	Total/NA	Solid	Fill_Geo-21	456564
MB 160-456756/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	
LCS 160-456756/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
160-36942-21 DU	WRSB208_105-115	Total/NA	Solid	Fill_Geo-21	456564

Lab Chronicle

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

Job ID: 160-36942-1
SDG: 160-36942-1

Client Sample ID: WRSB208_0-0.5

Lab Sample ID: 160-36942-6
Date Collected: 01/07/20 11:15
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459128	02/04/20 11:24	KLS	TAL SL

Client Sample ID: WRSB208_0-0.5

Lab Sample ID: 160-36942-6
Date Collected: 01/07/20 11:15
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 95.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 04:11	LKP	TAL SL

Client Sample ID: WRSB208_0.5-3

Lab Sample ID: 160-36942-7
Date Collected: 01/07/20 11:25
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459110	02/04/20 11:26	JFL	TAL SL

Client Sample ID: WRSB208_0.5-3

Lab Sample ID: 160-36942-7
Date Collected: 01/07/20 11:25
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 95.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 04:18	LKP	TAL SL

Client Sample ID: WRSB208_3-6

Lab Sample ID: 160-36942-8
Date Collected: 01/07/20 11:35
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459111	02/04/20 11:27	JFL	TAL SL

Lab Chronicle

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

Job ID: 160-36942-1
SDG: 160-36942-1

Client Sample ID: WRSB208_3-6
Lab Sample ID: 160-36942-8
Date Collected: 01/07/20 11:35
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 96.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 04:25	LKP	TAL SL

Client Sample ID: WRSB208_6-15
Lab Sample ID: 160-36942-9
Date Collected: 01/07/20 11:42
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459112	02/04/20 11:28	KLS	TAL SL

Client Sample ID: WRSB208_6-15
Lab Sample ID: 160-36942-9
Date Collected: 01/07/20 11:42
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 96.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 04:31	LKP	TAL SL

Client Sample ID: WRSB208_15-25
Lab Sample ID: 160-36942-10
Date Collected: 01/07/20 11:53
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459113	02/04/20 11:29	KLS	TAL SL

Client Sample ID: WRSB208_15-25
Lab Sample ID: 160-36942-10
Date Collected: 01/07/20 11:53
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 96.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 04:38	LKP	TAL SL

Client Sample ID: WRSB208-FD_15-25
Lab Sample ID: 160-36942-11
Date Collected: 01/07/20 11:58
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL

Lab Chronicle

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

Job ID: 160-36942-1
SDG: 160-36942-1

Client Sample ID: WRSB208-FD_15-25
Lab Sample ID: 160-36942-11
Date Collected: 01/07/20 11:58
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459118	02/04/20 12:06	KLS	TAL SL

Client Sample ID: WRSB208-FD_15-25
Lab Sample ID: 160-36942-11
Date Collected: 01/07/20 11:58
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 96.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 04:45	LKP	TAL SL

Client Sample ID: WRSB208_25-35
Lab Sample ID: 160-36942-12
Date Collected: 01/07/20 12:10
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459117	02/04/20 12:07	JFL	TAL SL

Client Sample ID: WRSB208_25-35
Lab Sample ID: 160-36942-12
Date Collected: 01/07/20 12:10
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 96.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 05:12	LKP	TAL SL

Client Sample ID: WRSB208_35-45
Lab Sample ID: 160-36942-13
Date Collected: 01/07/20 12:21
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459127	02/04/20 12:08	JFL	TAL SL

Lab Chronicle

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

Job ID: 160-36942-1
SDG: 160-36942-1

Client Sample ID: WRSB208_35-45

Lab Sample ID: 160-36942-13
Date Collected: 01/07/20 12:21
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 97.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 05:18	LKP	TAL SL

Client Sample ID: WRSB208_45-55

Lab Sample ID: 160-36942-14
Date Collected: 01/07/20 14:16
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459128	02/04/20 12:09	KLS	TAL SL

Client Sample ID: WRSB208_45-55

Lab Sample ID: 160-36942-14
Date Collected: 01/07/20 14:16
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 94.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 05:25	LKP	TAL SL

Client Sample ID: WRSB208_55-65

Lab Sample ID: 160-36942-15
Date Collected: 01/07/20 14:33
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459110	02/04/20 12:09	JFL	TAL SL

Client Sample ID: WRSB208_55-65

Lab Sample ID: 160-36942-15
Date Collected: 01/07/20 14:33
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 95.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 05:32	LKP	TAL SL

Client Sample ID: WRSB208_65-75

Lab Sample ID: 160-36942-16
Date Collected: 01/07/20 14:53
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL

Lab Chronicle

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

Job ID: 160-36942-1
SDG: 160-36942-1

Client Sample ID: WRSB208_65-75
Lab Sample ID: 160-36942-16
Date Collected: 01/07/20 14:53
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459111	02/04/20 12:10	JFL	TAL SL

Client Sample ID: WRSB208_65-75
Lab Sample ID: 160-36942-16
Date Collected: 01/07/20 14:53
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 95.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 05:39	LKP	TAL SL

Client Sample ID: WRSB208-FD_65-75
Lab Sample ID: 160-36942-17
Date Collected: 01/07/20 15:03
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459112	02/04/20 12:11	KLS	TAL SL

Client Sample ID: WRSB208-FD_65-75
Lab Sample ID: 160-36942-17
Date Collected: 01/07/20 15:03
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 95.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 05:45	LKP	TAL SL

Client Sample ID: WRSB208_75-85
Lab Sample ID: 160-36942-18
Date Collected: 01/07/20 15:17
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459113	02/04/20 12:13	KLS	TAL SL

Lab Chronicle

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

Job ID: 160-36942-1
SDG: 160-36942-1

Client Sample ID: WRSB208_75-85 — Lab Sample ID: 160-36942-18

Date Collected: 01/07/20 15:17
Date Received: 01/10/20 09:20
Matrix: Solid
Percent Solids: 94.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 05:52	LKP	TAL SL

Client Sample ID: WRSB208_85-95 — Lab Sample ID: 160-36942-19

Date Collected: 01/07/20 15:50
Date Received: 01/10/20 09:20
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459127	02/04/20 12:49	JFL	TAL SL

Client Sample ID: WRSB208_85-95 — Lab Sample ID: 160-36942-19

Date Collected: 01/07/20 15:50
Date Received: 01/10/20 09:20
Matrix: Solid
Percent Solids: 94.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 05:59	LKP	TAL SL

Client Sample ID: WRSB208_95-105 — Lab Sample ID: 160-36942-20

Date Collected: 01/08/20 12:06
Date Received: 01/10/20 09:20
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459128	02/04/20 12:50	KLS	TAL SL

Client Sample ID: WRSB208_95-105 — Lab Sample ID: 160-36942-20

Date Collected: 01/08/20 12:06
Date Received: 01/10/20 09:20
Matrix: Solid
Percent Solids: 94.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:13	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 06:05	LKP	TAL SL

Client Sample ID: WRSB208_105-115 — Lab Sample ID: 160-36942-21

Date Collected: 01/08/20 12:23
Date Received: 01/10/20 09:20
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456585	01/13/20 09:00	SEC	TAL SL

Lab Chronicle

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

Job ID: 160-36942-1
SDG: 160-36942-1

Client Sample ID: WRSB208_105-115
Lab Sample ID: 160-36942-21
Date Collected: 01/08/20 12:23
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456756	01/14/20 16:58	KLH	TAL SL
Total/NA	Analysis	901.1		1	459110	02/04/20 12:47	JFL	TAL SL

Client Sample ID: WRSB208_105-115
Lab Sample ID: 160-36942-21
Date Collected: 01/08/20 12:23
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 95.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457937	01/23/20 16:14	LAM	TAL SL
Total/NA	Analysis	6020A		2	458662	01/30/20 07:40	LKP	TAL SL

Client Sample ID: WRSB208_115-125
Lab Sample ID: 160-36942-22
Date Collected: 01/08/20 12:42
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456585	01/13/20 09:00	SEC	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456756	01/14/20 16:58	KLH	TAL SL
Total/NA	Analysis	901.1		1	459111	02/04/20 12:47	JFL	TAL SL

Client Sample ID: WRSB208_115-125
Lab Sample ID: 160-36942-22
Date Collected: 01/08/20 12:42
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 95.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457937	01/23/20 16:14	LAM	TAL SL
Total/NA	Analysis	6020A		2	458662	01/30/20 08:27	LKP	TAL SL

Client Sample ID: WRSB208_125-131.5
Lab Sample ID: 160-36942-23
Date Collected: 01/08/20 15:57
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456585	01/13/20 09:00	SEC	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456756	01/14/20 16:58	KLH	TAL SL
Total/NA	Analysis	901.1		1	459112	02/04/20 12:48	KLS	TAL SL

Lab Chronicle

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

Job ID: 160-36942-1
SDG: 160-36942-1

Client Sample ID: WRSB208_125-131.5
Date Collected: 01/08/20 15:57
Date Received: 01/10/20 09:20

Lab Sample ID: 160-36942-23
Matrix: Solid
Percent Solids: 96.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457937	01/23/20 16:14	LAM	TAL SL
Total/NA	Analysis	6020A		2	458662	01/30/20 08:34	LKP	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: 160-36942-1
SDG: 160-36942-1

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
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: 160-36942-1
SDG: 160-36942-1

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

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 457936 Batch Start Date: 01/23/20 16:12 Batch Analyst: Mazariegos, Leonel A

Batch Method: 3050B Batch End Date: 01/27/20 14:06

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	MPREP1-A 00004	MPREP1-B 00004	MPREP2 00022	PR_LCSSRM 00024
MB 160-457936/1		3050B, 6020A		0.5134 g	50 mL				
LCS 160-457936/2		3050B, 6020A		0.5731 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
LCSSRM 160-457936/3		3050B, 6020A		0.5415 g	50 mL				0.5415 g
160-36942-B-1		3050B, 6020A	T	0.5414 g	50 mL				
160-36942-B-1 MS		3050B, 6020A	T	0.5802 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
160-36942-B-1 MSD		3050B, 6020A	T	0.5545 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
160-36942-B-6	WRSB208_0-0.5	3050B, 6020A	T	0.5279 g	50 mL				
160-36942-B-7	WRSB208_0.5-3	3050B, 6020A	T	0.5851 g	50 mL				
160-36942-B-8	WRSB208_3-6	3050B, 6020A	T	0.5238 g	50 mL				
160-36942-B-9	WRSB208_6-15	3050B, 6020A	T	0.5315 g	50 mL				
160-36942-B-10	WRSB208_15-25	3050B, 6020A	T	0.5845 g	50 mL				
160-36942-B-11	WRSB208-FD_15-25	3050B, 6020A	T	0.5300 g	50 mL				
160-36942-B-12	WRSB208_25-35	3050B, 6020A	T	0.5860 g	50 mL				
160-36942-B-13	WRSB208_35-45	3050B, 6020A	T	0.5189 g	50 mL				
160-36942-B-14	WRSB208_45-55	3050B, 6020A	T	0.5634 g	50 mL				
160-36942-B-15	WRSB208_55-65	3050B, 6020A	T	0.5742 g	50 mL				
160-36942-B-16	WRSB208_65-75	3050B, 6020A	T	0.5408 g	50 mL				
160-36942-B-17	WRSB208-FD_65-75	3050B, 6020A	T	0.5310 g	50 mL				
160-36942-B-18	WRSB208_75-85	3050B, 6020A	T	0.5271 g	50 mL				
160-36942-B-19	WRSB208_85-95	3050B, 6020A	T	0.5105 g	50 mL				
160-36942-B-20	WRSB208_95-105	3050B, 6020A	T	0.5076 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.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 457936 Batch Start Date: 01/23/20 16:12 Batch Analyst: Mazariegos, Leonel A

Batch Method: 3050B Batch End Date: 01/27/20 14:06

Batch Notes	
Balance ID	27150420
Blank Soil Lot Number	25438819
Temperature - Corrected - End	B5: 91.8 Degrees C
Temperature - Corrected - Start	C4: 92.1 Degrees C
Digestion End Time	01/27/2020 13:39
Digestion Start Time	01/27/2020 10:53
Digestion Unit ID	HOTBLOCK 1
Digestion Tube/Cup ID	344749-4653
Hydrogen Peroxide ID	1852964
Hydrochloric Acid ID	1854875
Nitric Acid ID	1854883, 1863531
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.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 457937 Batch Start Date: 01/23/20 16:14 Batch Analyst: Mazariegos, Leonel A

Batch Method: 3050B Batch End Date: 01/27/20 14:06

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	MPREP1-A 00004	MPREP1-B 00004	MPREP2 00022	PR_LCSSRM 00024
MB 160-457937/1		3050B, 6020A		0.5313 g	50 mL				
LCS 160-457937/2		3050B, 6020A		0.5182 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
LCSSRM 160-457937/3		3050B, 6020A		0.5297 g	50 mL				0.5297 g
160-36942-B-21	WRSB208_105-115	3050B, 6020A	T	0.5594 g	50 mL				
160-36942-B-21 MS	WRSB208_105-115	3050B, 6020A	T	0.5226 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
160-36942-B-21 MSD	WRSB208_105-115	3050B, 6020A	T	0.5536 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
160-36942-B-22	WRSB208_115-125	3050B, 6020A	T	0.5503 g	50 mL				
160-36942-B-23	WRSB208_125-131.5	3050B, 6020A	T	0.5517 g	50 mL				

Batch Notes	
Balance ID	27150420
Blank Soil Lot Number	25438819
Temperature - Corrected - End	B5: 91.8 Degrees C
Temperature - Corrected - Start	C4: 92.1 Degrees C
Digestion End Time	01/27/2020 13:39
Digestion Start Time	01/27/2020 10:53
Digestion Unit ID	HOTBLOCK 1
Digestion Tube/Cup ID	344749-4653
Hydrogen Peroxide ID	1852964
Hydrochloric Acid ID	1854875
Nitric Acid ID	1854883, 1863531
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.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 456585 Batch Start Date: 01/13/20 09:00 Batch Analyst: Cates, Samuel E

Batch Method: Moisture Batch End Date: 01/14/20 07:25

Lab Sample ID	Client Sample ID	Method Chain	Basis	DishWeight	SampleMassWet	SampleMassDry			
160-36942-B-21	WRSB208_105-115	Moisture	T	1.0648 g	11.0724 g	10.5895 g			
160-36942-B-21 DU	WRSB208_105-115	Moisture	T	1.0617 g	11.0508 g	10.6206 g			
160-36942-B-22	WRSB208_115-125	Moisture	T	1.1041 g	11.0956 g	10.6613 g			
160-36942-B-23	WRSB208_125-131.5	Moisture	T	1.0690 g	11.6809 g	11.3390 g			

Batch Notes	
Balance ID	0034150065
Date samples were placed in the oven	01/13/2020
Oven Temp In	104 Degrees C
Time samples were place in the oven	09:50
Date samples were removed from oven	01/14/2020
Oven Temp Out	104 Degrees C
Time Samples were removed from oven	06:10
Oven ID	OC
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.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 456781 Batch Start Date: 01/15/20 08:32 Batch Analyst: Domalewski, Ryan J

Batch Method: Moisture Batch End Date: 01/16/20 06:52

Lab Sample ID	Client Sample ID	Method Chain	Basis	DishWeight	SampleMassWet	SampleMassDry			
160-36942-B-1		Moisture	T	1.1560 g	11.8572 g	11.2182 g			
160-36942-B-1 DU		Moisture	T	1.0664 g	11.2347 g	10.6998 g			
160-36942-B-6	WRSB208_0-0.5	Moisture	T	1.0659 g	11.4238 g	10.9460 g			
160-36942-B-7	WRSB208_0.5-3	Moisture	T	1.0630 g	11.4572 g	11.0332 g			
160-36942-B-8	WRSB208_3-6	Moisture	T	1.0663 g	11.0709 g	10.6766 g			
160-36942-B-9	WRSB208_6-15	Moisture	T	1.0671 g	11.1583 g	10.7683 g			
160-36942-B-10	WRSB208_15-25	Moisture	T	1.0783 g	11.2404 g	10.8561 g			
160-36942-B-11	WRSB208-FD_15-25	Moisture	T	1.0564 g	11.2388 g	10.8357 g			
160-36942-B-12	WRSB208_25-35	Moisture	T	1.0689 g	11.4047 g	11.0336 g			
160-36942-B-13	WRSB208_35-45	Moisture	T	1.0681 g	11.6476 g	11.3334 g			
160-36942-B-14	WRSB208_45-55	Moisture	T	1.0572 g	11.1852 g	10.6710 g			
160-36942-B-15	WRSB208_55-65	Moisture	T	1.0689 g	11.2361 g	10.8047 g			
160-36942-B-16	WRSB208_65-75	Moisture	T	1.0654 g	11.7967 g	11.2851 g			
160-36942-B-17	WRSB208-FD_65-75	Moisture	T	1.0513 g	11.2301 g	10.7207 g			
160-36942-B-18	WRSB208_75-85	Moisture	T	1.0510 g	11.8132 g	11.1709 g			
160-36942-B-19	WRSB208_85-95	Moisture	T	1.0512 g	11.7328 g	11.0949 g			
160-36942-B-20	WRSB208_95-105	Moisture	T	1.0698 g	11.3456 g	10.7260 g			

Batch Notes	
Balance ID	1119252511
Date samples were placed in the oven	01/15/2020
Oven Temp In	103 Degrees C
Time samples were place in the oven	09:21
Date samples were removed from oven	01/16/2020
Oven Temp Out	101 Degrees C
Time Samples were removed from oven	06:20
Oven ID	OC
Thermometer ID	A142186

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.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 456781 Batch Start Date: 01/15/20 08:32 Batch Analyst: Domalewski, Ryan J

Batch Method: Moisture Batch End Date: 01/16/20 06:52

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.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 456720 Batch Start Date: 01/14/20 09:54 Batch Analyst: Curtright, Logan T

Batch Method: Fill_Geo-21 Batch End Date: 01/14/20 11:25

Lab Sample ID	Client Sample ID	Method Chain	Basis	TareWeight	GrossWeight	InitialAmount	IngDecDate1	IngDecDate3	Geometry
MB 160-456720/1		Fill_Geo-21, 901.1				291.18 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
LCS 160-456720/2		Fill_Geo-21, 901.1				341.9 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-1-A		Fill_Geo-21, 901.1	T	46.2 g	438.1 g	391.9 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-1-A DU		Fill_Geo-21, 901.1	T	46.2 g	438.1 g	391.9 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-6-A	WRSB208_0-0.5	Fill_Geo-21, 901.1	T	46.5 g	440.2 g	393.7 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-7-A	WRSB208_0.5-3	Fill_Geo-21, 901.1	T	46.3 g	466.0 g	419.7 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-8-A	WRSB208_3-6	Fill_Geo-21, 901.1	T	46.0 g	442.5 g	396.5 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-9-A	WRSB208_6-15	Fill_Geo-21, 901.1	T	46.2 g	444.5 g	398.3 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-10-A	WRSB208_15-25	Fill_Geo-21, 901.1	T	46.2 g	458.4 g	412.2 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-11-A	WRSB208-FD_15-25	Fill_Geo-21, 901.1	T	46.3 g	418.4 g	372.1 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-12-A	WRSB208_25-35	Fill_Geo-21, 901.1	T	46.1 g	393.4 g	347.3 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-13-A	WRSB208_35-45	Fill_Geo-21, 901.1	T	46.3 g	390.0 g	343.7 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-14-A	WRSB208_45-55	Fill_Geo-21, 901.1	T	46.1 g	384.3 g	338.2 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-15-A	WRSB208_55-65	Fill_Geo-21, 901.1	T	46.4 g	417.4 g	371 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-16-A	WRSB208_65-75	Fill_Geo-21, 901.1	T	46.1 g	419.4 g	373.3 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-17-A	WRSB208-FD_65-75	Fill_Geo-21, 901.1	T	46.0 g	375.9 g	329.9 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-18-A	WRSB208_75-85	Fill_Geo-21, 901.1	T	46.3 g	410.0 g	363.7 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-19-A	WRSB208_85-95	Fill_Geo-21, 901.1	T	46.1 g	406.4 g	360.3 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-20-A	WRSB208_95-105	Fill_Geo-21, 901.1	T	46.0 g	393.1 g	347.1 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can

Lab Sample ID	Client Sample ID	Method Chain	Basis	Tuna Can LCS 00009					

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.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 456720 Batch Start Date: 01/14/20 09:54 Batch Analyst: Curtright, Logan T

Batch Method: Fill_Geo-21 Batch End Date: 01/14/20 11:25

Lab Sample ID	Client Sample ID	Method Chain	Basis	Tuna Can LCS 00009					
MB 160-456720/1		Fill_Geo-21, 901.1							
LCS 160-456720/2		Fill_Geo-21, 901.1		# g					
160-36942-A-1-A		Fill_Geo-21, 901.1	T						
160-36942-A-1-A DU		Fill_Geo-21, 901.1	T						
160-36942-A-6-A	WRSB208_0-0.5	Fill_Geo-21, 901.1	T						
160-36942-A-7-A	WRSB208_0.5-3	Fill_Geo-21, 901.1	T						
160-36942-A-8-A	WRSB208_3-6	Fill_Geo-21, 901.1	T						
160-36942-A-9-A	WRSB208_6-15	Fill_Geo-21, 901.1	T						
160-36942-A-10-A	WRSB208_15-25	Fill_Geo-21, 901.1	T						
160-36942-A-11-A	WRSB208-FD_15-25	Fill_Geo-21, 901.1	T						
160-36942-A-12-A	WRSB208_25-35	Fill_Geo-21, 901.1	T						
160-36942-A-13-A	WRSB208_35-45	Fill_Geo-21, 901.1	T						
160-36942-A-14-A	WRSB208_45-55	Fill_Geo-21, 901.1	T						
160-36942-A-15-A	WRSB208_55-65	Fill_Geo-21, 901.1	T						
160-36942-A-16-A	WRSB208_65-75	Fill_Geo-21, 901.1	T						
160-36942-A-17-A	WRSB208-FD_65-75	Fill_Geo-21, 901.1	T						
160-36942-A-18-A	WRSB208_75-85	Fill_Geo-21, 901.1	T						
160-36942-A-19-A	WRSB208_85-95	Fill_Geo-21, 901.1	T						
160-36942-A-20-A	WRSB208_95-105	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.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 456720 Batch Start Date: 01/14/20 09:54 Batch Analyst: Curtright, Logan T

Batch Method: Fill_Geo-21 Batch End Date: 01/14/20 11:25

Batch Notes	
Balance ID	121432711
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.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 456756 Batch Start Date: 01/14/20 16:58 Batch Analyst: Harris, Kayla L

Batch Method: Fill_Geo-21 Batch End Date: 01/14/20 17:10

Lab Sample ID	Client Sample ID	Method Chain	Basis	TareWeight	GrossWeight	InitialAmount	IngDecDate1	IngDecDate3	Geometry
MB 160-456756/1		Fill_Geo-21, 901.1				291.18 g	01/14/2020 17:10	02/04/2020 17:10	TUNA CAN
LCS 160-456756/2		Fill_Geo-21, 901.1				341.9 g	01/14/2020 17:10	02/04/2020 17:10	TUNA CAN
160-36942-A-21-A	WRSB208_105-115	Fill_Geo-21, 901.1	T	46.1 g	433.9 g	387.8 g	01/14/2020 17:10	02/04/2020 17:10	TUNA CAN
160-36942-A-21-A DU	WRSB208_105-115	Fill_Geo-21, 901.1	T	46.1 g	433.9 g	387.8 g	01/14/2020 17:10	02/04/2020 17:10	TUNA CAN
160-36942-A-22-A	WRSB208_115-125	Fill_Geo-21, 901.1	T	46.5 g	439.4 g	392.9 g	01/14/2020 17:10	02/04/2020 17:10	TUNA CAN
160-36942-A-23-A	WRSB208_125-131.5	Fill_Geo-21, 901.1	T	46.1 g	413.2 g	367.1 g	01/14/2020 17:10	02/04/2020 17:10	TUNA CAN

Lab Sample ID	Client Sample ID	Method Chain	Basis	Tuna Can LCS 00009					
MB 160-456756/1		Fill_Geo-21, 901.1							
LCS 160-456756/2		Fill_Geo-21, 901.1		# g					
160-36942-A-21-A	WRSB208_105-115	Fill_Geo-21, 901.1	T						
160-36942-A-21-A DU	WRSB208_105-115	Fill_Geo-21, 901.1	T						
160-36942-A-22-A	WRSB208_115-125	Fill_Geo-21, 901.1	T						
160-36942-A-23-A	WRSB208_125-131.5	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.

901.1

Page 1 of 1

QC Sample Results

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

Job ID: 160-36942-1
SDG: 160-36942-1

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 160-457936/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 458484 — **Prep Batch: 457936**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	ND		0.19	0.088	mg/Kg		01/23/20 16:12	01/29/20 02:37	2
Uranium	ND		0.097	0.039	mg/Kg		01/23/20 16:12	01/29/20 02:37	2

Clear

Lab Sample ID: LCS 160-457936/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 458484 — **Prep Batch: 457936**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Thorium	87.2	82.4		mg/Kg		94	80 - 120

Lab Sample ID: LCSSRM 160-457936/3-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 458484 — **Prep Batch: 457936**

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Uranium	70.9	57.9		mg/Kg		81.6	62.6 - 110.0

80-120%

Lab Sample ID: 160-36942-B-1-B MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 458484 — **Prep Batch: 457936**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Thorium	83	F1	91.6	134	F1	mg/Kg	☼	55	75 - 125
Uranium	62	F1	91.6	120	F1	mg/Kg	☼	64	75 - 125

J,M- : 6-20

Lab Sample ID: 160-36942-B-1-C MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 458484 — **Prep Batch: 457936**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Thorium	83	F1	95.9	148	F1	mg/Kg	☼	68	75 - 125	10	30
Uranium	62	F1	95.9	135		mg/Kg	☼	76	75 - 125	11	30

35%

Lab Sample ID: MB 160-457937/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 458662 — **Prep Batch: 457937**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	ND		0.19	0.085	mg/Kg		01/23/20 16:14	01/30/20 07:20	2
Uranium	ND		0.094	0.038	mg/Kg		01/23/20 16:14	01/30/20 07:20	2

Clear

Lab Sample ID: LCS 160-457937/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 458662 — **Prep Batch: 457937**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Thorium	96.5	94.3		mg/Kg		98	80 - 120

QC Sample Results

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

Job ID: 160-36942-1
SDG: 160-36942-1

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

Lab Sample ID: LCSSRM 160-457937/3-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 458662 — **Prep Batch: 457937**

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Uranium	70.9	62.5		mg/Kg		88.1	62.6 - 110.0

Lab Sample ID: 160-36942-21 MS — **Client Sample ID: WRSB208_105-115**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 458662 — **Prep Batch: 457937**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Thorium	7.3		101	102		mg/Kg	☼	94	75 - 125
Uranium	1.3		101	99.2		mg/Kg	☼	97	75 - 125

Lab Sample ID: 160-36942-21 MSD — **Client Sample ID: WRSB208_105-115**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 458662 — **Prep Batch: 457937**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Thorium	7.3		94.9	99.5		mg/Kg	☼	97	75 - 125	3	30
Uranium	1.3		94.9	94.8		mg/Kg	☼	99	75 - 125	5	30

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

Lab Sample ID: MB 160-456720/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 459110 — **Prep Batch: 456720**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.1255	U	0.119	0.119	1.00	0.360	pCi/g	01/14/20 09:54	02/04/20 10:38	1
Radium-228	0.08826	U	0.0789	0.0795	1.00	0.129	pCi/g	01/14/20 09:54	02/04/20 10:38	1

Lab Sample ID: LCS 160-456720/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 459382 — **Prep Batch: 456720**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	96.6	97.24		10.2		0.973	pCi/g	101	75 - 125
Cesium-137	27.3	26.61		2.83		0.175	pCi/g	98	75 - 125
Cobalt-60	10.6	10.26		1.07		0.0623	pCi/g	97	75 - 125

Lab Sample ID: 160-36942-A-1-C DU — **Client Sample ID: Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 459118 — **Prep Batch: 456720**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	DER	DER Limit
Radium-226	1.42		1.731		0.300	1.00	0.176	pCi/g	1.36	2
Radium-228	4.55		4.622		0.598	1.00	0.174	pCi/g	0.16	2

QC Sample Results

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

Job ID: 160-36942-1
SDG: 160-36942-1

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

Lab Sample ID: MB 160-456756/1-A
Matrix: Solid
Analysis Batch: 459118

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 456756

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.009099	U	0.0453	0.0453	1.00	0.237	pCi/g	01/14/20 16:58	02/04/20 12:45	1
Radium-228	0.0000	U	0.0251	0.0251	1.00	0.0924	pCi/g	01/14/20 16:58	02/04/20 12:45	1

clear

Lab Sample ID: LCS 160-456756/2-A
Matrix: Solid
Analysis Batch: 459117

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 456756

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	96.6	99.44		11.7		1.10	pCi/g	103	75 - 125
Cesium-137	27.3	30.78		3.23		0.284	pCi/g	113	75 - 125
Cobalt-60	10.6	11.57		1.21		0.141	pCi/g	109	75 - 125

Lab Sample ID: 160-36942-21 DU
Matrix: Solid
Analysis Batch: 459118

Client Sample ID: WRSB208_105-115
Prep Type: Total/NA
Prep Batch: 456756

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	DER	DER Limit
Radium-226	1.22		1.321		0.259	1.00	0.156	pCi/g	0.57	2
Radium-228	1.65		1.566		0.305	1.00	0.122	pCi/g	0.41	2

QC Association Summary

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

Job ID: 160-36942-1
SDG: 160-36942-1

Metals

Prep Batch: 457936

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-6	WRSB208_0-0.5	Total/NA	Solid	3050B	
160-36942-7	WRSB208_0.5-3	Total/NA	Solid	3050B	
160-36942-8	WRSB208_3-6	Total/NA	Solid	3050B	
160-36942-9	WRSB208_6-15	Total/NA	Solid	3050B	
160-36942-10	WRSB208_15-25	Total/NA	Solid	3050B	
160-36942-11	WRSB208-FD_15-25	Total/NA	Solid	3050B	
160-36942-12	WRSB208_25-35	Total/NA	Solid	3050B	
160-36942-13	WRSB208_35-45	Total/NA	Solid	3050B	
160-36942-14	WRSB208_45-55	Total/NA	Solid	3050B	
160-36942-15	WRSB208_55-65	Total/NA	Solid	3050B	
160-36942-16	WRSB208_65-75	Total/NA	Solid	3050B	
160-36942-17	WRSB208-FD_65-75	Total/NA	Solid	3050B	
160-36942-18	WRSB208_75-85	Total/NA	Solid	3050B	
160-36942-19	WRSB208_85-95	Total/NA	Solid	3050B	
160-36942-20	WRSB208_95-105	Total/NA	Solid	3050B	
MB 160-457936/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 160-457936/2-A	Lab Control Sample	Total/NA	Solid	3050B	
LCSSRM 160-457936/3-A	Lab Control Sample	Total/NA	Solid	3050B	
160-36942-B-1-B MS	Matrix Spike	Total/NA	Solid	3050B	
160-36942-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	3050B	

Prep Batch: 457937

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-21	WRSB208_105-115	Total/NA	Solid	3050B	
160-36942-22	WRSB208_115-125	Total/NA	Solid	3050B	
160-36942-23	WRSB208_125-131.5	Total/NA	Solid	3050B	
MB 160-457937/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 160-457937/2-A	Lab Control Sample	Total/NA	Solid	3050B	
LCSSRM 160-457937/3-A	Lab Control Sample	Total/NA	Solid	3050B	
160-36942-21 MS	WRSB208_105-115	Total/NA	Solid	3050B	
160-36942-21 MSD	WRSB208_105-115	Total/NA	Solid	3050B	

Analysis Batch: 458484

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-6	WRSB208_0-0.5	Total/NA	Solid	6020A	457936
160-36942-7	WRSB208_0.5-3	Total/NA	Solid	6020A	457936
160-36942-8	WRSB208_3-6	Total/NA	Solid	6020A	457936
160-36942-9	WRSB208_6-15	Total/NA	Solid	6020A	457936
160-36942-10	WRSB208_15-25	Total/NA	Solid	6020A	457936
160-36942-11	WRSB208-FD_15-25	Total/NA	Solid	6020A	457936
160-36942-12	WRSB208_25-35	Total/NA	Solid	6020A	457936
160-36942-13	WRSB208_35-45	Total/NA	Solid	6020A	457936
160-36942-14	WRSB208_45-55	Total/NA	Solid	6020A	457936
160-36942-15	WRSB208_55-65	Total/NA	Solid	6020A	457936
160-36942-16	WRSB208_65-75	Total/NA	Solid	6020A	457936
160-36942-17	WRSB208-FD_65-75	Total/NA	Solid	6020A	457936
160-36942-18	WRSB208_75-85	Total/NA	Solid	6020A	457936
160-36942-19	WRSB208_85-95	Total/NA	Solid	6020A	457936
160-36942-20	WRSB208_95-105	Total/NA	Solid	6020A	457936
MB 160-457936/1-A	Method Blank	Total/NA	Solid	6020A	457936
LCS 160-457936/2-A	Lab Control Sample	Total/NA	Solid	6020A	457936

Metals (Continued)

Analysis Batch: 458484 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSSRM 160-457936/3-A	Lab Control Sample	Total/NA	Solid	6020A	457936
160-36942-B-1-B MS	Matrix Spike	Total/NA	Solid	6020A	457936
160-36942-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	6020A	457936

Analysis Batch: 458662

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-21	WRSB208_105-115	Total/NA	Solid	6020A	457937
160-36942-22	WRSB208_115-125	Total/NA	Solid	6020A	457937
160-36942-23	WRSB208_125-131.5	Total/NA	Solid	6020A	457937
MB 160-457937/1-A	Method Blank	Total/NA	Solid	6020A	457937
LCS 160-457937/2-A	Lab Control Sample	Total/NA	Solid	6020A	457937
LCSSRM 160-457937/3-A	Lab Control Sample	Total/NA	Solid	6020A	457937
160-36942-21 MS	WRSB208_105-115	Total/NA	Solid	6020A	457937
160-36942-21 MSD	WRSB208_105-115	Total/NA	Solid	6020A	457937

General Chemistry

Analysis Batch: 456585

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-21	WRSB208_105-115	Total/NA	Solid	Moisture	
160-36942-22	WRSB208_115-125	Total/NA	Solid	Moisture	
160-36942-23	WRSB208_125-131.5	Total/NA	Solid	Moisture	
160-36942-21 DU	WRSB208_105-115	Total/NA	Solid	Moisture	

Analysis Batch: 456781

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-6	WRSB208_0-0.5	Total/NA	Solid	Moisture	
160-36942-7	WRSB208_0.5-3	Total/NA	Solid	Moisture	
160-36942-8	WRSB208_3-6	Total/NA	Solid	Moisture	
160-36942-9	WRSB208_6-15	Total/NA	Solid	Moisture	
160-36942-10	WRSB208_15-25	Total/NA	Solid	Moisture	
160-36942-11	WRSB208-FD_15-25	Total/NA	Solid	Moisture	
160-36942-12	WRSB208_25-35	Total/NA	Solid	Moisture	
160-36942-13	WRSB208_35-45	Total/NA	Solid	Moisture	
160-36942-14	WRSB208_45-55	Total/NA	Solid	Moisture	
160-36942-15	WRSB208_55-65	Total/NA	Solid	Moisture	
160-36942-16	WRSB208_65-75	Total/NA	Solid	Moisture	
160-36942-17	WRSB208-FD_65-75	Total/NA	Solid	Moisture	
160-36942-18	WRSB208_75-85	Total/NA	Solid	Moisture	
160-36942-19	WRSB208_85-95	Total/NA	Solid	Moisture	
160-36942-20	WRSB208_95-105	Total/NA	Solid	Moisture	
160-36942-B-1 DU	Duplicate	Total/NA	Solid	Moisture	

Rad

Leach Batch: 456564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-6	WRSB208_0-0.5	Total/NA	Solid	Dry and Grind	
160-36942-7	WRSB208_0.5-3	Total/NA	Solid	Dry and Grind	
160-36942-8	WRSB208_3-6	Total/NA	Solid	Dry and Grind	
160-36942-9	WRSB208_6-15	Total/NA	Solid	Dry and Grind	
160-36942-10	WRSB208_15-25	Total/NA	Solid	Dry and Grind	

Rad (Continued)

Leach Batch: 456564 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-11	WRSB208-FD_15-25	Total/NA	Solid	Dry and Grind	
160-36942-12	WRSB208_25-35	Total/NA	Solid	Dry and Grind	
160-36942-13	WRSB208_35-45	Total/NA	Solid	Dry and Grind	
160-36942-14	WRSB208_45-55	Total/NA	Solid	Dry and Grind	
160-36942-15	WRSB208_55-65	Total/NA	Solid	Dry and Grind	
160-36942-16	WRSB208_65-75	Total/NA	Solid	Dry and Grind	
160-36942-17	WRSB208-FD_65-75	Total/NA	Solid	Dry and Grind	
160-36942-18	WRSB208_75-85	Total/NA	Solid	Dry and Grind	
160-36942-19	WRSB208_85-95	Total/NA	Solid	Dry and Grind	
160-36942-20	WRSB208_95-105	Total/NA	Solid	Dry and Grind	
160-36942-21	WRSB208_105-115	Total/NA	Solid	Dry and Grind	
160-36942-22	WRSB208_115-125	Total/NA	Solid	Dry and Grind	
160-36942-23	WRSB208_125-131.5	Total/NA	Solid	Dry and Grind	
160-36942-21 DU	WRSB208_105-115	Total/NA	Solid	Dry and Grind	
160-36942-A-1-C DU	Duplicate	Total/NA	Solid	Dry and Grind	

Prep Batch: 456720

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-6	WRSB208_0-0.5	Total/NA	Solid	Fill_Geo-21	456564
160-36942-7	WRSB208_0.5-3	Total/NA	Solid	Fill_Geo-21	456564
160-36942-8	WRSB208_3-6	Total/NA	Solid	Fill_Geo-21	456564
160-36942-9	WRSB208_6-15	Total/NA	Solid	Fill_Geo-21	456564
160-36942-10	WRSB208_15-25	Total/NA	Solid	Fill_Geo-21	456564
160-36942-11	WRSB208-FD_15-25	Total/NA	Solid	Fill_Geo-21	456564
160-36942-12	WRSB208_25-35	Total/NA	Solid	Fill_Geo-21	456564
160-36942-13	WRSB208_35-45	Total/NA	Solid	Fill_Geo-21	456564
160-36942-14	WRSB208_45-55	Total/NA	Solid	Fill_Geo-21	456564
160-36942-15	WRSB208_55-65	Total/NA	Solid	Fill_Geo-21	456564
160-36942-16	WRSB208_65-75	Total/NA	Solid	Fill_Geo-21	456564
160-36942-17	WRSB208-FD_65-75	Total/NA	Solid	Fill_Geo-21	456564
160-36942-18	WRSB208_75-85	Total/NA	Solid	Fill_Geo-21	456564
160-36942-19	WRSB208_85-95	Total/NA	Solid	Fill_Geo-21	456564
160-36942-20	WRSB208_95-105	Total/NA	Solid	Fill_Geo-21	456564
MB 160-456720/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	
LCS 160-456720/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
160-36942-A-1-C DU	Duplicate	Total/NA	Solid	Fill_Geo-21	456564

Prep Batch: 456756

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-21	WRSB208_105-115	Total/NA	Solid	Fill_Geo-21	456564
160-36942-22	WRSB208_115-125	Total/NA	Solid	Fill_Geo-21	456564
160-36942-23	WRSB208_125-131.5	Total/NA	Solid	Fill_Geo-21	456564
MB 160-456756/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	
LCS 160-456756/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
160-36942-21 DU	WRSB208_105-115	Total/NA	Solid	Fill_Geo-21	456564

Lab Chronicle

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

Job ID: 160-36942-1
SDG: 160-36942-1

Client Sample ID: WRSB208_0-0.5

Lab Sample ID: 160-36942-6
Date Collected: 01/07/20 11:15
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459128	02/04/20 11:24	KLS	TAL SL

Client Sample ID: WRSB208_0-0.5

Lab Sample ID: 160-36942-6
Date Collected: 01/07/20 11:15
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 95.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 04:11	LKP	TAL SL

Client Sample ID: WRSB208_0.5-3

Lab Sample ID: 160-36942-7
Date Collected: 01/07/20 11:25
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459110	02/04/20 11:26	JFL	TAL SL

Client Sample ID: WRSB208_0.5-3

Lab Sample ID: 160-36942-7
Date Collected: 01/07/20 11:25
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 95.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 04:18	LKP	TAL SL

Client Sample ID: WRSB208_3-6

Lab Sample ID: 160-36942-8
Date Collected: 01/07/20 11:35
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459111	02/04/20 11:27	JFL	TAL SL

Lab Chronicle

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

Job ID: 160-36942-1
SDG: 160-36942-1

Client Sample ID: WRSB208_3-6
Lab Sample ID: 160-36942-8
Date Collected: 01/07/20 11:35
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 96.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 04:25	LKP	TAL SL

Client Sample ID: WRSB208_6-15
Lab Sample ID: 160-36942-9
Date Collected: 01/07/20 11:42
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459112	02/04/20 11:28	KLS	TAL SL

Client Sample ID: WRSB208_6-15
Lab Sample ID: 160-36942-9
Date Collected: 01/07/20 11:42
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 96.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 04:31	LKP	TAL SL

Client Sample ID: WRSB208_15-25
Lab Sample ID: 160-36942-10
Date Collected: 01/07/20 11:53
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459113	02/04/20 11:29	KLS	TAL SL

Client Sample ID: WRSB208_15-25
Lab Sample ID: 160-36942-10
Date Collected: 01/07/20 11:53
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 96.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 04:38	LKP	TAL SL

Client Sample ID: WRSB208-FD_15-25
Lab Sample ID: 160-36942-11
Date Collected: 01/07/20 11:58
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL

Lab Chronicle

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

Job ID: 160-36942-1
SDG: 160-36942-1

Client Sample ID: WRSB208-FD_15-25
Lab Sample ID: 160-36942-11
Date Collected: 01/07/20 11:58
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459118	02/04/20 12:06	KLS	TAL SL

Client Sample ID: WRSB208-FD_15-25
Lab Sample ID: 160-36942-11
Date Collected: 01/07/20 11:58
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 96.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 04:45	LKP	TAL SL

Client Sample ID: WRSB208_25-35
Lab Sample ID: 160-36942-12
Date Collected: 01/07/20 12:10
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459117	02/04/20 12:07	JFL	TAL SL

Client Sample ID: WRSB208_25-35
Lab Sample ID: 160-36942-12
Date Collected: 01/07/20 12:10
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 96.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 05:12	LKP	TAL SL

Client Sample ID: WRSB208_35-45
Lab Sample ID: 160-36942-13
Date Collected: 01/07/20 12:21
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459127	02/04/20 12:08	JFL	TAL SL

Lab Chronicle

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

Job ID: 160-36942-1
SDG: 160-36942-1

Client Sample ID: WRSB208_35-45 — Lab Sample ID: 160-36942-13

Date Collected: 01/07/20 12:21 — **Matrix: Solid**
Date Received: 01/10/20 09:20 — **Percent Solids: 97.0**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 05:18	LKP	TAL SL

Client Sample ID: WRSB208_45-55 — Lab Sample ID: 160-36942-14

Date Collected: 01/07/20 14:16 — **Matrix: Solid**
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459128	02/04/20 12:09	KLS	TAL SL

Client Sample ID: WRSB208_45-55 — Lab Sample ID: 160-36942-14

Date Collected: 01/07/20 14:16 — **Matrix: Solid**
Date Received: 01/10/20 09:20 — **Percent Solids: 94.9**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 05:25	LKP	TAL SL

Client Sample ID: WRSB208_55-65 — Lab Sample ID: 160-36942-15

Date Collected: 01/07/20 14:33 — **Matrix: Solid**
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459110	02/04/20 12:09	JFL	TAL SL

Client Sample ID: WRSB208_55-65 — Lab Sample ID: 160-36942-15

Date Collected: 01/07/20 14:33 — **Matrix: Solid**
Date Received: 01/10/20 09:20 — **Percent Solids: 95.8**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 05:32	LKP	TAL SL

Client Sample ID: WRSB208_65-75 — Lab Sample ID: 160-36942-16

Date Collected: 01/07/20 14:53 — **Matrix: Solid**
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL

Lab Chronicle

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

Job ID: 160-36942-1
SDG: 160-36942-1

Client Sample ID: WRSB208_65-75
Lab Sample ID: 160-36942-16
Date Collected: 01/07/20 14:53
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459111	02/04/20 12:10	JFL	TAL SL

Client Sample ID: WRSB208_65-75
Lab Sample ID: 160-36942-16
Date Collected: 01/07/20 14:53
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 95.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 05:39	LKP	TAL SL

Client Sample ID: WRSB208-FD_65-75
Lab Sample ID: 160-36942-17
Date Collected: 01/07/20 15:03
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459112	02/04/20 12:11	KLS	TAL SL

Client Sample ID: WRSB208-FD_65-75
Lab Sample ID: 160-36942-17
Date Collected: 01/07/20 15:03
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 95.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 05:45	LKP	TAL SL

Client Sample ID: WRSB208_75-85
Lab Sample ID: 160-36942-18
Date Collected: 01/07/20 15:17
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459113	02/04/20 12:13	KLS	TAL SL

Lab Chronicle

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

Job ID: 160-36942-1
SDG: 160-36942-1

Client Sample ID: WRSB208_75-85

Lab Sample ID: 160-36942-18
Date Collected: 01/07/20 15:17
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 94.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 05:52	LKP	TAL SL

Client Sample ID: WRSB208_85-95

Lab Sample ID: 160-36942-19
Date Collected: 01/07/20 15:50
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459127	02/04/20 12:49	JFL	TAL SL

Client Sample ID: WRSB208_85-95

Lab Sample ID: 160-36942-19
Date Collected: 01/07/20 15:50
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 94.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 05:59	LKP	TAL SL

Client Sample ID: WRSB208_95-105

Lab Sample ID: 160-36942-20
Date Collected: 01/08/20 12:06
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459128	02/04/20 12:50	KLS	TAL SL

Client Sample ID: WRSB208_95-105

Lab Sample ID: 160-36942-20
Date Collected: 01/08/20 12:06
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 94.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:13	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 06:05	LKP	TAL SL

Client Sample ID: WRSB208_105-115

Lab Sample ID: 160-36942-21
Date Collected: 01/08/20 12:23
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456585	01/13/20 09:00	SEC	TAL SL

Lab Chronicle

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

Job ID: 160-36942-1
SDG: 160-36942-1

Client Sample ID: WRSB208_105-115
Lab Sample ID: 160-36942-21
Date Collected: 01/08/20 12:23
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456756	01/14/20 16:58	KLH	TAL SL
Total/NA	Analysis	901.1		1	459110	02/04/20 12:47	JFL	TAL SL

Client Sample ID: WRSB208_105-115
Lab Sample ID: 160-36942-21
Date Collected: 01/08/20 12:23
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 95.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457937	01/23/20 16:14	LAM	TAL SL
Total/NA	Analysis	6020A		2	458662	01/30/20 07:40	LKP	TAL SL

Client Sample ID: WRSB208_115-125
Lab Sample ID: 160-36942-22
Date Collected: 01/08/20 12:42
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456585	01/13/20 09:00	SEC	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456756	01/14/20 16:58	KLH	TAL SL
Total/NA	Analysis	901.1		1	459111	02/04/20 12:47	JFL	TAL SL

Client Sample ID: WRSB208_115-125
Lab Sample ID: 160-36942-22
Date Collected: 01/08/20 12:42
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 95.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457937	01/23/20 16:14	LAM	TAL SL
Total/NA	Analysis	6020A		2	458662	01/30/20 08:27	LKP	TAL SL

Client Sample ID: WRSB208_125-131.5
Lab Sample ID: 160-36942-23
Date Collected: 01/08/20 15:57
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456585	01/13/20 09:00	SEC	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456756	01/14/20 16:58	KLH	TAL SL
Total/NA	Analysis	901.1		1	459112	02/04/20 12:48	KLS	TAL SL

Lab Chronicle

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

Job ID: 160-36942-1
SDG: 160-36942-1

Client Sample ID: WRSB208_125-131.5

Lab Sample ID: 160-36942-23

Date Collected: 01/08/20 15:57
Date Received: 01/10/20 09:20

Matrix: Solid
Percent Solids: 96.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457937	01/23/20 16:14	LAM	TAL SL
Total/NA	Analysis	6020A		2	458662	01/30/20 08:34	LKP	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: 160-36942-1
SDG: 160-36942-1

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
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: 160-36942-1
SDG: 160-36942-1

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

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 457936 Batch Start Date: 01/23/20 16:12 Batch Analyst: Mazariegos, Leonel A

Batch Method: 3050B Batch End Date: 01/27/20 14:06

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	MPREP1-A 00004	MPREP1-B 00004	MPREP2 00022	PR_LCSSRM 00024
MB 160-457936/1		3050B, 6020A		0.5134 g	50 mL				
LCS 160-457936/2		3050B, 6020A		0.5731 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
LCSSRM 160-457936/3		3050B, 6020A		0.5415 g	50 mL				0.5415 g
160-36942-B-1		3050B, 6020A	T	0.5414 g	50 mL				
160-36942-B-1 MS		3050B, 6020A	T	0.5802 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
160-36942-B-1 MSD		3050B, 6020A	T	0.5545 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
160-36942-B-6	WRSB208_0-0.5	3050B, 6020A	T	0.5279 g	50 mL				
160-36942-B-7	WRSB208_0.5-3	3050B, 6020A	T	0.5851 g	50 mL				
160-36942-B-8	WRSB208_3-6	3050B, 6020A	T	0.5238 g	50 mL				
160-36942-B-9	WRSB208_6-15	3050B, 6020A	T	0.5315 g	50 mL				
160-36942-B-10	WRSB208_15-25	3050B, 6020A	T	0.5845 g	50 mL				
160-36942-B-11	WRSB208-FD_15-25	3050B, 6020A	T	0.5300 g	50 mL				
160-36942-B-12	WRSB208_25-35	3050B, 6020A	T	0.5860 g	50 mL				
160-36942-B-13	WRSB208_35-45	3050B, 6020A	T	0.5189 g	50 mL				
160-36942-B-14	WRSB208_45-55	3050B, 6020A	T	0.5634 g	50 mL				
160-36942-B-15	WRSB208_55-65	3050B, 6020A	T	0.5742 g	50 mL				
160-36942-B-16	WRSB208_65-75	3050B, 6020A	T	0.5408 g	50 mL				
160-36942-B-17	WRSB208-FD_65-75	3050B, 6020A	T	0.5310 g	50 mL				
160-36942-B-18	WRSB208_75-85	3050B, 6020A	T	0.5271 g	50 mL				
160-36942-B-19	WRSB208_85-95	3050B, 6020A	T	0.5105 g	50 mL				
160-36942-B-20	WRSB208_95-105	3050B, 6020A	T	0.5076 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.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 457936 Batch Start Date: 01/23/20 16:12 Batch Analyst: Mazariegos, Leonel A

Batch Method: 3050B Batch End Date: 01/27/20 14:06

Batch Notes	
Balance ID	27150420
Blank Soil Lot Number	25438819
Temperature - Corrected - End	B5: 91.8 Degrees C
Temperature - Corrected - Start	C4: 92.1 Degrees C
Digestion End Time	01/27/2020 13:39
Digestion Start Time	01/27/2020 10:53
Digestion Unit ID	HOTBLOCK 1
Digestion Tube/Cup ID	344749-4653
Hydrogen Peroxide ID	1852964
Hydrochloric Acid ID	1854875
Nitric Acid ID	1854883, 1863531
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.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 457937 Batch Start Date: 01/23/20 16:14 Batch Analyst: Mazariegos, Leonel A

Batch Method: 3050B Batch End Date: 01/27/20 14:06

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	MPREP1-A 00004	MPREP1-B 00004	MPREP2 00022	PR_LCSSRM 00024
MB 160-457937/1		3050B, 6020A		0.5313 g	50 mL				
LCS 160-457937/2		3050B, 6020A		0.5182 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
LCSSRM 160-457937/3		3050B, 6020A		0.5297 g	50 mL				0.5297 g
160-36942-B-21	WRSB208_105-115	3050B, 6020A	T	0.5594 g	50 mL				
160-36942-B-21 MS	WRSB208_105-115	3050B, 6020A	T	0.5226 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
160-36942-B-21 MSD	WRSB208_105-115	3050B, 6020A	T	0.5536 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
160-36942-B-22	WRSB208_115-125	3050B, 6020A	T	0.5503 g	50 mL				
160-36942-B-23	WRSB208_125-131.5	3050B, 6020A	T	0.5517 g	50 mL				

Batch Notes	
Balance ID	27150420
Blank Soil Lot Number	25438819
Temperature - Corrected - End	B5: 91.8 Degrees C
Temperature - Corrected - Start	C4: 92.1 Degrees C
Digestion End Time	01/27/2020 13:39
Digestion Start Time	01/27/2020 10:53
Digestion Unit ID	HOTBLOCK 1
Digestion Tube/Cup ID	344749-4653
Hydrogen Peroxide ID	1852964
Hydrochloric Acid ID	1854875
Nitric Acid ID	1854883, 1863531
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.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 456585 Batch Start Date: 01/13/20 09:00 Batch Analyst: Cates, Samuel E

Batch Method: Moisture Batch End Date: 01/14/20 07:25

Lab Sample ID	Client Sample ID	Method Chain	Basis	DishWeight	SampleMassWet	SampleMassDry			
160-36942-B-21	WRSB208_105-115	Moisture	T	1.0648 g	11.0724 g	10.5895 g			
160-36942-B-21 DU	WRSB208_105-115	Moisture	T	1.0617 g	11.0508 g	10.6206 g			
160-36942-B-22	WRSB208_115-125	Moisture	T	1.1041 g	11.0956 g	10.6613 g			
160-36942-B-23	WRSB208_125-131.5	Moisture	T	1.0690 g	11.6809 g	11.3390 g			

Batch Notes	
Balance ID	0034150065
Date samples were placed in the oven	01/13/2020
Oven Temp In	104 Degrees C
Time samples were place in the oven	09:50
Date samples were removed from oven	01/14/2020
Oven Temp Out	104 Degrees C
Time Samples were removed from oven	06:10
Oven ID	OC
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.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 456781 Batch Start Date: 01/15/20 08:32 Batch Analyst: Domalewski, Ryan J

Batch Method: Moisture Batch End Date: 01/16/20 06:52

Lab Sample ID	Client Sample ID	Method Chain	Basis	DishWeight	SampleMassWet	SampleMassDry			
160-36942-B-1		Moisture	T	1.1560 g	11.8572 g	11.2182 g			
160-36942-B-1 DU		Moisture	T	1.0664 g	11.2347 g	10.6998 g			
160-36942-B-6	WRSB208_0-0.5	Moisture	T	1.0659 g	11.4238 g	10.9460 g			
160-36942-B-7	WRSB208_0.5-3	Moisture	T	1.0630 g	11.4572 g	11.0332 g			
160-36942-B-8	WRSB208_3-6	Moisture	T	1.0663 g	11.0709 g	10.6766 g			
160-36942-B-9	WRSB208_6-15	Moisture	T	1.0671 g	11.1583 g	10.7683 g			
160-36942-B-10	WRSB208_15-25	Moisture	T	1.0783 g	11.2404 g	10.8561 g			
160-36942-B-11	WRSB208-FD_15-25	Moisture	T	1.0564 g	11.2388 g	10.8357 g			
160-36942-B-12	WRSB208_25-35	Moisture	T	1.0689 g	11.4047 g	11.0336 g			
160-36942-B-13	WRSB208_35-45	Moisture	T	1.0681 g	11.6476 g	11.3334 g			
160-36942-B-14	WRSB208_45-55	Moisture	T	1.0572 g	11.1852 g	10.6710 g			
160-36942-B-15	WRSB208_55-65	Moisture	T	1.0689 g	11.2361 g	10.8047 g			
160-36942-B-16	WRSB208_65-75	Moisture	T	1.0654 g	11.7967 g	11.2851 g			
160-36942-B-17	WRSB208-FD_65-75	Moisture	T	1.0513 g	11.2301 g	10.7207 g			
160-36942-B-18	WRSB208_75-85	Moisture	T	1.0510 g	11.8132 g	11.1709 g			
160-36942-B-19	WRSB208_85-95	Moisture	T	1.0512 g	11.7328 g	11.0949 g			
160-36942-B-20	WRSB208_95-105	Moisture	T	1.0698 g	11.3456 g	10.7260 g			

Batch Notes	
Balance ID	1119252511
Date samples were placed in the oven	01/15/2020
Oven Temp In	103 Degrees C
Time samples were place in the oven	09:21
Date samples were removed from oven	01/16/2020
Oven Temp Out	101 Degrees C
Time Samples were removed from oven	06:20
Oven ID	OC
Thermometer ID	A142186

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.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 456781 Batch Start Date: 01/15/20 08:32 Batch Analyst: Domalewski, Ryan J

Batch Method: Moisture Batch End Date: 01/16/20 06:52

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.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 456720 Batch Start Date: 01/14/20 09:54 Batch Analyst: Curtright, Logan T

Batch Method: Fill_Geo-21 Batch End Date: 01/14/20 11:25

Lab Sample ID	Client Sample ID	Method Chain	Basis	TareWeight	GrossWeight	InitialAmount	IngDecDate1	IngDecDate3	Geometry
MB 160-456720/1		Fill_Geo-21, 901.1				291.18 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
LCS 160-456720/2		Fill_Geo-21, 901.1				341.9 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-1-A		Fill_Geo-21, 901.1	T	46.2 g	438.1 g	391.9 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-1-A DU		Fill_Geo-21, 901.1	T	46.2 g	438.1 g	391.9 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-6-A	WRSB208_0-0.5	Fill_Geo-21, 901.1	T	46.5 g	440.2 g	393.7 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-7-A	WRSB208_0.5-3	Fill_Geo-21, 901.1	T	46.3 g	466.0 g	419.7 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-8-A	WRSB208_3-6	Fill_Geo-21, 901.1	T	46.0 g	442.5 g	396.5 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-9-A	WRSB208_6-15	Fill_Geo-21, 901.1	T	46.2 g	444.5 g	398.3 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-10-A	WRSB208_15-25	Fill_Geo-21, 901.1	T	46.2 g	458.4 g	412.2 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-11-A	WRSB208-FD_15-25	Fill_Geo-21, 901.1	T	46.3 g	418.4 g	372.1 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-12-A	WRSB208_25-35	Fill_Geo-21, 901.1	T	46.1 g	393.4 g	347.3 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-13-A	WRSB208_35-45	Fill_Geo-21, 901.1	T	46.3 g	390.0 g	343.7 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-14-A	WRSB208_45-55	Fill_Geo-21, 901.1	T	46.1 g	384.3 g	338.2 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-15-A	WRSB208_55-65	Fill_Geo-21, 901.1	T	46.4 g	417.4 g	371 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-16-A	WRSB208_65-75	Fill_Geo-21, 901.1	T	46.1 g	419.4 g	373.3 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-17-A	WRSB208-FD_65-75	Fill_Geo-21, 901.1	T	46.0 g	375.9 g	329.9 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-18-A	WRSB208_75-85	Fill_Geo-21, 901.1	T	46.3 g	410.0 g	363.7 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-19-A	WRSB208_85-95	Fill_Geo-21, 901.1	T	46.1 g	406.4 g	360.3 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-20-A	WRSB208_95-105	Fill_Geo-21, 901.1	T	46.0 g	393.1 g	347.1 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can

Lab Sample ID	Client Sample ID	Method Chain	Basis	Tuna Can LCS 00009					

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.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 456720 Batch Start Date: 01/14/20 09:54 Batch Analyst: Curtright, Logan T

Batch Method: Fill_Geo-21 Batch End Date: 01/14/20 11:25

Lab Sample ID	Client Sample ID	Method Chain	Basis	Tuna Can LCS 00009					
MB 160-456720/1		Fill_Geo-21, 901.1							
LCS 160-456720/2		Fill_Geo-21, 901.1		# g					
160-36942-A-1-A		Fill_Geo-21, 901.1	T						
160-36942-A-1-A DU		Fill_Geo-21, 901.1	T						
160-36942-A-6-A	WRSB208_0-0.5	Fill_Geo-21, 901.1	T						
160-36942-A-7-A	WRSB208_0.5-3	Fill_Geo-21, 901.1	T						
160-36942-A-8-A	WRSB208_3-6	Fill_Geo-21, 901.1	T						
160-36942-A-9-A	WRSB208_6-15	Fill_Geo-21, 901.1	T						
160-36942-A-10-A	WRSB208_15-25	Fill_Geo-21, 901.1	T						
160-36942-A-11-A	WRSB208-FD_15-25	Fill_Geo-21, 901.1	T						
160-36942-A-12-A	WRSB208_25-35	Fill_Geo-21, 901.1	T						
160-36942-A-13-A	WRSB208_35-45	Fill_Geo-21, 901.1	T						
160-36942-A-14-A	WRSB208_45-55	Fill_Geo-21, 901.1	T						
160-36942-A-15-A	WRSB208_55-65	Fill_Geo-21, 901.1	T						
160-36942-A-16-A	WRSB208_65-75	Fill_Geo-21, 901.1	T						
160-36942-A-17-A	WRSB208-FD_65-75	Fill_Geo-21, 901.1	T						
160-36942-A-18-A	WRSB208_75-85	Fill_Geo-21, 901.1	T						
160-36942-A-19-A	WRSB208_85-95	Fill_Geo-21, 901.1	T						
160-36942-A-20-A	WRSB208_95-105	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.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 456720 Batch Start Date: 01/14/20 09:54 Batch Analyst: Curtright, Logan T

Batch Method: Fill_Geo-21 Batch End Date: 01/14/20 11:25

Batch Notes	
Balance ID	121432711
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.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 456756 Batch Start Date: 01/14/20 16:58 Batch Analyst: Harris, Kayla L

Batch Method: Fill_Geo-21 Batch End Date: 01/14/20 17:10

Lab Sample ID	Client Sample ID	Method Chain	Basis	TareWeight	GrossWeight	InitialAmount	IngDecDate1	IngDecDate3	Geometry
MB 160-456756/1		Fill_Geo-21, 901.1				291.18 g	01/14/2020 17:10	02/04/2020 17:10	TUNA CAN
LCS 160-456756/2		Fill_Geo-21, 901.1				341.9 g	01/14/2020 17:10	02/04/2020 17:10	TUNA CAN
160-36942-A-21-A	WRSB208_105-115	Fill_Geo-21, 901.1	T	46.1 g	433.9 g	387.8 g	01/14/2020 17:10	02/04/2020 17:10	TUNA CAN
160-36942-A-21-A DU	WRSB208_105-115	Fill_Geo-21, 901.1	T	46.1 g	433.9 g	387.8 g	01/14/2020 17:10	02/04/2020 17:10	TUNA CAN
160-36942-A-22-A	WRSB208_115-125	Fill_Geo-21, 901.1	T	46.5 g	439.4 g	392.9 g	01/14/2020 17:10	02/04/2020 17:10	TUNA CAN
160-36942-A-23-A	WRSB208_125-131.5	Fill_Geo-21, 901.1	T	46.1 g	413.2 g	367.1 g	01/14/2020 17:10	02/04/2020 17:10	TUNA CAN

Lab Sample ID	Client Sample ID	Method Chain	Basis	Tuna Can LCS 00009					
MB 160-456756/1		Fill_Geo-21, 901.1							
LCS 160-456756/2		Fill_Geo-21, 901.1		# g					
160-36942-A-21-A	WRSB208_105-115	Fill_Geo-21, 901.1	T						
160-36942-A-21-A DU	WRSB208_105-115	Fill_Geo-21, 901.1	T						
160-36942-A-22-A	WRSB208_115-125	Fill_Geo-21, 901.1	T						
160-36942-A-23-A	WRSB208_125-131.5	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.

901.1

Page 1 of 1

METALS

COVER PAGE
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job Number: 160-36942-1

SDG No.: 160-36942-1

Project: ACMS - Yerington OU-4b_OU-5_Soil

Client Sample ID	Lab Sample ID
WRSB208_0-0.5	160-36942-6
WRSB208_0.5-3	160-36942-7
WRSB208_3-6	160-36942-8
WRSB208_6-15	160-36942-9
WRSB208_15-25	160-36942-10
WRSB208-FD_15-25	160-36942-11
WRSB208_25-35	160-36942-12
WRSB208_35-45	160-36942-13
WRSB208_45-55	160-36942-14
WRSB208_55-65	160-36942-15
WRSB208_65-75	160-36942-16
WRSB208-FD_65-75	160-36942-17
WRSB208_75-85	160-36942-18
WRSB208_85-95	160-36942-19
WRSB208_95-105	160-36942-20
WRSB208_105-115	160-36942-21
WRSB208_115-125	160-36942-22
WRSB208_125-131.5	160-36942-23

Comments:

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

SDG No.: 160-36942-1

ICV Source: MS A ICV_01103 Concentration Units: ug/L

CCV Source: MS A CAL1 LLC_00424

70-130%

	ICV 160-458484/7 01/29/2020 00:01				CCVL 160-458484/24 01/29/2020 01:57				CCVL 160-458484/37 01/29/2020 03:24			
Analyte	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Thorium	98.1		100	98	1.82	J	2.00	91	2.12		2.00	106
Uranium	98.7		100	99	0.904	J	1.00	90	0.955	J	1.00	96

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.: 160-36942-1

SDG No.: 160-36942-1

ICV Source: MS A ICV_01103 Concentration Units: ug/L

CCV Source: MS A CAL1 LLC_00424

	CCVL 160-458484/50 01/29/2020 04:51				CCVL 160-458484/62 01/29/2020 06:12							
Analyte	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Thorium	1.87	J	2.00	94	1.84	J	2.00	92				
Uranium	0.921	J	1.00	92	0.904	J	1.00	90				

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.: 160-36942-1

SDG No.: 160-36942-1

ICV Source: MS A ICV_01103 Concentration Units: ug/L

CCV Source: MS A CAL2 CCV_00382

90-110%.

	ICV 160-458484/7 01/29/2020 00:01				CCV 160-458484/25 01/29/2020 02:03				CCV 160-458484/38 01/29/2020 03:31			
Analyte	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Thorium	98.1		100	98	98.7		100	99	98.9		100	99
Uranium	98.7		100	99	99.8		100	100	99.2		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.: 160-36942-1

SDG No.: 160-36942-1

ICV Source: MS A ICV_01103 Concentration Units: ug/L

CCV Source: MS A CAL2 CCV_00382

	CCV 160-458484/51 01/29/2020 04:58				CCV 160-458484/63 01/29/2020 06:19							
Analyte	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Thorium	97.9		100	98	97.8		100	98				
Uranium	97.1		100	97	98.6		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.: 160-36942-1

SDG No.: 160-36942-1

ICV Source: MS A ICV_01104 Concentration Units: ug/L

CCV Source: MS A CAL1 LLC_00424

70-130%

	ICV 160-458662/7 01/30/2020 04:31				CCVL 160-458662/24 01/30/2020 06:26				CCVL 160-458662/37 01/30/2020 07:53			
Analyte	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Thorium	99.0		100	99	1.97	J	2.00	99	1.89	J	2.00	95
Uranium	99.7		100	100	0.940	J	1.00	94	0.927	J	1.00	93

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.: 160-36942-1

SDG No.: 160-36942-1

ICV Source: MS A ICV_01104 Concentration Units: ug/L

CCV Source: MS A CAL1 LLC_00424

	CCVL 160-458662/50 01/30/2020 09:21											
Analyte	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Thorium	1.84	J	2.00	92								
Uranium	0.913	J	1.00	91								

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.: 160-36942-1

SDG No.: 160-36942-1

ICV Source: MS A ICV_01104 Concentration Units: ug/L

CCV Source: MS A CAL2 CCV_00382

	ICV 160-458662/7 01/30/2020 04:31				CCV 160-458662/25 01/30/2020 06:33				CCV 160-458662/38 01/30/2020 08:00			
Analyte	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Thorium	99.0		100	99	95.9		100	96	98.9		100	99
Uranium	99.7		100	100	95.9		100	96	99.9		100	100

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.: 160-36942-1

SDG No.: 160-36942-1

ICV Source: MS A ICV_01104 Concentration Units: ug/L

CCV Source: MS A CAL2 CCV_00382

CCV 160-458662/51
01/30/2020 09:28

Analyte	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Thorium	96.3		100	96								
Uranium	97.2		100	97								

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.: 160-36942-1

SDG No.: 160-36942-1

Method: 6020A Instrument ID: ICPMS7700

Lab Sample ID: CRI 160-458484/9 Concentration Units: ug/L

CRQL Check Standard Source: MS A CAL1 LLC_00424

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Thorium	2.00	1.87	J	94	70-130
Uranium	1.00	0.901	J	90	70-130

Lab Sample ID: CRI 160-458662/9 Concentration Units: ug/L

CRQL Check Standard Source: MS A CAL1 LLC_00424

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Thorium	2.00	1.85	J	92	70-130
Uranium	1.00	0.906	J	91	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.: 160-36942-1

SDG No.: 160-36942-1

Concentration Units: ug/L

		ICB 160-458484/8 01/29/2020 00:08		CCB 160-458484/26 01/29/2020 02:10		CCB 160-458484/39 01/29/2020 03:37		CCB 160-458484/52 01/29/2020 05:05	
Analyte	RL	Found	C	Found	C	Found	C	Found	C
Thorium	2.0	ND		ND		ND		ND	
Uranium	1.0	ND		ND		ND		ND	
		clear		clear		clear		clear	

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

SDG No.: 160-36942-1

Concentration Units: ug/L

		CCB 160-458484/64 01/29/2020 06:26 ✓							
Analyte	RL	Found	C	Found	C	Found	C	Found	C
Thorium	2.0	ND							
Uranium	1.0	ND							

clear

Italicized analytes were not requested for this sequence.

3-IN
INSTRUMENT BLANKS
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

SDG No.: 160-36942-1

Concentration Units: ug/L

		ICB 160-458662/8 01/30/2020 04:38 ✓		CCB 160-458662/26 01/30/2020 06:40 ✓		CCB 160-458662/39 01/30/2020 08:07 ✓		CCB 160-458662/52 01/30/2020 09:35 ✓	
Analyte	RL	Found	C	Found	C	Found	C	Found	C
Thorium	2.0	ND		ND		ND		ND	
Uranium	1.0	ND		ND		ND		ND	
		clear		clear		clear		clear	

Italicized analytes were not requested for this sequence.

3-IN
METHOD BLANK
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

SDG No.: 160-36942-1

Concentration Units: mg/Kg Lab Sample ID: MB 160-457936/1-A ✓

Instrument Code: ICPMS7700 Batch No.: 458484

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

Clear

FORM III-IN

3-IN
METHOD BLANK
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

SDG No.: 160-36942-1

Concentration Units: mg/Kg Lab Sample ID: MB 160-457937/1-A

Instrument Code: ICPMS7700 Batch No.: 458662

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

Clear

FORM III-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

SDG No.: 160-36942-1

Lab Sample ID: ICSA 160-458484/10 Instrument ID: ICPMS7700

Lab File ID: 079ICSA.D ICS Source: MS A ICSA 00333

Concentration Units: ug/L

Analyte	True Solution A	Found Solution A	Percent Recovery
Thorium		-0.0070	<12xMDL, no qual
Uranium		-0.0200	
Aluminum	*100000*	*102896*	*103*

80-120%

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.: 160-36942-1

SDG No.: 160-36942-1

Lab Sample ID: ICSAB 160-458484/11 Instrument ID: ICPMS7700

Lab File ID: 080ICSB.D ICS Source: MS A ICSAB 00345

Concentration Units: ug/L

80-120%

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Thorium	50.0	51.9	104
Uranium	50.0	51.6	103

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.: 160-36942-1

SDG No.: 160-36942-1

Lab Sample ID: ICSA 160-458662/10 Instrument ID: ICPMS7700

Lab File ID: 110ICSA.D ICS Source: MS A ICSA_00333

Concentration Units: ug/L

Analyte	True Solution A	Found Solution A	Percent Recovery
Thorium		0.0060	<12x MDL, no qual
Uranium		-0.0120	
Aluminum	*100000*	*107513* ✓	*108* ✓

80-120%

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.: 160-36942-1

SDG No.: 160-36942-1

Lab Sample ID: ICSAB 160-458662/11 Instrument ID: ICPMS7700

Lab File ID: 111ICSB.D ICS Source: MS A ICSAB_00345

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Thorium	50.0	50.0	100
Uranium	50.0	50.2	100

80-120%

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: WRSB208_105-115 MS

Lab ID: 160-36942-21 MS

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36942-1

SDG No.: 160-36942-1

Matrix: Solid

Concentration Units: mg/Kg

% Solids: 95.2

Analyte	SSR C	Sample Result (SR) C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Thorium	102	7.3	101	94	75-125		6020A
Uranium	99.2	1.3	101	97	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: WRSB208_105-115 MSD

Lab ID: 160-36942-21 MSD

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36942-1

SDG No.: 160-36942-1

Matrix: Solid

Concentration Units: mg/Kg

% Solids: 95.2

35%

Analyte	(SDR) C	Spike Added (SA)	%R	Control Limit %R	RPD	RPD Limit	Q	Method
Thorium	99.5	94.9	97	75-125	3	30		6020A
Uranium	94.8	94.9	99	75-125	5	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 SAMPLE RECOVERY
METALS

Client ID:

Lab ID: 160-36942-B-1-B MS

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36942-1

SDG No.: 160-36942-1

Matrix: Solid

Concentration Units: mg/Kg

% Solids: 94.0

Analyte	SSR C	Sample Result (SR) C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Thorium	134	83	91.6	55	75-125	F1	6020A
Uranium	120	62	91.6	64	75-125	F1	6020A

SSR = Spiked Sample Result

J,M-: 6-20

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:

Lab ID: 160-36942-B-1-C MSD

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36942-1

SDG No.: 160-36942-1

Matrix: Solid

Concentration Units: mg/Kg

% Solids: 94.0

Analyte	(SDR) C	Spike Added (SA)	%R	Control Limit %R	RPD	RPD Limit	Q	Method
Thorium	148	95.9	68	75-125	10	30	F1	6020A
Uranium	135	95.9	76	75-125	11	30		6020A

SDR = Sample Duplicate Result

J,M-;6-20

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

LINEAR RANGE CHECK STANDARD
METALS -

Lab ID: LRC 160-458484/2

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

Sample Matrix: Solid LCS Source: MS LDR 2_00191

Analyte	Solid(ug/L)							
	True	Found	C	%R	Limits		Q	Method
Thorium	2000	1990		100	90	110		6020A
Uranium	2000	2080		104	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 160-457936/2-A

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

Sample Matrix: Solid LCS Source: MPREP1-A_00004

Solid(mg/Kg)

Analyte	True	Found	C	%R	Limits		Q	Method
Thorium	87.2	82.4		94	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 160-457936/3-A

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

Sample Matrix: Solid LCS Source: PR_LCSSRM_00024

Solid(mg/Kg)

Analyte	True	Found	C	%R	Limits		Q	Method
Uranium	70.9	57.9		81.6	62.6	110.0		6020A

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

FORM VIIA - IN

LINEAR RANGE CHECK STANDARD
METALS -

Lab ID: LRC 160-458662/2

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

Sample Matrix: Solid LCS Source: MS LDR 2_00191

Solid(ug/L)

Analyte	True	Found	C	%R	Limits		Q	Method
Thorium	2000	2000		100	90	110		6020A
Uranium	2000	1980		99	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 160-457937/2-A

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

Sample Matrix: Solid LCS Source: MPREP1-A_00004

Solid(mg/Kg)

Analyte	True	Found	C	%R	Limits		Q	Method
Thorium	96.5	94.3		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 160-457937/3-A

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

Sample Matrix: Solid LCS Source: PR_LCSSRM_00024

Solid(mg/Kg) 80-120%

Analyte	True	Found	C	%R	Limits		Q	Method
Uranium	70.9	62.5		88.1	62.6	110.0		6020A

does not match raw data, DF incorrect in raw

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

FORM VIIA - IN

Sample Report

Sample Name	LCSSRM 160-457937/3-A
Data File Name	134SMPL.D
DataPath	C:\ICPMH\1\DATA\012920B1.B
Acq Date Time	2020-01-30T07:33:45-06:00
Type	Sample
VialNumber	3211
Dilution	~~2~~ 10 see run log
Comment	
Operator	LP 7700
ISTDRefDataFileName	103CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	1269.02758	2538.05517	ug/l	1000	Li	FAILED
Be	9	6	3	200.98671	401.97341	ug/l	1000	Be	
B	11	6	3	327.91755	655.83509	ug/l	2000	B	
Na	23	45	2	2665.97558	5331.95115	ug/l	50000	Na	
Mg	24	45	2	14016.89581	28033.79161	ug/l	50000	Mg	
Al	27	45	2	11715.44301	23430.88602	ug/l	100000	Al	
P	31	45	2	686.10167	1372.20333	ug/l	100000	P	
K	39	45	2	20849.81905	41699.63811	ug/l	100000	K	
Ca	44	45	3	8954.13116	17908.26232	ug/l	100000	Ca	
Ti	47	45	3	703.33028	1406.66056	ug/l	2000	Ti	
V	51	45	2	214.02615	428.05229	ug/l	2000	V	
Cr	52	45	2	228.58049	457.16098	ug/l	2000	Cr	
Mn	55	72	2	1080.27208	2160.54415	ug/l	5000	Mn	
Fe	57	72	2	19412.29499	38824.58997	ug/l	100000	Fe	
Co	59	72	2	60.54287	121.08574	ug/l	2000	Co	
Ni	60	72	2	105.93730	211.87459	ug/l	2000	Ni	
Cu	63	72	2	44.95476	89.90952	ug/l	2000	Cu	
Zn	66	72	2	910.33780	1820.67560	ug/l	5000	Zn	
As	75	72	2	90.86115	181.72229	ug/l	2000	As	
Se	78	72	2	224.60325	449.20651	ug/l	1000	Se	
Sr	88	72	3	224.13851	448.27702	ug/l	2000	Sr	
Y	89	72	2	7.36252	14.72504	ug/l	200	Y	
Zr	90	72	2	4.65388	9.30776	ug/l	2000	Zr	
Nb	93	72	2	0.61074	1.22148	ug/l	100	Nb	
Mo	95	72	3	116.27160	232.54320	ug/l	1000	Mo	
Ru	101	72	2	-0.01932	-0.03864	ug/l	200	Ru	
Rh	103	72	2	-0.00205	-0.00409	ug/l	200	Rh	
Pd	105	72	2	0.01009	0.02018	ug/l	20	Pd	
Ag	107	115	3	32.07576	64.15151	ug/l	400	Ag	
Cd	111	115	3	76.32311	152.64622	ug/l	2000	Cd	
Sn	118	115	3	170.56625	341.13250	ug/l	2000	Sn	
Sb	121	115	3	55.70768	111.41537	ug/l	1000	Sb	
Te	125	165	2	0.04949	0.09898	ug/l	200	Te	
Cs	133	165	2	1.06829	2.13657	ug/l	2000	Cs	
Ba	137	165	3	272.33409	544.66818	ug/l	5000	Ba	
La	139	165	2	22.26638	44.53275	ug/l	200	La	
Ce	140	165	2	49.62565	99.25131	ug/l	200	Ce	
Pr	141	165	2	5.29914	10.59828	ug/l	200	Pr	
Nd	146	165	2	19.83882	39.67765	ug/l	200	Nd	
Sm	147	165	3	3.26881	6.53763	ug/l	2000	Sm	
Hf	178	165	2	0.11790	0.23580	ug/l	200	Hf	
Ta	181	165	2	-0.01938	-0.03875	ug/l	200	Ta	
W	182	165	2	1.54303	3.08605	ug/l	2000	W	
Re	185	193	3	-0.00787	-0.01574	ug/l	200	Re	
Pt	195	193	2	0.00450	0.00901	ug/l	200	Pt	
Au	197	193	3	-0.03684	-0.07367	ug/l	2000	Au	
Tl	205	193	3	132.09188	264.18377	ug/l	400	Tl	
Pb	208	193	3	239.47916	478.95832	ug/l	5000	Pb	
Bi	209	193	2	0.19773	0.39546	ug/l	2000	Bi	
Th	232	193	3	8.75620	17.51241	ug/l	2000	Th	
U	238	193	3	66.16132	132.32264	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	4811365	0.65	5669753	84.9	80	120	Li (IS)	
Sc (IS)	45	2	168562	1.14	159326	105.8	80	120	Sc (IS)	
Sc (IS)	45	3	3329555	0.57	3433865	97.0	80	120	Sc (IS)	
Ge (IS)	72	2	352586	1.81	361019	97.7	80	120	Ge (IS)	
Ge (IS)	72	3	2256699	0.35	2460124	91.7	80	120	Ge (IS)	
In (IS)	115	3	13574367	0.45	14712226	92.3	80	120	In (IS)	
Ho (IS)	165	2	9416779	0.38	9297179	101.3	80	120	Ho (IS)	
Ho (IS)	165	3	15434908	0.70	15717830	98.2	80	120	Ho (IS)	
Ir (IS)	193	2	6044078	0.90	6159233	98.1	80	120	Ir (IS)	
Ir (IS)	193	3	7428447	1.45	7740235	96.0	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

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

Lab ID: 160-36942-21

SDG No: 160-36942-1

Lab Name: Eurofins TestAmerica, St. Louis Job No: 160-36942-1

Matrix: Solid Concentration Units: mg/Kg

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference ±10%	Q	Method
Thorium	7.3		6.50		11	V	6020A
Uranium	1.3		1.26		NC		6020A

J: 21, 22, 23

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: 160-36942-B-1-A SD

SDG No: 160-36942-1

Lab Name: Eurofins TestAmerica, St. Louis Job No: 160-36942-1

Matrix: Solid Concentration Units: mg/Kg

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference ±10%	Q	Method
Thorium	83		80.6		3.4		6020A
Uranium	62		60.6		1.8		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: 160-36942-1

SDG Number: 160-36942-1

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

FORM IX - IN

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job Number: 160-36942-1

SDG Number: 160-36942-1

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

11-IN
LINEAR RANGES
METALS

Lab Name: Eurofins TestAmerica, St. Loui Job No: 160-36942-1

SDG No.: 160-36942-1

Instrument ID: ICPMS7700 Date: 08/05/2019 16:42

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	Method
Thorium		2000	6020A
Uranium		2000	6020A

FORM XI - IN

12-IN
PREPARATION LOG
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

SDG No.: 160-36942-1

Prep Method: 3050B

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight (g)	Initial Volume	Final Volume (mL)
MB 160-457936/1-A	01/23/2020 16:12	457936	0.5134		50
LCS 160-457936/2-A	01/23/2020 16:12	457936	0.5731		50
LCSSRM 160-457936/3-A	01/23/2020 16:12	457936	0.5415		50
160-36942-B-1-B MS	01/23/2020 16:12	457936	0.5802		50
160-36942-B-1-C MSD	01/23/2020 16:12	457936	0.5545		50
160-36942-6	01/23/2020 16:12	457936	0.5279		50
160-36942-7	01/23/2020 16:12	457936	0.5851		50
160-36942-8	01/23/2020 16:12	457936	0.5238		50
160-36942-9	01/23/2020 16:12	457936	0.5315		50
160-36942-10	01/23/2020 16:12	457936	0.5845		50
160-36942-11	01/23/2020 16:12	457936	0.5300		50
160-36942-12	01/23/2020 16:12	457936	0.5860		50
160-36942-13	01/23/2020 16:12	457936	0.5189		50
160-36942-14	01/23/2020 16:12	457936	0.5634		50
160-36942-15	01/23/2020 16:12	457936	0.5742		50
160-36942-16	01/23/2020 16:12	457936	0.5408		50
160-36942-17	01/23/2020 16:12	457936	0.5310		50
160-36942-18	01/23/2020 16:12	457936	0.5271		50
160-36942-19	01/23/2020 16:12	457936	0.5105		50
160-36942-20	01/23/2020 16:13	457936	0.5076		50

FORM XII-IN

12-IN
PREPARATION LOG
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

SDG No.: 160-36942-1

Prep Method: 3050B

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight (g)	Initial Volume	Final Volume (mL)
MB 160-457937/1-A	01/23/2020 16:14	457937	0.5313		50
LCS 160-457937/2-A	01/23/2020 16:14	457937	0.5182		50
LCSSRM 160-457937/3-A	01/23/2020 16:14	457937	0.5297		50
160-36942-21	01/23/2020 16:14	457937	0.5594		50
160-36942-21 MS	01/23/2020 16:14	457937	0.5226		50
160-36942-21 MSD	01/23/2020 16:14	457937	0.5536		50
160-36942-22	01/23/2020 16:14	457937	0.5503		50
160-36942-23	01/23/2020 16:14	457937	0.5517		50

FORM XII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

SDG No.: 160-36942-1

Instrument ID: ICPMS7700 Analysis Method: 6020A

Start Date: 01/28/2020 16:49 End Date: 01/29/2020 06:26

Lab Sample Id	D/F	Type	Time	Th	U	Analytes
LRC 160-458484/1			16:49			
LRC 160-458484/2	1		16:56	X	X	
ICIS 160-458484/3			23:34	X	X	
IC 160-458484/4	1		23:41	X	X	
IC 160-458484/5	1		23:48	X	X	
IC 160-458484/6	1		23:54	X	X	
ICV 160-458484/7	1		00:01	X	X	
ICB 160-458484/8	1		00:08	X	X	
CRI 160-458484/9	1		00:15	X	X	
ICSA 160-458484/10	1		00:22	X	X	
ICSAB 160-458484/11	1		00:29	X	X	
CCV 160-458484/12			00:36			
CCB 160-458484/13			00:43			
ZZZZZZ			00:49			
ZZZZZZ			00:56			
ZZZZZZ			01:03			
ZZZZZZ			01:09			
ZZZZZZ			01:16			
ZZZZZZ			01:23			
ZZZZZZ			01:30			
ZZZZZZ			01:36			
ZZZZZZ			01:43			
ZZZZZZ			01:50			
CCVL 160-458484/24	1		01:57	X	X	
CCV 160-458484/25	1		02:03	X	X	
CCB 160-458484/26	1		02:10	X	X	
ZZZZZZ			02:17			
ZZZZZZ			02:24			
ZZZZZZ			02:30			
MB 160-457936/1-A	2	T	02:37	X	X	
LCS 160-457936/2-A	2	T	02:44	X		
LCSSRM 160-457936/3-A	10	T	02:50		X	
ZZZZZZ			02:57			
160-36942-B-1-A SD	10	T	03:04	X	X	
160-36942-B-1-B MS	2	T	03:11	X	X	
160-36942-B-1-C MSD	2	T	03:17	X	X	
CCVL 160-458484/37	1		03:24	X	X	
CCV 160-458484/38	1		03:31	X	X	
CCB 160-458484/39	1		03:37	X	X	
ZZZZZZ			03:44			
ZZZZZZ			03:51			
ZZZZZZ			03:58			

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

SDG No.: 160-36942-1

Instrument ID: ICPMS7700 Analysis Method: 6020A

Start Date: 01/28/2020 16:49 End Date: 01/29/2020 06:26

Lab Sample Id	D/F	Type	Time	Th	U	Analytes
ZZZZZZ			04:04			
160-36942-6	2	T	04:11	X	X	
160-36942-7	2	T	04:18	X	X	
160-36942-8	2	T	04:25	X	X	
160-36942-9	2	T	04:31	X	X	
160-36942-10	2	T	04:38	X	X	
160-36942-11	2	T	04:45	X	X	
CCVL 160-458484/50	1		04:51	X	X	
CCV 160-458484/51	1		04:58	X	X	
CCB 160-458484/52	1		05:05	X	X	
160-36942-12	2	T	05:12	X	X	
160-36942-13	2	T	05:18	X	X	
160-36942-14	2	T	05:25	X	X	
160-36942-15	2	T	05:32	X	X	
160-36942-16	2	T	05:39	X	X	
160-36942-17	2	T	05:45	X	X	
160-36942-18	2	T	05:52	X	X	
160-36942-19	2	T	05:59	X	X	
160-36942-20	2	T	06:05	X	X	
CCVL 160-458484/62	1		06:12	X	X	
CCV 160-458484/63	1		06:19	X	X	
CCB 160-458484/64	1		06:26	X	X	

Prep Types:
T = Total/NA

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

SDG No.: 160-36942-1

Instrument ID: ICPMS7700 Analysis Method: 6020A

Start Date: 01/29/2020 17:51 End Date: 01/30/2020 11:03

Lab Sample Id	D/F	Type	Time	Th	U	Analytes
LRC 160-458662/1			17:51			
LRC 160-458662/2	1		17:58	X	X	
ICIS 160-458662/3			04:05	X	X	
IC 160-458662/4	1		04:11	X	X	
IC 160-458662/5	1		04:18	X	X	
IC 160-458662/6	1		04:25	X	X	
ICV 160-458662/7	1		04:31	X	X	
ICB 160-458662/8	1		04:38	X	X	
CRI 160-458662/9	1		04:45	X	X	
ICSA 160-458662/10	1		04:52	X	X	
ICSAB 160-458662/11	1		04:59	X	X	
CCV 160-458662/12			05:05			
CCB 160-458662/13			05:12			
ZZZZZZ			05:19			
ZZZZZZ			05:26			
ZZZZZZ			05:32			
ZZZZZZ			05:39			
ZZZZZZ			05:46			
ZZZZZZ			05:53			
ZZZZZZ			05:59			
ZZZZZZ			06:06			
ZZZZZZ			06:13			
ZZZZZZ			06:19			
CCVL 160-458662/24	1		06:26	X	X	
CCV 160-458662/25	1		06:33	X	X	
CCB 160-458662/26	1		06:40	X	X	
ZZZZZZ			06:46			
ZZZZZZ			06:53			
ZZZZZZ			07:00			
ZZZZZZ			07:06			
ZZZZZZ			07:13			
MB 160-457937/1-A	2	T	07:20	X	X	
LCS 160-457937/2-A	2	T	07:27	X		
LCSSRM 160-457937/3-A	10	T	07:33		X	
160-36942-21	2	T	07:40	X	X	
160-36942-21 SD	10	T	07:47	X	X	
CCVL 160-458662/37	1		07:53	X	X	
CCV 160-458662/38	1		08:00	X	X	
CCB 160-458662/39	1		08:07	X	X	
160-36942-21 MS	2	T	08:14	X	X	
160-36942-21 MSD	2	T	08:20	X	X	
160-36942-22	2	T	08:27	X	X	

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

SDG No.: 160-36942-1

Instrument ID: ICPMS7700 Analysis Method: 6020A

Start Date: 01/29/2020 17:51 End Date: 01/30/2020 11:03

Lab Sample Id	D/F	Type	Time	Analytes	
				Th	U
160-36942-23	2	T	08:34	X	X
ZZZZZZ			08:41		
ZZZZZZ			08:47		
ZZZZZZ			08:54		
ZZZZZZ			09:01		
ZZZZZZ			09:08		
ZZZZZZ			09:14		
CCVL 160-458662/50	1		09:21	X	X
CCV 160-458662/51	1		09:28	X	X
CCB 160-458662/52	1		09:35	X	X
ZZZZZZ			09:42		
ZZZZZZ			09:49		
ZZZZZZ			09:56		
ZZZZZZ			10:02		
ZZZZZZ			10:09		
ZZZZZZ			10:16		
ZZZZZZ			10:23		
ZZZZZZ			10:29		
ZZZZZZ			10:36		
ZZZZZZ			10:43		
CCVL 160-458662/63			10:50		
CCV 160-458662/64			10:56		
CCB 160-458662/65			11:03		

Prep Types:
T = Total/NA

FORM XIII-IN

* Ir/3 associated w/ reported analytes

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

SDG No.: 160-36942-1

ICP-MS Instrument ID: ICPMS7700 Start Date: 01/28/2020 End Date: 01/29/2020

Internal Standards %RI For: 60-125%

Lab Sample ID	Time	Element In	Q	Element Ho/2	Q	Element Ho/3	Q	Element Ir/2	Q	Element Ir/3	Q
LRC 160-458484/2	16:56	89		97		94		90		90	
IC 160-458484/4	23:41	104		101		103		98		102	
IC 160-458484/5	23:48	98		98		100		96		98	
IC 160-458484/6	23:54	99		99		100		96		99	
ICV 160-458484/7	00:01	100		99		100		99		100	
ICB 160-458484/8	00:08	100		98		100		98		99	
CRI 160-458484/9	00:15	100		98		101		98		100	
ICSA 160-458484/10	00:22	92		98		94		87		89	
ICSAB 160-458484/11	00:29	93		100		97		89		90	
CCVL 160-458484/24	01:57	101		98		102		97		101	
CCV 160-458484/25	02:03	98		96		101		96		99	
CCB 160-458484/26	02:10	99		98		100		97		99	
MB 160-457936/1-A	02:37	102		99		104		100		102	
LCS 160-457936/2-A	02:44	98		97		101		92		98	
LCSSRM 160-457936/3-A	02:50	98		96		101		94		98	
160-36942-B-1-A SD	03:04	103		100		103		97		101	
160-36942-B-1-B MS	03:11	93		96		97		89		92	
160-36942-B-1-C MSD	03:17	98		96		103		88		97	
CCVL 160-458484/37	03:24	101		98		101		97		100	
CCV 160-458484/38	03:31	101		98		102		98		100	
CCB 160-458484/39	03:37	103		97		101		95		101	
160-36942-6	04:11	101		97		103		91		98	
160-36942-7	04:18	101		97		103		92		98	
160-36942-8	04:25	102		97		104		93		99	
160-36942-9	04:31	100		97		101		91		97	
160-36942-10	04:38	102		98		104		91		98	
160-36942-11	04:45	103		98		103		91		99	
CCVL 160-458484/50	04:51	107		101		104		98		102	
CCV 160-458484/51	04:58	105		99		104		96		102	
CCB 160-458484/52	05:05	105		96		103		94		101	
160-36942-12	05:12	102		98		104		91		99	
160-36942-13	05:18	104		97		105		91		99	
160-36942-14	05:25	103		99		104		92		99	
160-36942-15	05:32	103		97		104		91		98	
160-36942-16	05:39	103		99		104		94		99	
160-36942-17	05:45	101		97		102		91		98	
160-36942-18	05:52	102		98		103		90		98	
160-36942-19	05:59	102		99		102		93		97	
160-36942-20	06:05	102		96		104		89		98	
CCVL 160-458484/62	06:12	111		100		107		97		104	
CCV 160-458484/63	06:19	107		100		105		96		102	

FORM XV - IN

* no eval, Ir/3 evaluated ONLY

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

SDG No.: 160-36942-1

ICP-MS Instrument ID: ICPMS7700 Start Date: 01/28/2020 End Date: 01/29/2020

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 160-458484/64	06:26	108		98		105		96		103	

FORM XV - IN

*1-3 associated w/ reported analytes, No eval

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

SDG No.: 160-36942-1

ICP-MS Instrument ID: ICPMS7700 Start Date: 01/28/2020 End Date: 01/29/2020

Internal Standards %RI For: ~~60-125%~~ 70-120

Lab Sample ID	Time	Element	Q	Element Sc/2	Q	Element Sc/3	Q	Element Ge/2	Q	Element Ge/3	Q
LRC 160-458484/2	16:56			110		95		107		94	
IC 160-458484/4	23:41	101		102		102		103		103	
IC 160-458484/5	23:48	97		98		99		106		102	
IC 160-458484/6	23:54	95		98		99		107		103	
ICV 160-458484/7	00:01	97		98		100		108		101	
ICB 160-458484/8	00:08	99		98		99		100		100	
CRI 160-458484/9	00:15	100		99		101		102		102	
ICSA 160-458484/10	00:22	94		108		100		104		97	
ICSAB 160-458484/11	00:29	95		113		102		112		99	
CCVL 160-458484/24	01:57	94		94		99		99		101	
CCV 160-458484/25	02:03	91		90		96		98		102	
CCB 160-458484/26	02:10	93		92		97		95		99	
MB 160-457936/1-A	02:37	94		95		100		100		103	
LCS 160-457936/2-A	02:44	90		92		96		96		100	
LCSSRM 160-457936/3-A	02:50	83		94		101		94		99	
160-36942-B-1-A SD	03:04	97		118		122		102		104	
160-36942-B-1-B MS	03:11	88						97		99	
160-36942-B-1-C MSD	03:17	90						99		103	
CCVL 160-458484/37	03:24	94		96		100		100		103	
CCV 160-458484/38	03:31	92		95		100		106		105	
CCB 160-458484/39	03:37	95		96		100		99		102	
160-36942-6	04:11	94		114		123		103		107	
160-36942-7	04:18	94		115		123		103		107	
160-36942-8	04:25	95		115		124		103		108	
160-36942-9	04:31	93		117		124		102		105	
160-36942-10	04:38	95		118		127		106		109	
160-36942-11	04:45	94		116		125		102		108	
CCVL 160-458484/50	04:51	99		104		107		108		110	
CCV 160-458484/51	04:58	96		101		107		111		112	
CCB 160-458484/52	05:05	97		97		105		101		107	
160-36942-12	05:12	95		121		129		104		108	
160-36942-13	05:18	95		118		129		103		108	
160-36942-14	05:25	94		125		132		107		109	
160-36942-15	05:32	95		119		128		105		109	
160-36942-16	05:39	96		123		130		107		108	
160-36942-17	05:45	94		121		128		106		108	
160-36942-18	05:52	94		122		128		106		107	
160-36942-19	05:59	93		123		126		108		106	
160-36942-20	06:05	93		126		136		104		108	
CCVL 160-458484/62	06:12	101		104		111		108		113	
CCV 160-458484/63	06:19	96		101		107		115		113	

FORM XV - IN

15-IN

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

SDG No.: 160-36942-1

ICP-MS Instrument ID: ICPMS7700 Start Date: 01/28/2020 End Date: 01/29/2020

Internal Standards %RI For:

Lab Sample ID	Time	Element Li-6	Q	Element Sc/2	Q	Element Sc/3	Q	Element Ge/2	Q	Element Ge/3	Q
CCB 160-458484/64	06:26	99		100		107		104		109	

FORM XV - IN

* 1-3 associated w/ reported analytes, no eval

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

SDG No.: 160-36942-1

ICP-MS Instrument ID: ICPMS7700 Start Date: 01/29/2020 End Date: 01/30/2020

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
LRC 160-458662/2	17:58	72		122		98		112		98	
IC 160-458662/4	04:11	99		101		96		100		99	
IC 160-458662/5	04:18	99		98		99		104		103	
IC 160-458662/6	04:25	94		100		95		105		100	
ICV 160-458662/7	04:31	98		103		98		112		99	
ICB 160-458662/8	04:38	99		101		98		100		101	
CRI 160-458662/9	04:45	100		105		97		103		100	
ICSA 160-458662/10	04:52	98		109		96		99		92	
ICSAB 160-458662/11	04:59	100		115		99		106		94	
CCVL 160-458662/24	06:26	94		97		93		97		94	
CCV 160-458662/25	06:33	96		96		95		102		99	
CCB 160-458662/26	06:40	94		96		92		98		93	
MB 160-457937/1-A	07:20	96		99		97		104		100	
LCS 160-457937/2-A	07:27	89		95		91		94		94	
LCSSRM 160-457937/3-A	07:33	85		106		97		98		92	
160-36942-21	07:40	90		118		114		102		94	
160-36942-21 SD	07:47	97		111		102		105		98	
CCVL 160-458662/37	07:53	94		106		94		106		97	
CCV 160-458662/38	08:00	94		102		97		107		100	
CCB 160-458662/39	08:07	95		101		95		103		97	
160-36942-21 MS	08:14	87		123		113		97		90	
160-36942-21 MSD	08:20	86		124		113		95		90	
160-36942-22	08:27	91		119		113		97		94	
160-36942-23	08:34	91		119		115		101		95	
CCVL 160-458662/50	09:21	95		102		98		102		99	
CCV 160-458662/51	09:28	94		98		98		106		101	
CCB 160-458662/52	09:35	94		99		98		101		99	

FORM XV - IN

* Ir/3 associated w/ reported analytes

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

SDG No.: 160-36942-1

ICP-MS Instrument ID: ICPMS7700 Start Date: 01/29/2020 End Date: 01/30/2020

Internal Standards %RI For: 60-125%

Lab Sample ID	Time	Element In	Q	Element Ho/2	Q	Element Ho/3	Q	Element Ir/2	Q	Element Ir/3	Q
LRC 160-458662/2	17:58	90		99		94		91		88	
IC 160-458662/4	04:11	97		101		97		100		97	
IC 160-458662/5	04:18	99		101		101		99		98	
IC 160-458662/6	04:25	93		101		96		97		94	
ICV 160-458662/7	04:31	97		104		99		101		98	
ICB 160-458662/8	04:38	98		101		99		99		97	
CRI 160-458662/9	04:45	98		101		99		100		98	
ICSA 160-458662/10	04:52	90		96		94		86		88	
ICSAB 160-458662/11	04:59	90		100		95		88		89	
CCVL 160-458662/24	06:26	96		99		99		99		97	
CCV 160-458662/25	06:33	96		101		101		100		100	
CCB 160-458662/26	06:40	95		99		97		98		97	
MB 160-457937/1-A	07:20	97		100		99		99		97	
LCS 160-457937/2-A	07:27	92		97		97		92		94	
LCSSRM 160-457937/3-A	07:33	92		101		98		98		96	
160-36942-21	07:40	91		98		98		92		94	
160-36942-21 SD	07:47	96		104		100		99		98	
CCVL 160-458662/37	07:53	96		103		98		101		96	
CCV 160-458662/38	08:00	97		101		100		99		98	
CCB 160-458662/39	08:07	97		100		99		98		98	
160-36942-21 MS	08:14	89		97		95		90		92	
160-36942-21 MSD	08:20	88		97		96		90		93	
160-36942-22	08:27	92		99		98		94		94	
160-36942-23	08:34	92		99		99		93		93	
CCVL 160-458662/50	09:21	98		99		98		97		97	
CCV 160-458662/51	09:28	99		101		101		97		99	
CCB 160-458662/52	09:35	99		100		100		98		99	

FORM XV - IN

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 457936 Batch Start Date: 01/23/20 16:12 Batch Analyst: Mazariegos, Leonel A

Batch Method: 3050B Batch End Date: 01/27/20 14:06

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	MPREP1-A 00004	MPREP1-B 00004	MPREP2 00022	PR_LCSSRM 00024
MB 160-457936/1		3050B, 6020A		0.5134 g	50 mL				
LCS 160-457936/2		3050B, 6020A		0.5731 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
LCSSRM 160-457936/3		3050B, 6020A		0.5415 g	50 mL				0.5415 g
160-36942-B-1 MS		3050B, 6020A	T	0.5802 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
160-36942-B-1 MSD		3050B, 6020A	T	0.5545 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
160-36942-B-6	WRSB208_0-0.5	3050B, 6020A	T	0.5279 g	50 mL				
160-36942-B-7	WRSB208_0.5-3	3050B, 6020A	T	0.5851 g	50 mL				
160-36942-B-8	WRSB208_3-6	3050B, 6020A	T	0.5238 g	50 mL				
160-36942-B-9	WRSB208_6-15	3050B, 6020A	T	0.5315 g	50 mL				
160-36942-B-10	WRSB208_15-25	3050B, 6020A	T	0.5845 g	50 mL				
160-36942-B-11	WRSB208-FD_15-25	3050B, 6020A	T	0.5300 g	50 mL				
160-36942-B-12	WRSB208_25-35	3050B, 6020A	T	0.5860 g	50 mL				
160-36942-B-13	WRSB208_35-45	3050B, 6020A	T	0.5189 g	50 mL				
160-36942-B-14	WRSB208_45-55	3050B, 6020A	T	0.5634 g	50 mL				
160-36942-B-15	WRSB208_55-65	3050B, 6020A	T	0.5742 g	50 mL				
160-36942-B-16	WRSB208_65-75	3050B, 6020A	T	0.5408 g	50 mL				
160-36942-B-17	WRSB208-FD_65-75	3050B, 6020A	T	0.5310 g	50 mL				
160-36942-B-18	WRSB208_75-85	3050B, 6020A	T	0.5271 g	50 mL				
160-36942-B-19	WRSB208_85-95	3050B, 6020A	T	0.5105 g	50 mL				
160-36942-B-20	WRSB208_95-105	3050B, 6020A	T	0.5076 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.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 457936 Batch Start Date: 01/23/20 16:12 Batch Analyst: Mazariegos, Leonel A

Batch Method: 3050B Batch End Date: 01/27/20 14:06

Batch Notes	
Balance ID	27150420
Blank Soil Lot Number	25438819
Temperature - Corrected - End	B5: 91.8 Degrees C
Temperature - Corrected - Start	C4: 92.1 Degrees C
Digestion End Time	01/27/2020 13:39
Digestion Start Time	01/27/2020 10:53
Digestion Unit ID	HOTBLOCK 1
Digestion Tube/Cup ID	344749-4653
Hydrogen Peroxide ID	1852964
Hydrochloric Acid ID	1854875
Nitric Acid ID	1854883, 1863531
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.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 457937 Batch Start Date: 01/23/20 16:14 Batch Analyst: Mazariegos, Leonel A

Batch Method: 3050B Batch End Date: 01/27/20 14:06

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	MPREP1-A 00004	MPREP1-B 00004	MPREP2 00022	PR_LCSSRM 00024
MB 160-457937/1		3050B, 6020A		0.5313 g	50 mL				
LCS 160-457937/2		3050B, 6020A		0.5182 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
LCSSRM 160-457937/3		3050B, 6020A		0.5297 g	50 mL				0.5297 g
160-36942-B-21	WRSB208_105-115	3050B, 6020A	T	0.5594 g	50 mL				
160-36942-B-21 MS	WRSB208_105-115	3050B, 6020A	T	0.5226 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
160-36942-B-21 MSD	WRSB208_105-115	3050B, 6020A	T	0.5536 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
160-36942-B-22	WRSB208_115-125	3050B, 6020A	T	0.5503 g	50 mL				
160-36942-B-23	WRSB208_125-131.5	3050B, 6020A	T	0.5517 g	50 mL				

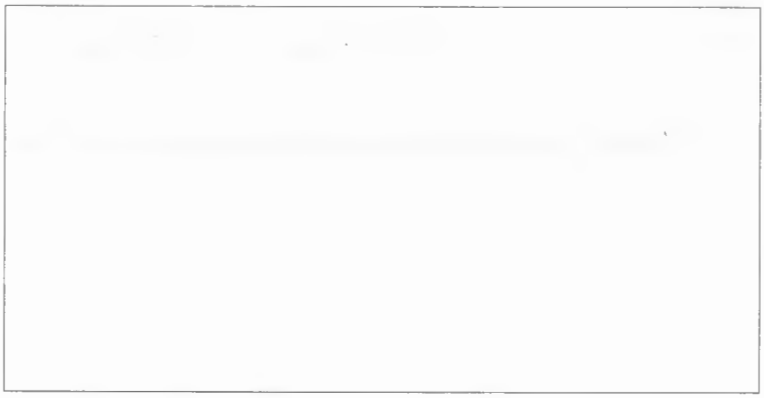
Batch Notes	
Balance ID	27150420
Blank Soil Lot Number	25438819
Temperature - Corrected - End	B5: 91.8 Degrees C
Temperature - Corrected - Start	C4: 92.1 Degrees C
Digestion End Time	01/27/2020 13:39
Digestion Start Time	01/27/2020 10:53
Digestion Unit ID	HOTBLOCK 1
Digestion Tube/Cup ID	344749-4653
Hydrogen Peroxide ID	1852964
Hydrochloric Acid ID	1854875
Nitric Acid ID	1854883, 1863531
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.

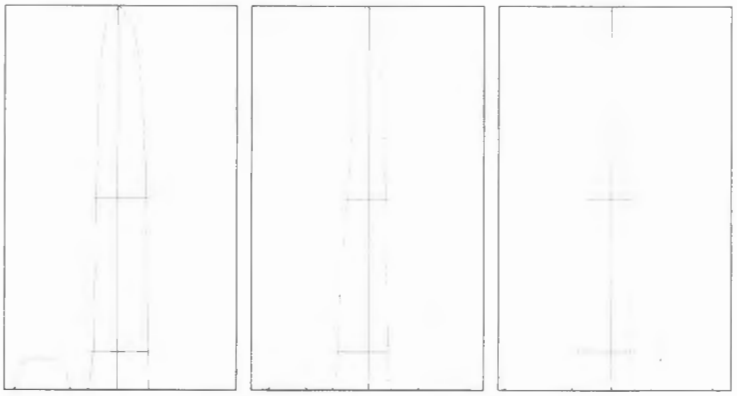
Tune Report

Tune File : autotune.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.3100 sec	
n:	200	
Oxide:	156/140	0.459%
Doubly Charged:	70/140	1.380%

m/z	Range	Count	Mean	RSD%	Background
7	50,000	31581.0	32056.3	2.54	2.40
89	100,000	92459.0	89393.8	2.39	3.50
205	100,000	53400.0	53056.3	2.51	7.80



m/z:	7	89	205
Height:	32,230	89,719	52,439
Axis:	7.00	89.05	205.00
W-50%:	0.70	0.55	0.55
W-10%:	0.7500	0.6500	0.7000

Integration Time: 0.1000 sec
Acquisition Time: 22.7600 sec

Y axis : Linear

Page: 1

Tune Report

Tune File : autotune.u
Comment :

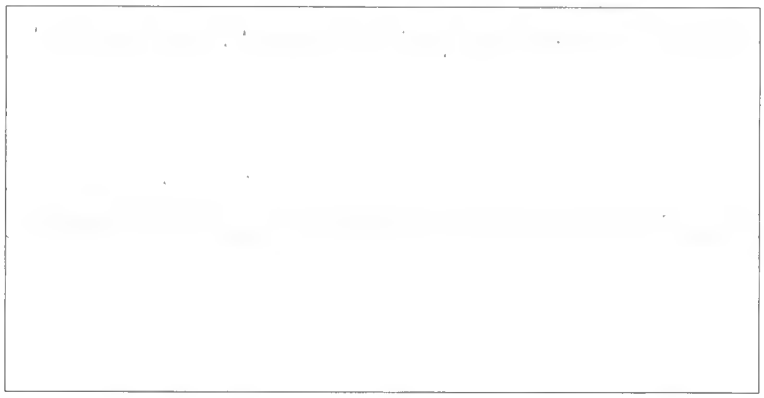
Tuning Parameters

===Plasma Condition===			===Ion Lenses===			===Q-Pole Parameters===		
RF Power	:	1550 W	Extract 1	:	0 V	AMU Gain	:	119
RF Matching	:	1.5 V	Extract 2	:	-150 V	AMU Offset	:	127
Smpl Depth	:	8 mm	Omega Bias	:	-75 V	Axis Gain	:	0.9981
Torch-H	:	0.1 mm	Omega Lens	:	7 V	Axis Offset	:	0.09
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	:	1935 V
Nebulizer Pump	:	0.1 rps	OctP RF	:	190 V	Pulse HV	:	1226 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	:	--- %

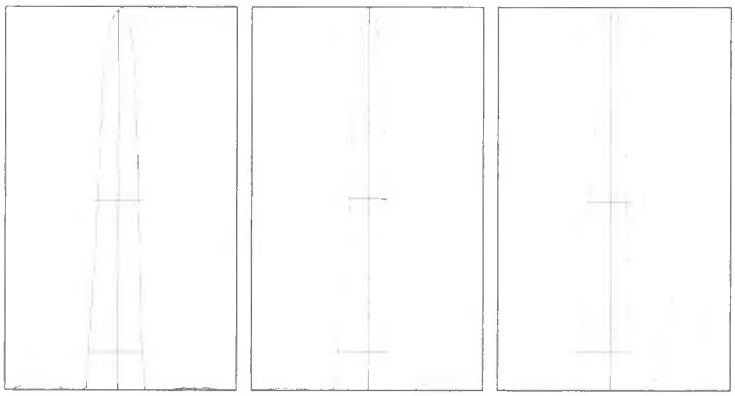
Tune Report

Tune File : he.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.6200 sec	
n:	200	
Oxide:	156/140	0.226%
Doubly Charged:	70/140	1.403%

m/z	Range	Count	Mean	RSD%	Background
59	50,000	20071.0	20541.1	2.38	0.10
89	50,000	23055.0	22690.6	2.63	0.40
140	100,000	53091.0	54164.9	2.22	0.70
205	50,000	44884.0	44942.3	2.54	0.40
156/140	1	0.251%	0.202%	12.74	
70/140	2	1.402%	1.411%	6.30	



m/z:	59	89	205
Height:	20,421	22,973	44,193
Axis:	59.00	89.05	205.00
W-50%:	0.60	0.50	0.55
W-10%:	0.7500	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	:	119
RF Matching	:	1.5 V	Extract 2	:	-120 V	AMU Offset	:	127
Smpl Depth	:	8 mm	Omega Bias	:	-80 V	Axis Gain	:	0.9981
Torch-H	:	0.1 mm	Omega Lens	:	8.5 V	Axis Offset	:	0.09
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	:	1935 V
Nebulizer Pump	:	0.1 rps	OctP RF	:	190 V	Pulse HV	:	1226 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: 28 Jan 2020 03:34:07 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 (%)

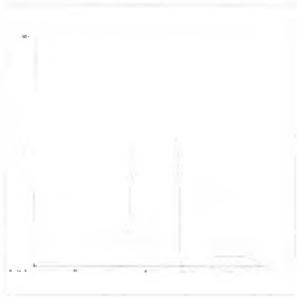
Element	Actual	Required	Flag
6 Li	1.90	5.00	
59 Co	0.42	5.00	
115 In	2.56	5.00	
205 Tl	1.16	5.00	

Ion Ratio

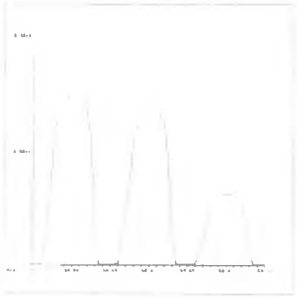
Element	Actual	Required	Flag

Maximum Bkg. Count(CPS)

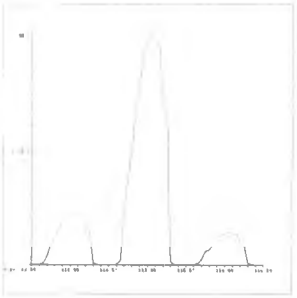
Element	Actual	Required	Flag



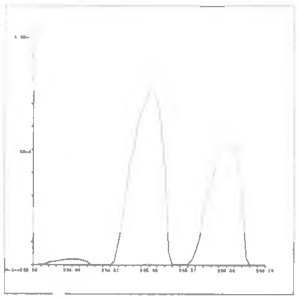
6 Li
Mass Calib.
Actual: 6.05
Required: 5.90-6.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
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: 0.65
Required: 0.90
Flag:

QC Tune Result:Pass

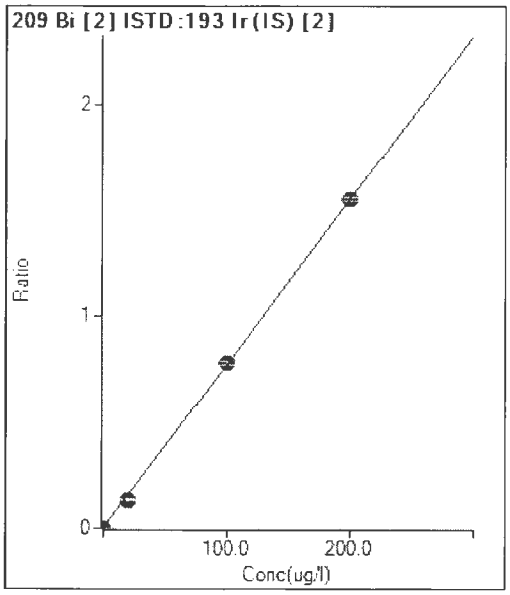
Replicated Data: Tune #1

Mass	Count(CPS)				
6	4636732.00	4392847.00	4536465.00	4546010.00	4566056.00
7	271108.09	257103.41	264202.50	262576.69	263308.09
8	60.00	44.50	50.00	50.00	47.00
58	1942686.00	1931489.00	1918688.00	1912692.00	1913024.00
59	1766600.00	1755368.00	1755290.00	1746315.00	1753116.00
60	802204.00	801281.00	796212.19	792536.13	785518.13
95	814925.13	820602.88	825557.69	811491.81	824634.31
111	853256.19	858761.00	858970.31	854641.81	864770.69
114	1968950.00	1995877.00	1999232.00	1990260.00	2016993.00
115	8910393.00	8335734.00	8838560.00	8734736.00	8819276.00
116	1222487.00	1217293.00	1224876.00	1223368.00	1218431.00
118	1134857.00	1126035.00	1128169.00	1131393.00	1139222.00
204	55802.08	57750.50	58678.49	57740.11	59344.74
205	1700620.00	1709443.00	1708784.00	1738533.00	1737115.00
206	1180617.00	1193513.00	1201121.00	1213143.00	1227069.00
207	1048696.00	1064789.00	1076981.00	1076463.00	1078809.00
208	2548315.00	2561861.00	2580409.00	2577172.00	2611684.00

Calibration for 004CALS.D

Batch Folder:	C:¥ICPMH¥1¥DATA¥012820B1.B¥
Analysis File:	012820B1.batch.xml
DA Date-Time:	1/28/2020 4:11:44 PM
Calibration Title:	
Calibration Method:	External Calibration
VIS Interpolation Fit:	
Tune Step:	#1 he.u
	#2 nogas.u

Level	Standard Data File	Sample Name	Acq. Date-Time
1	003CALB.D	ICIS 1865845	1/28/2020 3:49:06 PM
2	004CALS.D	IC 1866890	1/28/2020 3:55:50 PM
3	005CALS.D	IC 1866891	1/28/2020 4:02:33 PM
4	006CALS.D	IC 1866892	1/28/2020 4:09:15 PM
5			
6			
7			



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	7686.62	0.0011	P	3.5
2	☐	20.000	17.174	924315.77	0.1344	P	3.5
3	☐	100.000	100.967	5346583.70	0.7849	A	2.0
4	☐	200.000	199.799	10565244.84	1.5521	A	1.1
5	☐						
6	☐						
7	☐						

y = 0.0078 * x + 0.0011

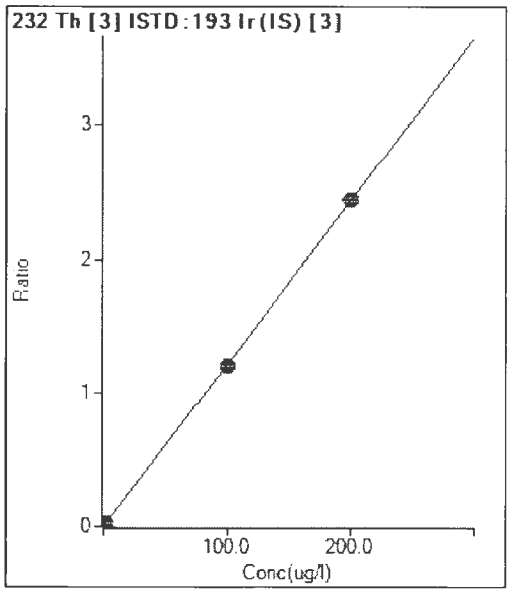
R = 0.9999

DL = 0.01502

BEC = 0.1419

Weight: None

Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	4211.86	0.0005	P	5.7
2	☐	2.000	1.729	176104.40	0.0216	P	2.0
3	☐	100.000	99.026	9679301.32	1.2071	A	0.4
4	☐	200.000	200.490	19745191.37	2.4433	A	1.2
5	☐						
6	☐						
7	☐						

y = 0.0122 * x + 5.1233E-004 ✓

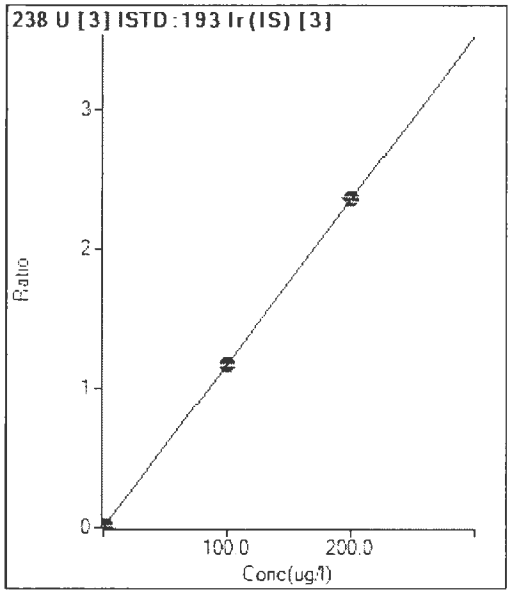
R = 1.0000 ✓

DL = 0.007132

BEC = 0.04205

Weight: None

Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2584.78	0.0003	P	2.2
2	☐	1.000	0.851	84484.43	0.0104	P	1.8
3	☐	100.000	99.349	9396771.11	1.1718	A	0.2
4	☐	200.000	200.326	19091287.35	2.3625	A	1.7
5	☐						
6	☐						
7	☐						

y = 0.0118 * x + 3.1431E-004

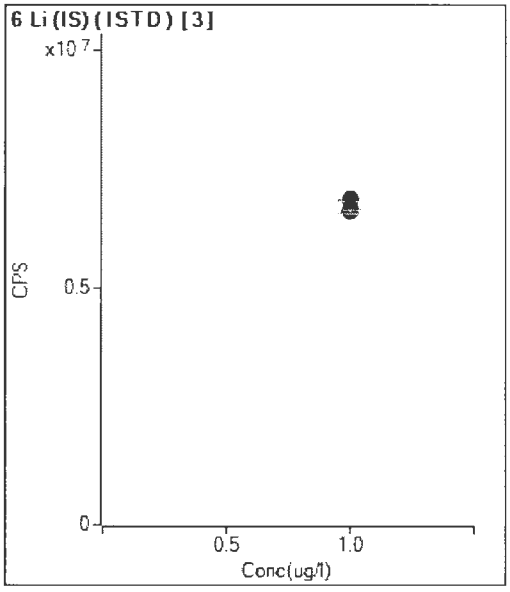
R = 1.0000

DL = 0.001757

BEC = 0.02665

Weight: None

Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		6886604.03		A	0.3
2	☐	1.000		6829465.66		A	0.3
3	☐	1.000		6663107.61		A	0.5
4	☐	1.000		6592374.07		A	1.2
5	☐	1.000					
6	☐	1.000					
7	☐	1.000					

Environmental Standards Inc.
Calibration Verification Form

SDG	160-36942-1	ICAL Date	~~12/20/2019~~ 1/28/2020
Instrument	ICPMS7700	1st Std. File ID	4:11 PM
Analyte:	232 Th		

Dependent Variable
- ○ Amount
- ◉ Response

Response for Int. Stc. Cal
- ◉ Area Cpd*Amt IS/Area IS
- ○ Area Cpd/Area IS

Regression Type
- ◉ Unweighted
- ○ Weighted 1/x
- ○ Weighted 1/x^2
- ○ Weighted 1/y
- ○ Weighted 1/y^2

Enter Calibration Data						Curve Refit	
Amount	Response	ISTD Amt	ISTD Resp	Response	CF	Refit Conc.	Recovery
0.00	0.0005			0.00	#DIV/0!	1.1234	#DIV/0!
1.73	0.0216			0.02	0.01	20.5649	1189.41%
99.03	1.2071			1.21	0.01	99.9414	100.92%
200.49	2.4433			2.44	0.01	0.0448	0.02%
						RSE	#DIV/0!

	Constant	1ST Degree Coefficient	2ND Degree Coefficient	3RD Degree Coefficient	r^2	r	Select Model
Unweighted Linear	5.2491E-04	1.2184E-02	#N/A	#N/A	1.00000	1.00000	◉
Unweighted Linear Force 0	#N/A	1.2187E-02	#N/A	#N/A	1.00000	1.00000	○
Unweighted Quad	5.1589E-04	1.2185E-02	-4.4847E-09	#N/A	1.00000	1.00000	○
Unweighted Quad Force 0	#N/A	1.2193E-02	-3.2382E-08	#N/A	1.00000	1.00000	○
Unweighted Cubic	5.0000E-04	1.2204E-02	-2.9018E-07	9.5140E-10	1.00000	1.00000	○
Unweighted Cubic Force 0	#N/A	1.2501E-02	-4.6780E-06	1.5517E-08	1.00000	1.00000	○

CF Mean CF: #DIV/0! RSD: #DIV/0! ○

	Constant	1st Degree		
Curve Coefficients Reported by Laboratory:				

Sample ID	Sample Response	ISTD Amt	ISTD Response	Dilution	Reported Result	Calculated Result	% Difference

Environmental Standards Inc.
Calibration Verification Form

SDG	160-36942-1	ICAL Date	~~12/20/2019~~ 1/20/2020
Instrument	ICPMS7700	1st Std. File ID	4:11 PM
Analyte:	238 U		

Dependent Variable
- ○ Amount
- ◉ Response

Response for Int. Stc. Cal
- ◉ Area Cpd*Amt IS/Area IS
- ○ Area Cpd/Area IS

Regression Type
- ◉ Unweighted
- ○ Weighted 1/x
- ○ Weighted 1/x^2
- ○ Weighted 1/y
- ○ Weighted 1/y^2

Enter Calibration Data						Curve Refit	
Amount	Response	ISTD Amt	ISTD Resp	Response	CF	Refit Conc.	Recovery
0.00	0.0003			0.00	#DIV/0!	1.1234	#DIV/0!
0.85	0.0104			0.01	0.01	20.5649	2416.55%
99.35	1.1718			1.17	0.01	99.9414	100.60%
200.33	2.3625			2.36	0.01	0.0448	0.02%
						RSE	#DIV/0!

	Constant	1ST Degree Coefficient	2ND Degree Coefficient	3RD Degree Coefficient	r^2	r	Select Model
Unweighted Linear	3.2929E-04	1.1792E-02	#N/A	#N/A	1.00000	1.00000	◉
Unweighted Linear Force 0	#N/A	1.1794E-02	#N/A	#N/A	1.00000	1.00000	○
Unweighted Quad	3.3260E-04	1.1791E-02	1.7244E-09	#N/A	1.00000	1.00000	○
Unweighted Quad Force 0	#N/A	1.1796E-02	-1.5608E-08	#N/A	1.00000	1.00000	○
Unweighted Cubic	3.0000E-04	1.1869E-02	-1.1688E-06	3.9007E-09	1.00000	1.00000	○
Unweighted Cubic Force 0	#N/A	1.2226E-02	-6.4920E-06	2.1614E-08	1.00000	1.00000	○

CF Mean CF: #DIV/0! RSD: #DIV/0! ○

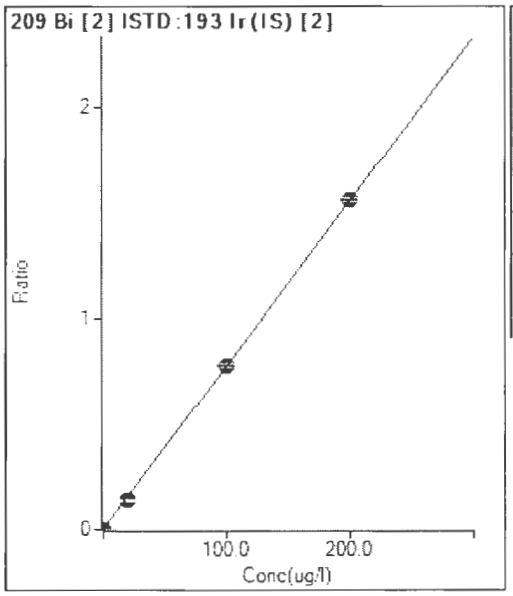
	Constant	1st Degree		
Curve Coefficients Reported by Laboratory:				

Sample ID	Sample Response	ISTD Amt	ISTD Response	Dilution	Reported Result	Calculated Result	% Difference

Calibration for 073CALS.D

Batch Folder:	C:¥ICPMH¥1¥DATA¥012820B1.B¥
Analysis File:	012820B1.batch.xml
DA Date-Time:	1/28/2020 11:57:29 PM
Calibration Title:	
Calibration Method:	External Calibration
VIS Interpolation Fit:	
Tune Step:	#1 he.u
	#2 nogas.u

Level	Standard Data File	Sample Name	Acq. Date-Time
1	072CALB.D	ICIS 1865845	1/28/2020 11:34:44 PM
2	073CALS.D	IC 1866890	1/28/2020 11:41:29 PM
3	074CALS.D	IC 1866891	1/28/2020 11:48:12 PM
4	075CALS.D	IC 1866892	1/28/2020 11:54:53 PM
5			
6			
7			



	Rjct	Conc	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	9746.73	0.0013	P	4.4
2	☐	20.000	17.537	990574.47	0.1379	P	6.7
3	☐	100.000	99.601	5511855.68	0.7769	A	2.3
4	☐	200.000	200.446	11073139.56	1.5621	A	1.0
5	☐						
6	☐						
7	☐						

y = 0.0078 * x + 0.0013

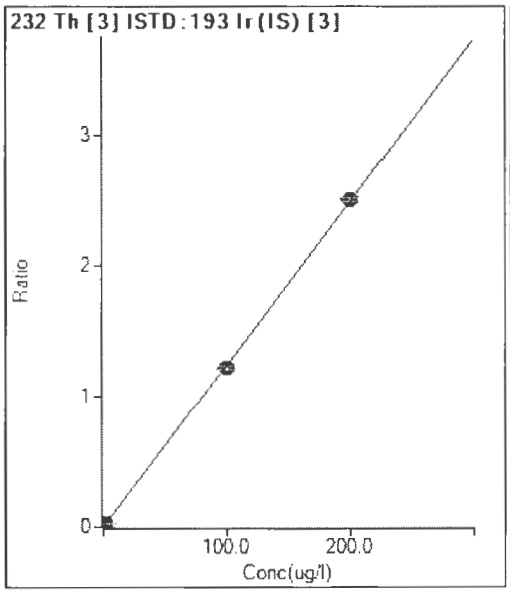
R = 0.9999

DL = 0.02222

BEC = 0.1694

Weight: None

Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	4248.54	0.0005	P	2.6
2	☐	2.000	1.718	187625.60	0.0219	P	3.4
3	☐	100.000	97.849	10115923.11	1.2184	A	2.4
4	☐	200.000	201.078	20877259.00	2.5033	A	0.9
5	☐						
6	☐						
7	☐						

y = 0.0124 * x + 5.0275E-004 ✓

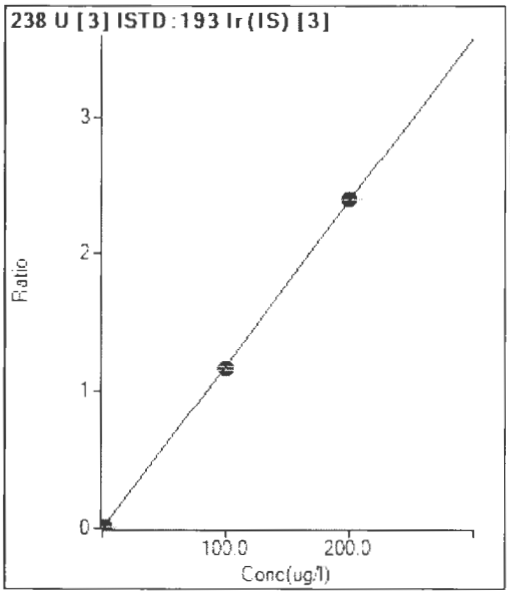
R = 0.9999 ✓

DL = 0.003123

BEC = 0.04039

Weight: None

Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2871.50	0.0003	P	3.6
2	☐	1.000	0.872	92024.17	0.0107	P	3.5
3	☐	100.000	98.161	9714149.51	1.1701	A	2.5
4	☐	200.000	200.920	19970397.90	2.3946	A	0.1
5	☐						
6	☐						
7	☐						

y = 0.0119 * x + 3.3977E-004 ✓

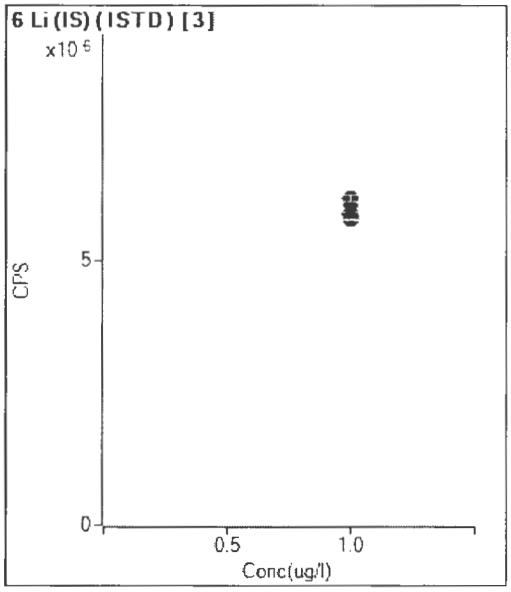
R = 0.9999 ✓

DL = 0.003092

BEC = 0.02851

Weight: None

Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		6074309.55		A	0.4
2	☐	1.000		6146941.97		A	2.2
3	☐	1.000		5869539.87		A	1.2
4	☐	1.000		5757070.42		A	0.4
5	☐	1.000					
6	☐	1.000					
7	☐	1.000					

Environmental Standards Inc.
Calibration Verification Form

Effective Date:11/23/2015
Revision #: 1

SDG	160-36942-1	ICAL Date	12/28/2019
Instrument	ICPMS7700	1st Std. File ID	11:57 PM
Analyte:	232 Th		

Dependent Variable
- ○ Amount
- ◉ Response

Response for Int. Stc. Cal
- ◉ Area Cpd*Amt IS/Area IS
- ○ Area Cpd/Area IS

Regression Type
- ◉ Unweighted
- ○ Weighted 1/x
- ○ Weighted 1/x^2
- ○ Weighted 1/y
- ○ Weighted 1/y^2

Enter Calibration Data						Curve Refit	
Amount	Response	ISTD Amt	ISTD Resp	Response	CF	Refit Conc.	Recovery
0.00	0.0005			0.00	#DIV/0!	1.1234	#DIV/0!
1.72	0.0219			0.02	0.01	20.5649	1197.02%
97.85	1.2184			1.22	0.01	99.9414	102.14%
201.08	2.5033			2.50	0.01	0.0448	0.02%
						RSE	#DIV/0!

	Constant	1ST Degree Coefficient	2ND Degree Coefficient	3RD Degree Coefficient	r^2	r	Select Model
Unweighted Linear	5.0397E-04	1.2447E-02	#N/A	#N/A	1.00000	1.00000	◉
Unweighted Linear Force 0	#N/A	1.2450E-02	#N/A	#N/A	1.00000	1.00000	○
Unweighted Quad	5.0840E-04	1.2446E-02	2.1577E-09	#N/A	1.00000	1.00000	○
Unweighted Quad Force 0	#N/A	1.2455E-02	-2.5532E-08	#N/A	1.00000	1.00000	○
Unweighted Cubic	5.0000E-04	1.2457E-02	-1.5086E-07	5.1057E-10	1.00000	1.00000	○
Unweighted Cubic Force 0	#N/A	1.2755E-02	-4.5980E-06	1.5303E-08	1.00000	1.00000	○

CF Mean CF: #DIV/0! RSD: #DIV/0! ○

	Constant	1st Degree		
Curve Coefficients Reported by Laboratory:				

Sample ID	Sample Response	ISTD Amt	ISTD Response	Dilution	Reported Result	Calculated Result	% Difference

Environmental Standards Inc.
Calibration Verification Form

Effective Date:11/23/2015
Revision #: 1

SDG	160-36942-1	ICAL Date	12/28/2019
Instrument	ICPMS7700	1st Std. File ID	11:57 PM
Analyte:	238 U		

Dependent Variable
- ○ Amount
- ◉ Response

Response for Int. Stc. Cal
- ◉ Area Cpd * Amt IS/Area IS
- ○ Area Cpd/Area IS

Regression Type
- ◉ Unweighted
- ○ Weighted 1/x
- ○ Weighted 1/x^2
- ○ Weighted 1/y
- ○ Weighted 1/y^2

Enter Calibration Data						Curve Refit	
Amount	Response	ISTD Amt	ISTD Resp	Response	CF	Refit Conc.	Recovery
0.00	0.0003			0.00	#DIV/0!	1.1234	#DIV/0!
0.87	0.0107			0.01	0.01	20.5649	2358.36%
98.16	1.1701			1.17	0.01	99.9414	101.81%
200.92	2.3946			2.39	0.01	0.0448	0.02%
						RSE	#DIV/0!

	Constant	1ST Degree Coefficient	2ND Degree Coefficient	3RD Degree Coefficient	r^2	r	Select Model
Unweighted Linear	3.1259E-04	1.1917E-02	#N/A	#N/A	1.00000	1.00000	◉
Unweighted Linear Force 0	#N/A	1.1919E-02	#N/A	#N/A	1.00000	1.00000	○
Unweighted Quad	3.0392E-04	1.1918E-02	-4.4141E-09	#N/A	1.00000	1.00000	○
Unweighted Quad Force 0	#N/A	1.1922E-02	-2.0398E-08	#N/A	1.00000	1.00000	○
Unweighted Cubic	3.0000E-04	1.1927E-02	-1.4292E-07	4.6248E-10	1.00000	1.00000	○
Unweighted Cubic Force 0	#N/A	1.2275E-02	-5.3753E-06	1.7906E-08	1.00000	1.00000	○

CF Mean CF: #DIV/0! RSD: #DIV/0! ○

	Constant	1st Degree		
Curve Coefficients Reported by Laboratory:				

Sample ID	Sample Response	ISTD Amt	ISTD Response	Dilution	Reported Result	Calculated Result	% Difference

012820B1-1

une Ste	Mass	Name	R	a	b (blank)	DL	BEC	Units
3	7	Li	0.999991	0.005926	0.056623382	0.030144	9.554912	ug/l
3	9	Be	0.999995	0.001803	4.90453E-05	0.021083	0.027208	ug/l
3	11	B	0.999654	0.00135	0.001080297	0.120186	0.800058	ug/l
2	23	Na	0.999994	0.009169	0.147994641	0.715671	16.14083	ug/l
2	24	Mg	0.999999	0.004841	0.017495831	0.277643	3.614373	ug/l
2	27	Al	0.999907	0.001999	0.011200747	1.12987	5.602363	ug/l
2	31	P	0.999999	0.000134	0.000810677	2.921856	6.03533	ug/l
2	39	K	0.999946	0.004736	0.207365493	0.880409	43.78184	ug/l
3	44	Ca	0.999951	0.000468	0.018055023	1.59164	38.59749	ug/l
3	47	Ti	1	0.001354	0.00037311	0.013165	0.275577	ug/l
2	51	V	0.999915	0.051944	0.011659546	0.044586	0.224464	ug/l
2	52	Cr	0.999919	0.064731	0.008688279	0.003474	0.134222	ug/l
2	55	Mn	0.99972	0.018509	0.005440431	0.070248	0.29393	ug/l
2	57	Fe	0.999962	0.000645	0.005607532	1.694816	8.694414	ug/l
2	59	Co	0.99991	0.045897	0.002498068	0.010144	0.054428	ug/l
2	60	Ni	0.999949	0.011237	0.000882742	0.025266	0.078559	ug/l
2	63	Cu	0.999797	0.032441	0.031911701	0.064669	0.983674	ug/l
2	66	Zn	0.999912	0.005745	0.003388148	0.178216	0.589743	ug/l
2	75	As	0.999725	0.003885	0.000669254	0.074981	0.172248	ug/l
2	78	Se	0.999988	0.000294	0.000215423	0.11935	0.732409	ug/l
3	88	Sr	0.999991	0.032375	0.002790889	0.007691	0.086204	ug/l
2	89	Y	0.999792	0.05232	0.001120403	0.00767	0.021415	ug/l
2	90	Zr	0.999898	0.040454	0.001637136	0.014733	0.04047	ug/l
2	93	Nb	0.999587	0.079523	0.006879686	0.022999	0.086512	ug/l
3	95	Mo	0.999488	0.006323	0.001084701	0.024734	0.171552	ug/l
2	101	Ru	0.999755	0.022738	0.000520796	0.016161	0.022904	ug/l
2	103	Rh	0.999877	0.136287	0.003259076	0.004481	0.023913	ug/l
2	105	Pd	0.999894	0.024691	0.000326324	0.011709	0.013216	ug/l
3	107	Ag	0.999755	0.002661	4.14026E-05	0.00305	0.015556	ug/l
3	111	Cd	0.999611	0.000543	2.38409E-05	0.007829	0.043936	ug/l
3	118	Sn	0.999972	0.001559	0.000596607	0.011107	0.382574	ug/l
3	121	Sb	0.999972	0.001993	0.000110727	0.01181	0.055567	ug/l
2	125	Te	0.999995	2.52E-05	1.45802E-06	0.078611	0.057784	ug/l
2	133	Cs	0.999991	0.00205	3.35929E-05	0.001929	0.016388	ug/l
3	137	Ba	0.998591	0.000675	0.000120799	0.061002	0.17909	ug/l
2	139	La	0.999995	0.004487	7.25443E-05	0.006526	0.016169	ug/l
2	140	Ce	0.999981	0.005086	0.00012402	0.00533	0.024385	ug/l
2	141	Pr	0.999974	0.005378	7.03403E-05	0.003126	0.013079	ug/l
2	146	Nd	0.998783	0.000975	1.62057E-05	0.007652	0.016615	ug/l
3	147	Sm	0.999987	0.001049	2.72199E-05	0.002516	0.025939	ug/l
2	178	Hf	0.999954	0.002122	4.78588E-05	0.003683	0.022553	ug/l
2	181	Ta	0.999908	0.008395	0.001036597	0.004494	0.123478	ug/l
2	182	W	0.999988	0.002067	0.00028933	0.032027	0.139997	ug/l
3	185	Re	0.99998	0.004555	4.51067E-05	0.003963	0.009902	ug/l
2	195	Pt	1	0.001994	3.74346E-05	0.007264	0.01877	ug/l
3	197	Au	0.999996	0.00352	0.000142552	0.005029	0.040503	ug/l
3	205	Tl	0.998611	0.007272	0.000309381	0.013044	0.042544	ug/l
3	206	(Pb)	0.999997	0.002554	0.000707717	0.024147	0.27709	ug/l
3	207	(Pb)	0.999992	0.002251	0.0006217	0.040538	0.276176	ug/l
3	208	Pb	0.999998	0.010253	0.002741153	0.025426	0.267343	ug/l
2	209	Bi	0.999865	0.007763	0.001101811	0.015018	0.141937	ug/l
3	232	Th	0.999982	0.012184	0.000512334	0.007132	0.042049	ug/l
3	238	U	0.999992	0.011792	0.000314309	0.001757	0.026655	ug/l
3	6	Li (IS)						ug/l
2	45	Sc (IS)						ug/l
3	45	Sc (IS)						ug/l
2	72	Ge (IS)						ug/l
3	72	Ge (IS)						ug/l
3	115	In (IS)						ug/l
2	165	Ho (IS)						ug/l
3	165	Ho (IS)						ug/l
2	193	Ir (IS)						ug/l
3	193	Ir (IS)						ug/l

eurofins | Environment Testing TestAmerica

Metals Y Intercept

Analyst: LKP
Instrument: 7700
Calibration File: 012820B1
Matrix: Water
Units: PPB

Date: 1/29/2020

Element	MDL	3XMDL	Y-Intercept	Pass/Fail
LI	2.00	6.00	0.0566234	PASS
BE	0.20	0.60	4.905E-05	PASS
B	45.00	135.00	0.0010803	PASS
NA	20.00	60.00	0.1479946	PASS
MG	20.00	60.00	0.0174958	PASS
AL	20.00	60.00	0.0112007	PASS
P	45.00	135.00	0.0008107	PASS
K	45.00	135.00	0.2073655	PASS
CA	45.00	135.00	0.018055	PASS
TI	2.00	6.00	0.0003731	PASS
V	4.00	12.00	0.0116595	PASS
CR	4.00	12.00	0.0086883	PASS
MN	0.90	2.70	0.0054404	PASS
FE	20.00	60.00	0.0056075	PASS
CO	0.90	2.70	0.0024981	PASS
NI	2.00	6.00	0.0008827	PASS
CU	0.40	1.20	0.0319117	PASS
ZN	7.50	22.50	0.0033881	PASS
AS	4.00	12.00	0.0006693	PASS
SE	2.00	6.00	0.0002154	PASS
SR	2.00	6.00	0.0027909	PASS
Y	2.00	6.00	0.0011204	PASS
ZR	2.00	6.00	0.0016371	PASS
NB	10.00	30.00	0.0068797	PASS
MO	2.00	6.00	0.0010847	PASS
RU	4.00	12.00	0.0005208	PASS
RH	4.00	12.00	0.0032591	PASS
PD	0.20	0.60	0.0003263	PASS
AG	0.90	2.70	4.14E-05	PASS
CD	0.20	0.60	2.384E-05	PASS
SN	1.20	3.60	0.0005966	PASS
SB	2.00	6.00	0.0001107	PASS
TE	7.50	22.50	1.458E-06	PASS
CS	0.20	0.60	3.359E-05	PASS
BA	0.90	2.70	0.0001208	PASS
LA	0.90	2.70	7.254E-05	PASS
CE	4.00	12.00	0.000124	PASS
PR	0.90	2.70	7.034E-05	PASS
ND	0.90	2.70	1.621E-05	PASS
SM	4.00	12.00	2.722E-05	PASS
HF	4.00	12.00	4.785E-05	PASS
TA	4.00	12.00	0.0010366	PASS
W	2.00	6.00	0.0002893	PASS
RE	0.40	1.20	4.511E-05	PASS
PT	0.40	1.20	3.743E-05	PASS
AU	5.00	15.00	0.0001426	PASS
TL	0.90	2.70	0.0003094	PASS
(PB 206)	1.00	3.00	0.0007077	PASS
(PB 207)	1.00	3.00	0.0006217	PASS
PB	1.00	3.00	0.0027412	PASS
BI	7.50	22.50	0.0011018	PASS
TH	0.90	2.70	0.0005123	PASS
U	0.40	1.20	0.0003143	PASS

Analyst:
Instrument: 7700
Calibration File: 012820B1
Matrix: Soil
Units: PPB

Element	MDL	3XMDL	Y-Intercept	Pass/Fail
LI	4.00	12.00	0.056623	PASS
BE	0.40	1.20	0.000049	PASS
B	45.00	135.00	0.001080	PASS
NA	75.00	225.00	0.147995	PASS
MG	25.00	75.00	0.017496	PASS
AL	20.00	60.00	0.011201	PASS
P	200.00	600.00	0.000811	PASS
K	40.00	120.00	0.207365	PASS
CA	100.00	300.00	0.018055	PASS
TI	2.40	7.20	0.000373	PASS
V	4.00	12.00	0.011660	PASS
CR	4.50	13.50	0.008688	PASS
MN	2.00	6.00	0.005440	PASS
FE	20.00	60.00	0.005608	PASS
CO	0.75	2.25	0.002498	PASS
NI	2.00	6.00	0.000883	PASS
CU	4.00	12.00	0.031912	PASS
ZN	20.00	60.00	0.003388	PASS
AS	4.00	12.00	0.000669	PASS
SE	3.20	9.60	0.000215	PASS
SR	2.40	7.20	0.002791	PASS
Y	4.00	12.00	0.001120	PASS
ZR	4.00	12.00	0.001637	PASS
NB	12.00	36.00	0.006880	PASS
MO	2.00	6.00	0.001085	PASS
RU	4.00	12.00	0.000521	PASS
RH	4.00	12.00	0.003259	PASS
PD	0.40	1.20	0.000326	PASS
AG	0.75	2.25	0.000041	PASS
CD	0.24	0.72	0.000024	PASS
SN	0.90	2.70	0.000597	PASS
SB	2.00	6.00	0.000111	PASS
TE	4.00	12.00	0.000001	PASS
CS	2.00	6.00	0.000034	PASS
BA	5.00	15.00	0.000121	PASS
LA	0.75	2.25	0.000073	PASS
CE	4.00	12.00	0.000124	PASS
PR	0.75	2.25	0.000070	PASS
ND	0.75	2.25	0.000016	PASS
SM	4.00	12.00	0.000027	PASS
HF	4.00	12.00	0.000048	PASS
TA	4.00	12.00	0.001037	PASS
W	10.00	30.00	0.000289	PASS
RE	4.00	12.00	0.000045	PASS
PT	0.40	1.20	0.000037	PASS
AU	2.00	6.00	0.000143	PASS
TL	2.00	6.00	0.000309	PASS
(PB 206)	1.25	3.75	0.000708	PASS
(PB 207)	1.25	3.75	0.000622	PASS
PB	1.25	3.75	0.002741	PASS
BI	7.50	22.50	0.001102	PASS
TH	0.90	2.70	0.000512	PASS
U	0.40	1.20	0.000314	PASS

012820B1-2

une Ste	Mass	Name	R	a	b (blank)	DL	BEC	Units
3	7	Li	0.999907	0.006035	0.058210582	0.263522	9.645747	ug/l
3	9	Be	0.99995	0.001871	4.22502E-05	0.004137	0.022576	ug/l
3	11	B	0.999455	0.001406	0.003997772	0.165121	2.842884	ug/l
2	23	Na	0.999988	0.008947	0.151250893	1.190661	16.90585	ug/l
2	24	Mg	0.999969	0.004723	0.018648778	0.396039	3.948146	ug/l
2	27	Al	0.999914	0.00194	0.01198265	0.39553	6.178001	ug/l
2	31	P	0.999993	0.000127	0.000836319	1.079854	6.561617	ug/l
2	39	K	0.999987	0.004632	0.206074787	1.966307	44.48847	ug/l
3	44	Ca	1	0.000479	0.014677828	0.61286	30.64981	ug/l
3	47	Ti	0.999964	0.001383	0.000371452	0.010118	0.268621	ug/l
2	51	V	0.99997	0.052349	0.0140203	0.028269	0.267825	ug/l
2	52	Cr	0.999997	0.064971	0.008572246	0.026755	0.13194	ug/l
2	55	Mn	0.999822	0.017496	0.00546321	0.049434	0.312263	ug/l
2	57	Fe	0.999899	0.000612	0.005802726	1.794693	9.489118	ug/l
2	59	Co	0.999925	0.04369	0.002549578	0.01322	0.058356	ug/l
2	60	Ni	0.999933	0.01078	0.000978223	0.02055	0.090746	ug/l
2	63	Cu	0.999987	0.030934	0.010246626	0.049878	0.331244	ug/l
2	66	Zn	0.99995	0.005666	0.003568482	0.076826	0.629809	ug/l
2	75	As	0.999718	0.003845	0.000583221	0.13271	0.151664	ug/l
2	78	Se	0.999975	0.000285	0.000221758	0.447731	0.778127	ug/l
3	88	Sr	0.999997	0.032911	0.002572632	0.008884	0.078169	ug/l
2	89	Y	0.999895	0.051389	0.001096308	0.011308	0.021333	ug/l
2	90	Zr	0.999949	0.04	0.001979653	0.009262	0.049491	ug/l
2	93	Nb	0.999633	0.079205	0.016013133	0.042389	0.202173	ug/l
3	95	Mo	0.99956	0.006375	0.000692057	0.016392	0.108552	ug/l
2	101	Ru	0.999808	0.022895	0.000485102	0.008058	0.021188	ug/l
2	103	Rh	0.99993	0.136846	0.003350641	0.002367	0.024485	ug/l
2	105	Pd	0.999981	0.025377	0.000125622	0.000722	0.00495	ug/l
3	107	Ag	0.999678	0.002675	4.99059E-05	0.003191	0.018657	ug/l
3	111	Cd	0.999578	0.000553	1.56713E-05	0.008243	0.028319	ug/l
3	118	Sn	0.999981	0.001601	0.000480984	0.041837	0.300387	ug/l
3	121	Sb	0.999985	0.002059	0.000113096	0.00768	0.054926	ug/l
2	125	Te	0.999997	2.47E-05	1.12583E-06	0.020932	0.045672	ug/l
2	133	Cs	0.999986	0.001965	3.04033E-05	0.006209	0.015471	ug/l
3	137	Ba	0.998865	0.000686	0.000129353	0.029026	0.188461	ug/l
2	139	La	0.999997	0.004392	0.000149189	0.007885	0.033968	ug/l
2	140	Ce	0.999991	0.005032	0.000135269	0.005434	0.026882	ug/l
2	141	Pr	1	0.005264	7.34042E-05	0.004893	0.013944	ug/l
2	146	Nd	0.999204	0.000962	1.87406E-05	0.006756	0.019481	ug/l
3	147	Sm	0.999989	0.001061	2.97917E-05	0.006539	0.028066	ug/l
2	178	Hf	0.999951	0.002131	5.08097E-05	0.002089	0.023842	ug/l
2	181	Ta	0.999923	0.008623	0.001343486	0.016423	0.155803	ug/l
2	182	W	0.999987	0.002121	0.000483733	0.035963	0.228089	ug/l
3	185	Re	0.999983	0.004563	5.50997E-05	0.002605	0.012075	ug/l
2	195	Pt	1	0.002059	3.9705E-05	0.003494	0.019287	ug/l
3	197	Au	0.999975	0.003508	0.000223274	0.009517	0.063645	ug/l
3	205	Tl	0.998877	0.007333	0.000263762	0.002011	0.03597	ug/l
3	206	(Pb)	0.999966	0.002589	0.000547048	0.019548	0.211275	ug/l
3	207	(Pb)	0.999956	0.002296	0.000531905	0.00687	0.231643	ug/l
3	208	Pb	0.999938	0.010429	0.002225416	0.002531	0.213388	ug/l
2	209	Bi	0.999931	0.007787	0.001319247	0.022222	0.169424	ug/l
3	232	Th	0.999908	0.012447	0.000502752	0.003123	0.040392	ug/l
3	238	U	0.999932	0.011916	0.00033977	0.003092	0.028513	ug/l
3	6	Li (IS)						ug/l
2	45	Sc (IS)						ug/l
3	45	Sc (IS)						ug/l
2	72	Ge (IS)						ug/l
3	72	Ge (IS)						ug/l
3	115	In (IS)						ug/l
2	165	Ho (IS)						ug/l
3	165	Ho (IS)						ug/l
2	193	Ir (IS)						ug/l
3	193	Ir (IS)						ug/l

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Metals Y Intercept

Analyst: LKP
Instrument: 7700
Calibration File: 012820B1
Matrix: Water
Units: PPB

Date: 1/29/2020

Element	MDL	3XMDL	Y-Intercept	Pass/Fail
LI	2.00	6.00	0.0582106	PASS
BE	0.20	0.60	4.225E-05	PASS
B	45.00	135.00	0.0039978	PASS
NA	20.00	60.00	0.1512509	PASS
MG	20.00	60.00	0.0186488	PASS
AL	20.00	60.00	0.0119826	PASS
P	45.00	135.00	0.0008363	PASS
K	45.00	135.00	0.2060748	PASS
CA	45.00	135.00	0.0146778	PASS
TI	2.00	6.00	0.0003715	PASS
V	4.00	12.00	0.0140203	PASS
CR	4.00	12.00	0.0085722	PASS
MN	0.90	2.70	0.0054632	PASS
FE	20.00	60.00	0.0058027	PASS
CO	0.90	2.70	0.0025496	PASS
NI	2.00	6.00	0.0009782	PASS
CU	0.40	1.20	0.0102466	PASS
ZN	7.50	22.50	0.0035685	PASS
AS	4.00	12.00	0.0005832	PASS
SE	2.00	6.00	0.0002218	PASS
SR	2.00	6.00	0.0025726	PASS
Y	2.00	6.00	0.0010963	PASS
ZR	2.00	6.00	0.0019797	PASS
NB	10.00	30.00	0.0160131	PASS
MO	2.00	6.00	0.0006921	PASS
RU	4.00	12.00	0.0004851	PASS
RH	4.00	12.00	0.0033506	PASS
PD	0.20	0.60	0.0001256	PASS
AG	0.90	2.70	4.991E-05	PASS
CD	0.20	0.60	1.567E-05	PASS
SN	1.20	3.60	0.000481	PASS
SB	2.00	6.00	0.0001131	PASS
TE	7.50	22.50	1.126E-06	PASS
CS	0.20	0.60	3.04E-05	PASS
BA	0.90	2.70	0.0001294	PASS
LA	0.90	2.70	0.0001492	PASS
CE	4.00	12.00	0.0001353	PASS
PR	0.90	2.70	7.34E-05	PASS
ND	0.90	2.70	1.874E-05	PASS
SM	4.00	12.00	2.979E-05	PASS
HF	4.00	12.00	5.081E-05	PASS
TA	4.00	12.00	0.0013435	PASS
W	2.00	6.00	0.0004837	PASS
RE	0.40	1.20	5.51E-05	PASS
PT	0.40	1.20	3.971E-05	PASS
AU	5.00	15.00	0.0002233	PASS
TL	0.90	2.70	0.0002638	PASS
(PB 206)	1.00	3.00	0.000547	PASS
(PB 207)	1.00	3.00	0.0005319	PASS
PB	1.00	3.00	0.0022254	PASS
BI	7.50	22.50	0.0013192	PASS
TH	0.90	2.70	0.0005028	PASS
U	0.40	1.20	0.0003398	PASS

Analyst:
Instrument: 7700
Calibration File: 012820B1
Matrix: Soil
Units: PPB

Element	MDL	3XMDL	Y-Intercept	Pass/Fail
LI	4.00	12.00	0.058211	PASS
BE	0.40	1.20	0.000042	PASS
B	45.00	135.00	0.003998	PASS
NA	75.00	225.00	0.151251	PASS
MG	25.00	75.00	0.018649	PASS
AL	20.00	60.00	0.011983	PASS
P	200.00	600.00	0.000836	PASS
K	40.00	120.00	0.206075	PASS
CA	100.00	300.00	0.014678	PASS
TI	2.40	7.20	0.000371	PASS
V	4.00	12.00	0.014020	PASS
CR	4.50	13.50	0.008572	PASS
MN	2.00	6.00	0.005463	PASS
FE	20.00	60.00	0.005803	PASS
CO	0.75	2.25	0.002550	PASS
NI	2.00	6.00	0.000978	PASS
CU	4.00	12.00	0.010247	PASS
ZN	20.00	60.00	0.003568	PASS
AS	4.00	12.00	0.000583	PASS
SE	3.20	9.60	0.000222	PASS
SR	2.40	7.20	0.002573	PASS
Y	4.00	12.00	0.001096	PASS
ZR	4.00	12.00	0.001980	PASS
NB	12.00	36.00	0.016013	PASS
MO	2.00	6.00	0.000692	PASS
RU	4.00	12.00	0.000485	PASS
RH	4.00	12.00	0.003351	PASS
PD	0.40	1.20	0.000126	PASS
AG	0.75	2.25	0.000050	PASS
CD	0.24	0.72	0.000016	PASS
SN	0.90	2.70	0.000481	PASS
SB	2.00	6.00	0.000113	PASS
TE	4.00	12.00	0.000001	PASS
CS	2.00	6.00	0.000030	PASS
BA	5.00	15.00	0.000129	PASS
LA	0.75	2.25	0.000149	PASS
CE	4.00	12.00	0.000135	PASS
PR	0.75	2.25	0.000073	PASS
ND	0.75	2.25	0.000019	PASS
SM	4.00	12.00	0.000030	PASS
HF	4.00	12.00	0.000051	PASS
TA	4.00	12.00	0.001343	PASS
W	10.00	30.00	0.000484	PASS
RE	4.00	12.00	0.000055	PASS
PT	0.40	1.20	0.000040	PASS
AU	2.00	6.00	0.000223	PASS
TL	2.00	6.00	0.000264	PASS
(PB 206)	1.25	3.75	0.000547	PASS
(PB 207)	1.25	3.75	0.000532	PASS
PB	1.25	3.75	0.002225	PASS
BI	7.50	22.50	0.001319	PASS
TH	0.90	2.70	0.000503	PASS
U	0.40	1.20	0.000340	PASS

	Method	Type	Vial	Sample	Comment	Dil/Lvl	ISTD Conc
1		Keyword		Start of TUNE			
2		Keyword		TN_6020.U			
3		Keyword		1307			
4		Keyword		End of TUNE			
5		Keyword		Start of SMPL			
6	C:\ICPMH\1\METHODS\MET_2014.m	6-Blank	1	RINSE (405483)		1.000	Level 1
7	C:\ICPMH\1\METHODS\MET_2014.m	CalBlk	4	ICIS 1865845		Level 1	Level 1
8	C:\ICPMH\1\METHODS\MET_2014.m	CalStd	1101	IC 1866890		Level 2	Level 1
9	C:\ICPMH\1\METHODS\MET_2014.m	CalStd	1102	IC 1866891		Level 3	Level 1
10	C:\ICPMH\1\METHODS\MET_2014.m	CalStd	1103	IC 1866892		Level 4	Level 1
11	C:\ICPMH\1\METHODS\MET_2014.m	ICV	1104	ICV 1868480		1.000	Level 1
12	C:\ICPMH\1\METHODS\MET_2014.m	ICB	4	ICB 1865845		1.000	Level 1
13	C:\ICPMH\1\METHODS\MET_2014.m	CRI	1101	CRI 1866890		1.000	Level 1
14	C:\ICPMH\1\METHODS\MET_2014.m	ICSA	1105	ICSA 1867438		1.000	Level 1
15	C:\ICPMH\1\METHODS\MET_2014.m	ICSAB	1106	ICSAB 1867439		1.000	Level 1
16	C:\ICPMH\1\METHODS\MET_2014.m	Sample	1301	LRC 1867429		1.000	Level 1
17	C:\ICPMH\1\METHODS\MET_2014.m	Sample	1302	LRC 1867437		1.000	Level 1
18	C:\ICPMH\1\METHODS\MET_2014.m	CCV	1102	CCV 1866891		1.000	Level 1
19	C:\ICPMH\1\METHODS\MET_2014.m	CCB	4	CCB 1865845		1.000	Level 1
20	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2101	MB 160-458034/1-A	458034	2.000	Level 1
21	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2102	LCS 160-458034/2-A		2.000	Level 1
22	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2103	440-255674-A-4-G		2.000	Level 1
23	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2104	440-255674-A-19-E		2.000	Level 1
24	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2105	440-256528-A-17-J		2.000	Level 1
25	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2106	440-256946-A-4-E		2.000	Level 1
26	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2107	440-256946-A-4-E SD		10.00	Level 1
27	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2108	440-256946-A-4-F MS		2.000	Level 1
28	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2109	440-256946-A-4-G MSD		2.000	Level 1
29	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2110	440-256946-A-6-E		2.000	Level 1
30	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2111	440-256946-A-19-E		2.000	Level 1
31	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2112	440-257335-A-9-G		2.000	Level 1
32	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2201	440-257335-A-23-G		2.000	Level 1
33	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2202	440-257859-A-18-E		2.000	Level 1

-Th

LKP 01/29/20 File:012820B1 Tune:1146074a IS:1865845 PlasMa1970 Range:1865843

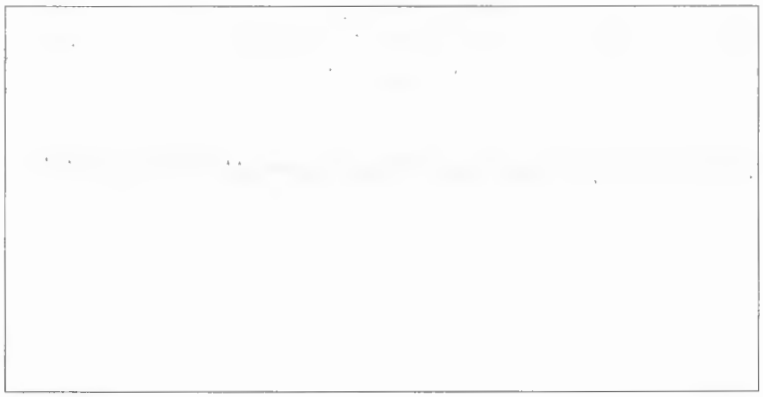
	Method	Type	Vial	Sample	Comment	Dil/Lvl	ISTD Conc
34	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2203	440-257859-A-32-E		2.000	Level 1
35	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2204	440-257867-A-7-E		2.000	Level 1
36	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2205	440-257867-A-18-E		2.000	Level 1
37	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2206	440-257867-A-20-E -Th		2.000	Level 1
38	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2207	440-257867-A-32-E		2.000	Level 1
39	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2208	440-257867-A-43-E		2.000	Level 1
40	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2209	440-257867-A-56-E		2.000	Level 1
41	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2210	LB 160-456985/1-B	458020	5.000	Level 1
42	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2211	LCS 160-458020/2-A		5.000	Level 1
43	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2212	160-36954-A-1-B		5.000	Level 1
44	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2301	160-36954-A-2-B		5.000	Level 1
45	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2302	160-36954-A-2-B SD		25.00	Level 1
46	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2303	160-36954-A-2-C MS		5.000	Level 1
47	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2304	160-36954-A-2-D MSD -U,Zr		5.000	Level 1
48	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2305	160-36954-A-2-B PDS		5.000	Level 1
49	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2306	160-36954-A-3-B		5.000	Level 1
50	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2307	160-36954-A-4-B		5.000	Level 1
51	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2308	MB 160-458194/1-A	458194	2.000	Level 1
52	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2309	LCS 160-458194/2-A		2.000	Level 1
53	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2310	LCSSRM 160-458194/3-A		10.00	Level 1
54	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2311	280-132527-A-1-E		2.000	Level 1
55	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2312	280-132527-A-1-E SD		10.00	Level 1
56	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2401	280-132527-A-1-F MS -Th,U		2.000	Level 1
57	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2402	280-132527-A-1-G MSD		2.000	Level 1
58	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2403	280-132528-A-1-E		20.00	Level 1
59	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2404	280-132529-A-1-E		2.000	Level 1
60	C:\ICPMH\1\METHODS\MET_2014.m	CRI	1101	CCVL 1866890		1.000	Level 1
61	C:\ICPMH\1\METHODS\MET_2014.m	CCV	1102	CCV 1866891		1.000	Level 1
62	C:\ICPMH\1\METHODS\MET_2014.m	CCB	4	CCB 1865845		1.000	Level 1
63	C:\ICPMH\1\METHODS\MET_2014.m	6-Blank	1	RINSE (458484)		1.000	Level 1
64	C:\ICPMH\1\METHODS\MET_2014.m	CalBlk	4	ICIS 1865845		Level 1	Level 1
65	C:\ICPMH\1\METHODS\MET_2014.m	CalStd	1101	IC 1866890		Level 2	Level 1
66	C:\ICPMH\1\METHODS\MET_2014.m	CalStd	1102	IC 1866891		Level 3	Level 1

	Method	Type	Vial	Sample	Comment	Dil/Lvl	ISTD Conc
67	C:\ICPMH\1\METHODS\MET_2014.m	CalStd	1103	IC 1866892		Level 4	Level 1
68	C:\ICPMH\1\METHODS\MET_2014.m	ICV	1104	ICV 1868480		1.000	Level 1
69	C:\ICPMH\1\METHODS\MET_2014.m	ICB	4	ICB 1865845		1.000	Level 1
70	C:\ICPMH\1\METHODS\MET_2014.m	CRI	1101	CRI 1866890		1.000	Level 1
71	C:\ICPMH\1\METHODS\MET_2014.m	ICSA	1105	ICSA 1867438		1.000	Level 1
72	C:\ICPMH\1\METHODS\MET_2014.m	ICSAB	1106	ICSAB 1867439		1.000	Level 1
73	C:\ICPMH\1\METHODS\MET_2014.m	CCV	1102	CCV 1866891		1.000	Level 1
74	C:\ICPMH\1\METHODS\MET_2014.m	CCB	4	CCB 1865845		1.000	Level 1
75	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3101	MB 160-456652/1-A -All	456652	2.000	Level 1
76	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3102	LCS 160-456652/2-A		2.000	Level 1
77	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3103	160-36906-A-4-D		2.000	Level 1
78	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3104	160-36906-A-4-D SD All but		10.00	Level 1
79	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3105	160-36906-A-4-E MS - Mo, Sb, Pb		2.000	Level 1
80	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3106	160-36906-A-4-F MSD		2.000	Level 1
81	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3107	160-36906-A-4-D PDS		2.000	Level 1
82	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3108	160-36906-A-5-B		2.000	Level 1
83	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3109	160-36906-A-6-B		2.000	Level 1
84	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3110	160-36906-A-7-B		2.000	Level 1
85	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3111	160-36919-A-10-B -All		2.000	Level 1
86	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3112	160-36919-A-11-B		2.000	Level 1
87	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3201	160-36919-A-17-B		2.000	Level 1
88	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3202	MB 160-457936/1-A	457936	2.000	Level 1
89	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3203	LCS 160-457936/2-A		2.000	Level 1
90	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3204	LCSSRM 160-457936/3-A		10.00	Level 1
91	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3205	160-36942-B-1-A		2.000	Level 1
92	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3206	160-36942-B-1-A SD		10.00	Level 1
93	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3207	160-36942-B-1-B MS		2.000	Level 1
94	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3208	160-36942-B-1-C MSD -Th, Li		2.000	Level 1
95	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3209	160-36942-B-2-A		2.000	Level 1
96	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3210	160-36942-B-3-A		2.000	Level 1
97	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3211	160-36942-B-4-A		2.000	Level 1
98	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3212	160-36942-B-5-A		2.000	Level 1
99	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3301	160-36942-B-6-A		2.000	Level 1

	Method	Type	Vial	Sample	Comment	Dil/Lvl	ISTD Conc
100	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3302	160-36942-B-7-A		2.000	Level 1
101	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3303	160-36942-B-8-A		2.000	Level 1
102	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3304	160-36942-B-9-A		2.000	Level 1
103	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3305	160-36942-B-10-A		2.000	Level 1
104	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3306	160-36942-B-11-A		2.000	Level 1
105	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3307	160-36942-B-12-A		2.000	Level 1
106	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3308	160-36942-B-13-A		2.000	Level 1
107	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3309	160-36942-B-14-A		2.000	Level 1
108	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3310	160-36942-B-15-A -Th,U		2.000	Level 1
109	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3311	160-36942-B-16-A		2.000	Level 1
110	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3312	160-36942-B-17-A		2.000	Level 1
111	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3401	160-36942-B-18-A		2.000	Level 1
112	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3402	160-36942-B-19-A		2.000	Level 1
113	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3403	160-36942-B-20-A		2.000	Level 1
114		Keyword		End of SMPL			
115		Keyword		Start of CCV			
116	C:\ICPMH\1\METHODS\MET_2014.m	CRI	1101	CCVL 1866890		1.000	Level 1
117	C:\ICPMH\1\METHODS\MET_2014.m	CCV	1102	CCV 1866891		1.000	Level 1
118	C:\ICPMH\1\METHODS\MET_2014.m	CCB	4	CCB 1865845		1.000	Level 1
119		Keyword		End of CCV			
120		Keyword		Start of TERM			
121		Keyword					
122		Keyword		End of TERM			
123		Keyword		End of Sequence			
124		Keyword		Start of CALIB			
125		Keyword		End of CALIB			
126		Keyword		Start of BLANK			
127		Keyword		End of BLANK			
128		Keyword		Start of ERRTERM			
129		Keyword		End of ERRTERM			

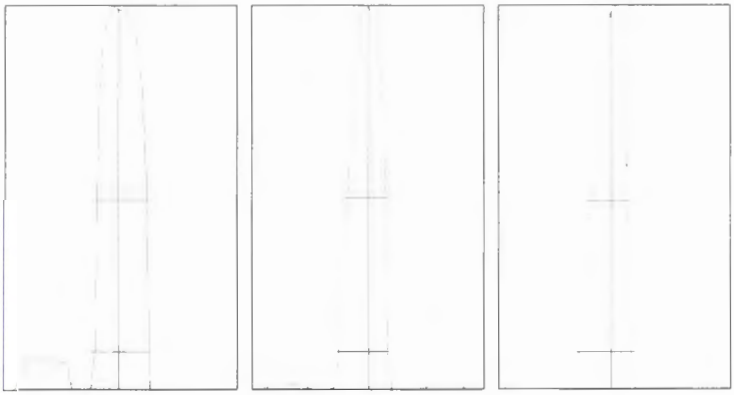
Tune Report

Tune File : autotune.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.3100 sec	
n:	200	
Oxide:	156/140	0.467%
Doubly Charged:	70/140	1.363%

m/z	Range	Count	Mean	RSD%	Background
7	50,000	29447.0	28919.7	3.01	2.60
89	100,000	81746.0	80049.3	2.69	3.40
205	50,000	45815.0	45346.5	2.92	7.10



m/z:	7	89	205
Height:	28,645	81,179	44,693
Axis:	7.00	89.05	205.00
W-50%:	0.70	0.55	0.55
W-10%:	0.7500	0.6500	0.7500

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	:	119
RF Matching	:	1.5 V	Extract 2	:	-150 V	AMU Offset	:	127
Smpl Depth	:	8 mm	Omega Bias	:	-75 V	Axis Gain	:	0.9981
Torch-H	:	0.2 mm	Omega Lens	:	7 V	Axis Offset	:	0.09
Torch-V	:	0.1 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	:	1935 V
Nebulizer Pump	:	0.1 rps	OctP RF	:	190 V	Pulse HV	:	1226 V
Sample Pump	:	--- rps	OctP Bias	:	-8 V			
S/C Temp	:	2 degC						

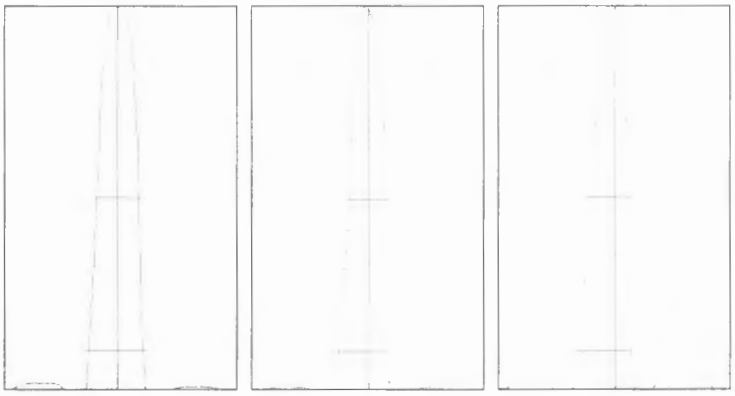
===Reaction Cell===								
Reaction Mode	:	OFF						
H2 Gas	:	0 mL/min	He Gas	:	0 mL/min	Optional Gas	:	--- %

Tune Report

Tune File : he.u
Comment :

Integration Time: 0.1000 sec
Sampling Period: 0.6200 sec
n: 200
Oxide: 156/140 0.233%
Doubly Charged: 70/140 1.384%

m/z	Range	Count	Mean	RSD%	Background
59	20,000	18161.0	17707.6	3.00	0.30
89	20,000	19514.0	19859.4	2.90	0.20
140	50,000	46835.0	46478.6	3.12	0.70
205	50,000	38991.0	37400.2	3.64	0.60
156/140	1	0.179%	0.203%	13.46	
70/140	2	1.328%	1.373%	7.86	



m/z:	59	89	205
Height:	17,853	20,373	37,783
Axis:	59.00	89.05	205.05
W-50%:	0.60	0.50	0.55
W-10%:	0.7500	0.6500	0.7100

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	:	119
RF Matching	:	1.5 V	Extract 2	:	-120 V	AMU Offset	:	127
Smpl Depth	:	8 mm	Omega Bias	:	-80 V	Axis Gain	:	0.9981
Torch-H	:	0.2 mm	Omega Lens	:	8.5 V	Axis Offset	:	0.09
Torch-V	:	0.1 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	:	1935 V
Nebulizer Pump	:	0.1 rps	OctP RF	:	190 V	Pulse HV	:	1226 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: 29 Jan 2020 04:35:55 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	1.14	5.00	
59 Co	1.29	5.00	
115 In	0.99	5.00	
205 Tl	1.15	5.00	

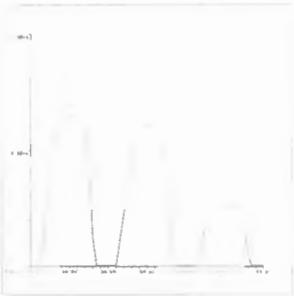
Ion Ratio

Element	Actual	Required	Flag

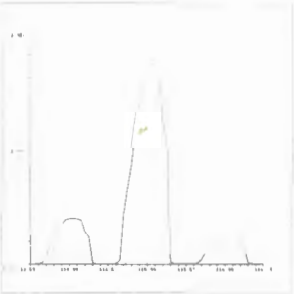
Maximum Bkg. Count(CPS)

Element	Actual	Required	Flag

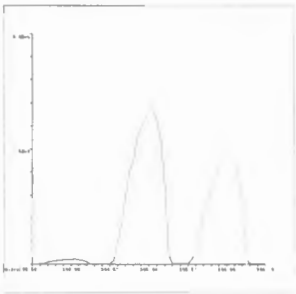
6 Li
Mass Calib.
Actual: 6.05 ✓
Required: 5.90-6.10
Flag:
Peak Width
Actual: 0.60 ✓
Required: 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.00 ✓
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65 ✓
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\012920B1.B\QCTUNE00.D

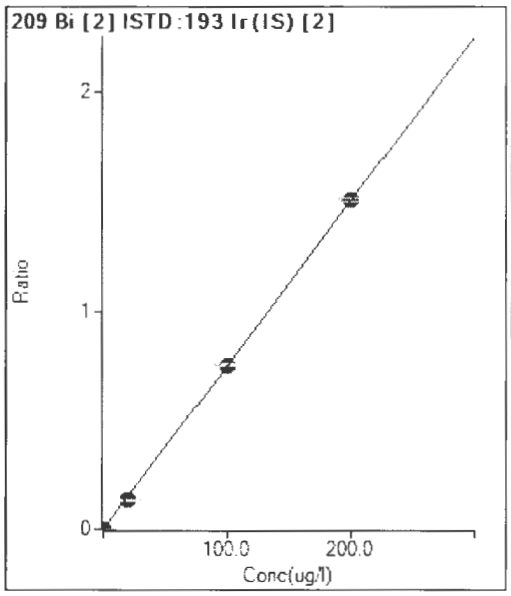
Replicated Data: Tune #1

Mass	Count(CPS)				
6	3995435.00	3966165.00	3921731.00	3880390.00	3861146.00
7	230175.09	225658.50	228123.50	227362.59	225045.70
8	40.00	36.00	38.00	39.50	44.50
58	1750913.00	1733334.00	1695226.00	1702267.00	1693944.00
59	1597044.00	1571462.00	1564975.00	1552128.00	1544582.00
60	720116.50	711299.19	703579.50	699341.00	697251.31
95	742906.31	745945.88	739299.81	732739.69	726457.50
111	763496.31	759445.13	752245.50	757342.00	749094.38
114	1769114.00	1775183.00	1765787.00	1767661.00	1749632.00
115	7696147.00	7699406.00	7634174.00	7595395.00	7560403.00
116	1085455.00	1083396.00	1078558.00	1081325.00	1079587.00
118	1018479.00	1014263.00	1008247.00	1009980.00	1004379.00
204	49820.36	50573.85	51450.38	51730.77	51740.75
205	1510906.00	1530205.00	1523589.00	1522900.00	1521702.00
206	1082267.00	1076030.00	1074007.00	1080668.00	1089271.00
207	947955.63	953583.13	947012.13	949072.13	949302.00
208	2270382.00	2296725.00	2279929.00	2279989.00	2291588.00

Calibration for 152_CCB.D

Batch Folder:	C:¥ICPMH¥1¥DATA¥012920B1.B¥
Analysis File:	012920B1.batch.xml
DA Date-Time:	1/30/2020 9:37:50 AM
Calibration Title:	
Calibration Method:	External Calibration
VIS Interpolation Fit:	
Tune Step:	#1 he.u
	#2 nogas.u

Level	Standard Data File	Sample Name	Acq. Date-Time
1	103CALB.D	ICIS 1865845	1/30/2020 4:05:08 AM
2	104CALS.D	IC 1866890	1/30/2020 4:11:51 AM
3	105CALS.D	IC 1866891	1/30/2020 4:18:35 AM
4	106CALS.D	IC 1866892	1/30/2020 4:25:18 AM
5			
6			
7			



	Rjct	Conc	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	5923.58	0.0010	P	3.9
2	☐	20.000	17.453	813700.69	0.1320	P	1.1
3	☐	100.000	100.065	4587645.83	0.7523	A	0.9
4	☐	200.000	200.222	9002751.95	1.5044	A	0.9
5	☐						
6	☐						
7	☐						

y = 0.0075 * x + 9.6187E-004

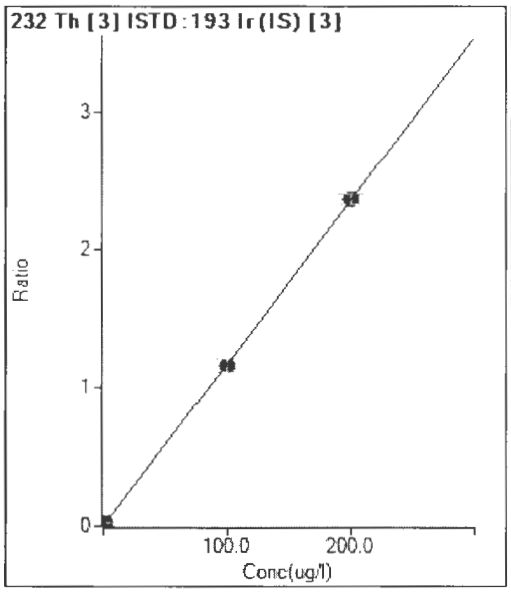
R = 0.9999

DL = 0.01499

BEC = 0.1281

Weight: None

Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3183.80	0.0004	P	8.5
2	☐	2.000	1.724	156286.23	0.0207	P	1.0
3	☐	100.000	99.056	8808026.12	1.1680	A	8.5
4	☐	200.000	200.475	17226826.55	2.3634	A	3.2
5	☐						
6	☐						
7	☐						

y = 0.0118 * x + 4.1319E-004

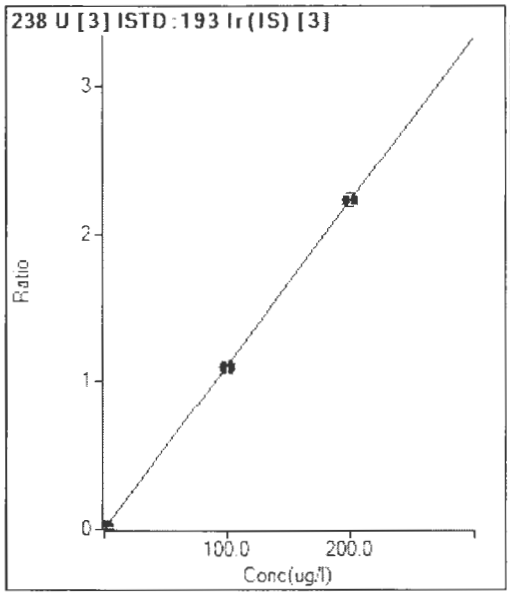
R = 1.0000

DL = 0.008929

BEC = 0.03505

Weight: None

Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1762.40	0.0002	P	4.3
2	☐	1.000	0.894	76730.86	0.0102	P	0.9
3	☐	100.000	99.200	8335062.24	1.1052	A	8.5
4	☐	200.000	200.400	16272419.75	2.2325	A	3.1
5	☐						
6	☐						
7	☐						

y = 0.0111 * x + 2.2818E-004

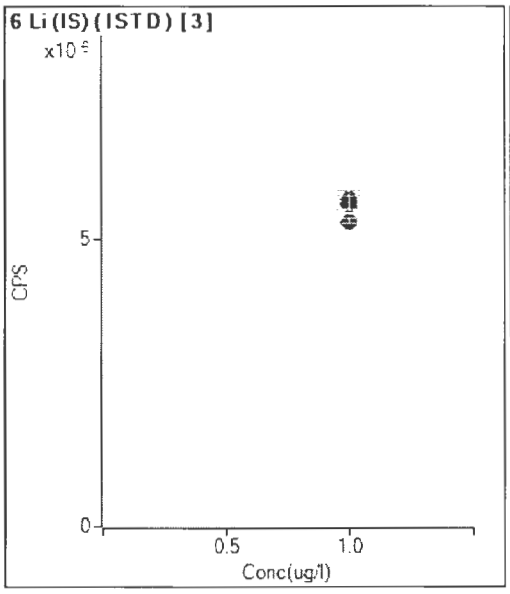
R = 1.0000

DL = 0.002615

BEC = 0.02048

Weight: None

Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		5669752.50		A	6.1
2	☐	1.000		5592651.26		A	0.8
3	☐	1.000		5620672.52		A	4.1
4	☐	1.000		5298980.09		A	1.6
5	☐	1.000					
6	☐	1.000					
7	☐	1.000					

Environmental Standards Inc.
Calibration Verification Form

Effective Date:11/23/2015
Revision #: 1

SDG	160-36942-1	ICAL Date	1/30/2020
Instrument	ICPMS7700	1st Std. File ID	4:05 ~~9:37 AM~~
Analyte:	232 Th		

Dependent Variable
○ Amount ◉ Response

Response for Int. Stc. Cal
◉ Area Cpd*Amt IS/Area IS
○ Area Cpd/Area IS

Regression Type
◉ Unweighted
○ Weighted 1/x
○ Weighted 1/x^2
○ Weighted 1/y
○ Weighted 1/y^2

Enter Calibration Data						Curve Refit	
Amount	Response	ISTD Amt	ISTD Resp	Response	CF	Refit Conc.	Recovery
0.00	0.0004			0.00	#DIV/0!	1.1234	#DIV/0!
1.72	0.0207			0.02	0.01	20.5649	1192.86%
99.06	1.1680			1.17	0.01	99.9414	100.89%
200.48	2.3634			2.36	0.01	0.0448	0.02%
						RSE	#DIV/0!

	Constant	1ST Degree Coefficient	2ND Degree Coefficient	3RD Degree Coefficient	r^2	r	Select Model
Unweighted Linear	3.9544E-04	1.1787E-02	#N/A	#N/A	1.00000	1.00000	◉
Unweighted Linear Force 0	#N/A	1.1789E-02	#N/A	#N/A	1.00000	1.00000	○
Unweighted Quad	3.8916E-04	1.1788E-02	-3.1261E-09	#N/A	1.00000	1.00000	○
Unweighted Quad Force 0	#N/A	1.1794E-02	-2.4162E-08	#N/A	1.00000	1.00000	○
Unweighted Cubic	4.0000E-04	1.1775E-02	1.9224E-07	-6.5057E-10	1.00000	1.00000	○
Unweighted Cubic Force 0	#N/A	1.2013E-02	-3.3275E-06	1.1033E-08	1.00000	1.00000	○

CF Mean CF: #DIV/0! RSD: #DIV/0! ○

	Constant	1st Degree		
Curve Coefficients Reported by Laboratory:				

Sample ID	Sample Response	ISTD Amt	ISTD Response	Dilution	Reported Result	Calculated Result	% Difference

Environmental Standards Inc.
Calibration Verification Form

Effective Date:11/23/2015
Revision #: 1

SDG	160-36942-1	ICAL Date	1/30/2020
Instrument	ICPMS7700	1st Std. File ID	9:05 ~~9:37 AM~~
Analyte:	238 U		

Dependent Variable
- ○ Amount
- ◉ Response

Response for Int. Stc. Cal
- ◉ Area Cpd*Amt IS/Area IS
- ○ Area Cpd/Area IS

Regression Type
- ◉ Unweighted
- ○ Weighted 1/x
- ○ Weighted 1/x^2
- ○ Weighted 1/y
- ○ Weighted 1/y^2

Enter Calibration Data						Curve Refit	
Amount	Response	ISTD Amt	ISTD Resp	Response	CF	Refit Conc.	Recovery
0.00	0.0002			0.00	#DIV/0!	1.1234	#DIV/0!
0.89	0.0102			0.01	0.01	20.5649	2300.32%
99.20	1.1052			1.11	0.01	99.9414	100.75%
200.40	2.2325			2.23	0.01	0.0448	0.02%
						RSE	#DIV/0!

	Constant	1ST Degree Coefficient	2ND Degree Coefficient	3RD Degree Coefficient	r^2	r	Select Model
Unweighted Linear	2.1684E-04	1.1139E-02	#N/A	#N/A	1.00000	1.00000	◉
Unweighted Linear Force 0	#N/A	1.1140E-02	#N/A	#N/A	1.00000	1.00000	○
Unweighted Quad	2.2086E-04	1.1139E-02	2.0809E-09	#N/A	1.00000	1.00000	○
Unweighted Quad Force 0	#N/A	1.1142E-02	-9.4608E-09	#N/A	1.00000	1.00000	○
Unweighted Cubic	2.0000E-04	1.1186E-02	-7.1193E-07	2.3798E-09	1.00000	1.00000	○
Unweighted Cubic Force 0	#N/A	1.1413E-02	-4.0935E-06	1.3633E-08	1.00000	1.00000	○

CF Mean CF: #DIV/0! RSD: #DIV/0! ○

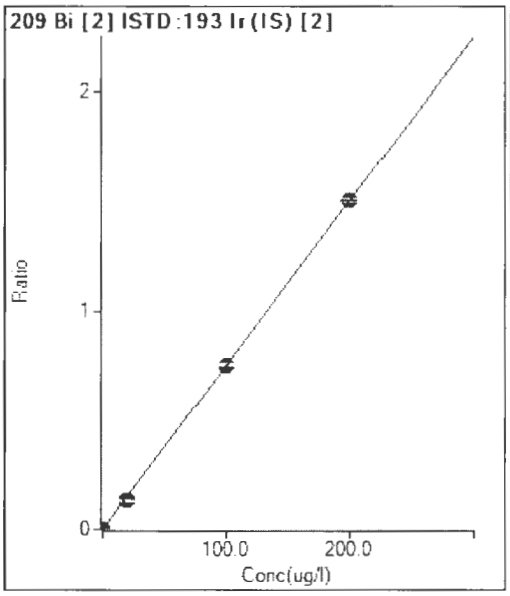
Curve Coefficients Reported by Laboratory:	Constant	1st Degree		

Sample ID	Sample Response	ISTD Amt	ISTD Response	Dilution	Reported Result	Calculated Result	% Difference

Calibration for 104CALS.D

Batch Folder:	C:¥ICPMH¥1¥DATA¥012920B1.B¥
Analysis File:	012920B1.batch.xml
DA Date-Time:	1/30/2020 4:27:53 AM
Calibration Title:	
Calibration Method:	External Calibration
VIS Interpolation Fit:	
Tune Step:	#1 he.u
	#2 nogas.u

Level	Standard Data File	Sample Name	Acq. Date-Time
1	103CALB.D	ICIS 1865845	1/30/2020 4:05:08 AM
2	104CALS.D	IC 1866890	1/30/2020 4:11:51 AM
3	105CALS.D	IC 1866891	1/30/2020 4:18:35 AM
4	106CALS.D	IC 1866892	1/30/2020 4:25:18 AM
5			
6			
7			



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	5923.58	0.0010	P	3.9
2	☐	20.000	17.453	813700.69	0.1320	P	1.1
3	☐	100.000	100.065	4587645.83	0.7523	A	0.9
4	☐	200.000	200.222	9002751.95	1.5044	A	0.9
5	☐						
6	☐						
7	☐						

y = 0.0075 * x + 9.6187E-004

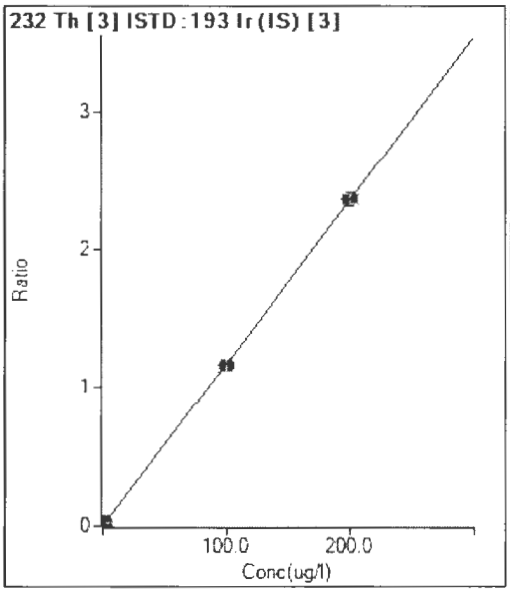
R = 0.9999

DL = 0.01499

BEC = 0.1281

Weight: None

Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	3183.80	0.0004	P	8.5
2	☐	2.000	1.724	156286.23	0.0207	P	1.0
3	☐	100.000	99.056	8808026.12	1.1680	A	8.5
4	☐	200.000	200.475	17226826.55	2.3634	A	3.2
5	☐						
6	☐						
7	☐						

y = 0.0118 * x + 4.1319E-004

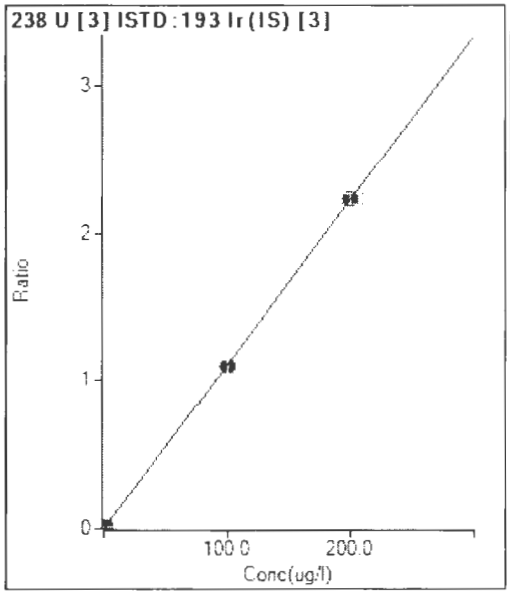
R = 1.0000

DL = 0.008929

BEC = 0.03505

Weight: None

Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	1762.40	0.0002	P	4.3
2	☐	1.000	0.894	76730.86	0.0102	P	0.9
3	☐	100.000	99.200	8335062.24	1.1052	A	8.5
4	☐	200.000	200.400	16272419.75	2.2325	A	3.1
5	☐						
6	☐						
7	☐						

y = 0.0111 * x + 2.2818E-004

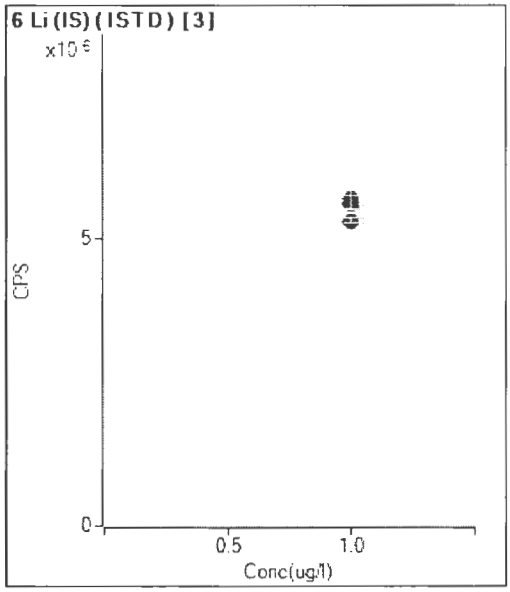
R = 1.0000

DL = 0.002615

BEC = 0.02048

Weight: None

Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		5669752.50		A	6.1
2	☐	1.000		5592651.26		A	0.8
3	☐	1.000		5620672.52		A	4.1
4	☐	1.000		5298980.09		A	1.6
5	☐	1.000					
6	☐	1.000					
7	☐	1.000					

Environmental Standards Inc.
Calibration Verification Form

Effective Date:11/23/2015
Revision #: 1

SDG	160-36942-1	ICAL Date	1/30/2020
Instrument	ICPMS7700	1st Std. File ID	4:27 AM
Analyte:	232 Th		

Dependent Variable
○ Amount ◉ Response

Response for Int. Stc. Cal
◉ Area Cpd*Amt IS/Area IS
○ Area Cpd/Area IS

Regression Type
◉ Unweighted
○ Weighted 1/x
○ Weighted 1/x^2
○ Weighted 1/y
○ Weighted 1/y^2

Enter Calibration Data						Curve Refit	
Amount	Response	ISTD Amt	ISTD Resp	Response	CF	Refit Conc.	Recovery
0.00	0.0004			0.00	#DIV/0!	1.1234	#DIV/0!
1.72	0.0207			0.02	0.01	20.5649	1192.86%
99.06	1.1680			1.17	0.01	99.9414	100.89%
200.48	2.3634			2.36	0.01	0.0448	0.02%
						RSE	#DIV/0!

	Constant	1ST Degree Coefficient	2ND Degree Coefficient	3RD Degree Coefficient	r^2	r	Select Model
Unweighted Linear	3.9544E-04	1.1787E-02	#N/A	#N/A	1.00000	1.00000	◉
Unweighted Linear Force 0	#N/A	1.1789E-02	#N/A	#N/A	1.00000	1.00000	○
Unweighted Quad	3.8916E-04	1.1788E-02	-3.1261E-09	#N/A	1.00000	1.00000	○
Unweighted Quad Force 0	#N/A	1.1794E-02	-2.4162E-08	#N/A	1.00000	1.00000	○
Unweighted Cubic	4.0000E-04	1.1775E-02	1.9224E-07	-6.5057E-10	1.00000	1.00000	○
Unweighted Cubic Force 0	#N/A	1.2013E-02	-3.3275E-06	1.1033E-08	1.00000	1.00000	○

CF Mean CF: #DIV/0! RSD: #DIV/0! ○

	Constant	1st Degree		
Curve Coefficients Reported by Laboratory:				

Sample ID	Sample Response	ISTD Amt	ISTD Response	Dilution	Reported Result	Calculated Result	% Difference

Environmental Standards Inc.
Calibration Verification Form

Effective Date:11/23/2015
Revision #: 1

SDG	160-36942-1	ICAL Date	1/30/2020
Instrument	ICPMS7700	1st Std. File ID	4:27 AM
Analyte:	238 U		

Dependent Variable
○ Amount ◉ Response

Response for Int. Stc. Cal
◉ Area Cpd * Amt IS/Area IS
○ Area Cpd/Area IS

Regression Type
◉ Unweighted
○ Weighted 1/x
○ Weighted 1/x^2
○ Weighted 1/y
○ Weighted 1/y^2

Enter Calibration Data						Curve Refit	
Amount	Response	ISTD Amt	ISTD Resp	Response	CF	Refit Conc.	Recovery
0.00	0.0002			0.00	#DIV/0!	1.1234	#DIV/0!
0.89	0.0102			0.01	0.01	20.5649	2300.32%
99.20	1.1052			1.11	0.01	99.9414	100.75%
200.40	2.2325			2.23	0.01	0.0448	0.02%
						RSE	#DIV/0!

	Constant	1ST Degree Coefficient	2ND Degree Coefficient	3RD Degree Coefficient	r^2	r	Select Model
Unweighted Linear	2.1684E-04	1.1139E-02	#N/A	#N/A	1.00000	1.00000	◉
Unweighted Linear Force 0	#N/A	1.1140E-02	#N/A	#N/A	1.00000	1.00000	○
Unweighted Quad	2.2086E-04	1.1139E-02	2.0809E-09	#N/A	1.00000	1.00000	○
Unweighted Quad Force 0	#N/A	1.1142E-02	-9.4608E-09	#N/A	1.00000	1.00000	○
Unweighted Cubic	2.0000E-04	1.1186E-02	-7.1193E-07	2.3798E-09	1.00000	1.00000	○
Unweighted Cubic Force 0	#N/A	1.1413E-02	-4.0935E-06	1.3633E-08	1.00000	1.00000	○

CF Mean CF: #DIV/0! RSD: #DIV/0! ○

Curve Coefficients Reported by Laboratory:	Constant	1st Degree		

Sample ID	Sample Response	ISTD Amt	ISTD Response	Dilution	Reported Result	Calculated Result	% Difference

012920B1-1

une Ste	Mass	Name	R	a	b (blank)	DL	BEC	Units
3	7	Li	0.999927	0.005737	0.056486145	0.407085	9.845274	ug/l
3	9	Be	0.999979	0.001729	3.95953E-05	0.002861	0.022906	ug/l
3	11	B	0.999443	0.001278	0.001254014	0.066675	0.981541	ug/l
2	23	Na	0.999992	0.008702	0.123820332	1.827733	14.22928	ug/l
2	24	Mg	0.999967	0.004615	0.011731925	0.346085	2.542008	ug/l
2	27	Al	0.999826	0.0019	0.007600481	0.295515	3.999326	ug/l
2	31	P	0.999974	0.000121	0.000719961	2.662801	5.948627	ug/l
2	39	K	0.999961	0.004582	0.233072312	0.81307	50.872	ug/l
3	44	Ca	0.999999	0.000456	0.019034704	2.161723	41.73477	ug/l
3	47	Ti	0.999974	0.001312	0.00030933	0.080052	0.235808	ug/l
2	51	V	0.999893	0.050012	0.009374025	0.01734	0.187434	ug/l
2	52	Cr	0.999826	0.061455	0.007399362	0.034794	0.120404	ug/l
2	55	Mn	0.999794	0.017877	0.003710938	0.022068	0.207577	ug/l
2	57	Fe	0.999938	0.000596	0.003925391	0.583587	6.582872	ug/l
2	59	Co	0.999921	0.044117	0.002146493	0.011118	0.048654	ug/l
2	60	Ni	0.9999	0.010707	0.000883467	0.057666	0.082515	ug/l
2	63	Cu	0.999797	0.030495	0.078627904	0.055564	2.578376	ug/l
2	66	Zn	0.999873	0.005465	0.005798814	0.103168	1.060993	ug/l
2	75	As	0.999621	0.003697	0.00064735	0.085222	0.175104	ug/l
2	78	Se	0.99991	0.00028	0.000224957	0.668755	0.803536	ug/l
3	88	Sr	0.999999	0.031678	0.001843568	0.012064	0.058197	ug/l
2	89	Y	0.999709	0.051098	0.000836451	0.005917	0.016369	ug/l
2	90	Zr	0.999748	0.03938	0.001293691	0.005546	0.032851	ug/l
2	93	Nb	0.999638	0.078112	0.006501381	0.032049	0.083231	ug/l
3	95	Mo	0.999414	0.006073	0.001051594	0.028752	0.173159	ug/l
2	101	Ru	0.99983	0.022168	0.000372791	0.008173	0.016817	ug/l
2	103	Rh	0.999737	0.131647	0.002619345	0.00287	0.019897	ug/l
2	105	Pd	0.999704	0.023593	0.000425168	0.006818	0.018021	ug/l
3	107	Ag	0.999333	0.002565	2.99907E-05	0.002684	0.011694	ug/l
3	111	Cd	0.998968	0.000525	2.56506E-05	0.0106	0.048827	ug/l
3	118	Sn	0.999966	0.001509	0.000493044	0.019608	0.326697	ug/l
3	121	Sb	0.999593	0.001934	0.00014072	0.007642	0.072759	ug/l
2	125	Te	0.999994	2.35E-05	2.4611E-06	0.097703	0.104892	ug/l
2	133	Cs	0.999989	0.001948	1.8207E-05	0.00277	0.009345	ug/l
3	137	Ba	0.998071	0.000667	8.62495E-05	0.048193	0.129338	ug/l
2	139	La	1	0.004297	7.1821E-05	0.005393	0.016715	ug/l
2	140	Ce	0.999989	0.004845	8.99834E-05	0.003543	0.018573	ug/l
2	141	Pr	0.999999	0.005097	4.93482E-05	0.001383	0.009681	ug/l
2	146	Nd	0.998705	0.000927	1.30409E-05	0.002121	0.014063	ug/l
3	147	Sm	0.999974	0.001023	2.15281E-05	0.011637	0.021052	ug/l
2	178	Hf	0.999956	0.002	2.75867E-05	0.006351	0.013796	ug/l
2	181	Ta	0.999964	0.007994	0.001010142	0.007073	0.126363	ug/l
2	182	W	0.999981	0.001944	0.000249056	0.012749	0.1281	ug/l
3	185	Re	0.999981	0.00441	3.74934E-05	0.004601	0.008501	ug/l
2	195	Pt	0.999999	0.001905	3.61519E-05	0.010613	0.018975	ug/l
3	197	Au	0.999978	0.003387	0.000109716	0.011562	0.032389	ug/l
3	205	Tl	0.998141	0.007095	0.000401092	0.006953	0.056535	ug/l
3	206	(Pb)	0.999955	0.002501	0.00054754	0.00824	0.218938	ug/l
3	207	(Pb)	0.999962	0.002196	0.000490736	0.009038	0.22345	ug/l
3	208	Pb	0.999978	0.009998	0.002125682	0.008194	0.212605	ug/l
2	209	Bi	0.999865	0.007523	0.001656217	0.020094	0.220167	ug/l
3	232	Th	0.999968	0.011905	0.000448891	0.004745	0.037705	ug/l
3	238	U	0.999959	0.011464	0.000200941	0.006519	0.017527	ug/l
3	6	Li (IS)						ug/l
2	45	Sc (IS)						ug/l
3	45	Sc (IS)						ug/l
2	72	Ge (IS)						ug/l
3	72	Ge (IS)						ug/l
3	115	In (IS)						ug/l
2	165	Ho (IS)						ug/l
3	165	Ho (IS)						ug/l
2	193	Ir (IS)						ug/l
3	193	Ir (IS)						ug/l

eurofins | Environment Testing TestAmerica

Metals Y Intercept

Analyst: LKP
Instrument: 7700
Calibration File: 012920B1
Matrix: Water
Units: PPB

Date: 1/30/2020

Element	MDL	3XMDL	Y-Intercept	Pass/Fail
LI	2.00	6.00	0.0564861	PASS
BE	0.20	0.60	3.96E-05	PASS
B	45.00	135.00	0.001254	PASS
NA	20.00	60.00	0.1238203	PASS
MG	20.00	60.00	0.0117319	PASS
AL	20.00	60.00	0.0076005	PASS
P	45.00	135.00	0.00072	PASS
K	45.00	135.00	0.2330723	PASS
CA	45.00	135.00	0.0190347	PASS
TI	2.00	6.00	0.0003093	PASS
V	4.00	12.00	0.009374	PASS
CR	4.00	12.00	0.0073994	PASS
MN	0.90	2.70	0.0037109	PASS
FE	20.00	60.00	0.0039254	PASS
CO	0.90	2.70	0.0021465	PASS
NI	2.00	6.00	0.0008835	PASS
CU	0.40	1.20	0.0786279	PASS
ZN	7.50	22.50	0.0057988	PASS
AS	4.00	12.00	0.0006474	PASS
SE	2.00	6.00	0.000225	PASS
SR	2.00	6.00	0.0018436	PASS
Y	2.00	6.00	0.0008365	PASS
ZR	2.00	6.00	0.0012937	PASS
NB	10.00	30.00	0.0065014	PASS
MO	2.00	6.00	0.0010516	PASS
RU	4.00	12.00	0.0003728	PASS
RH	4.00	12.00	0.0026193	PASS
PD	0.20	0.60	0.0004252	PASS
AG	0.90	2.70	2.999E-05	PASS
CD	0.20	0.60	2.565E-05	PASS
SN	1.20	3.60	0.000493	PASS
SB	2.00	6.00	0.0001407	PASS
TE	7.50	22.50	2.461E-06	PASS
CS	0.20	0.60	1.821E-05	PASS
BA	0.90	2.70	8.625E-05	PASS
LA	0.90	2.70	7.182E-05	PASS
CE	4.00	12.00	8.986E-05	PASS
PR	0.90	2.70	4.935E-05	PASS
ND	0.90	2.70	1.304E-05	PASS
SM	4.00	12.00	2.153E-05	PASS
HF	4.00	12.00	2.759E-05	PASS
TA	4.00	12.00	0.0010101	PASS
W	2.00	6.00	0.0002491	PASS
RE	0.40	1.20	3.749E-05	PASS
PT	0.40	1.20	3.615E-05	PASS
AU	5.00	15.00	0.0001097	PASS
TL	0.90	2.70	0.0004011	PASS
(PB 206)	1.00	3.00	0.0005475	PASS
(PB 207)	1.00	3.00	0.0004907	PASS
PB	1.00	3.00	0.0021257	PASS
BI	7.50	22.50	0.0016562	PASS
TH	0.90	2.70	0.0004489	PASS
U	0.40	1.20	0.0002009	PASS

Analyst:
Instrument: 7700
Calibration File: 012920B1
Matrix: Soil
Units: PPB

Element	MDL	3XMDL	Y-Intercept	Pass/Fail
LI	4.00	12.00	0.056486	PASS
BE	0.40	1.20	0.000040	PASS
B	45.00	135.00	0.001254	PASS
NA	75.00	225.00	0.123820	PASS
MG	25.00	75.00	0.011732	PASS
AL	20.00	60.00	0.007600	PASS
P	200.00	600.00	0.000720	PASS
K	40.00	120.00	0.233072	PASS
CA	100.00	300.00	0.019035	PASS
TI	2.40	7.20	0.000309	PASS
V	4.00	12.00	0.009374	PASS
CR	4.50	13.50	0.007399	PASS
MN	2.00	6.00	0.003711	PASS
FE	20.00	60.00	0.003925	PASS
CO	0.75	2.25	0.002146	PASS
NI	2.00	6.00	0.000884	PASS
CU	4.00	12.00	0.078628	PASS
ZN	20.00	60.00	0.005799	PASS
AS	4.00	12.00	0.000647	PASS
SE	3.20	9.60	0.000225	PASS
SR	2.40	7.20	0.001844	PASS
Y	4.00	12.00	0.000836	PASS
ZR	4.00	12.00	0.001294	PASS
NB	12.00	36.00	0.006501	PASS
MO	2.00	6.00	0.001052	PASS
RU	4.00	12.00	0.000372	PASS
RH	4.00	12.00	0.002619	PASS
PD	0.40	1.20	0.000425	PASS
AG	0.75	2.25	0.000030	PASS
CD	0.24	0.72	0.000026	PASS
SN	0.90	2.70	0.000493	PASS
SB	2.00	6.00	0.000141	PASS
TE	4.00	12.00	0.000002	PASS
CS	2.00	6.00	0.000018	PASS
BA	5.00	15.00	0.000086	PASS
LA	0.75	2.25	0.000072	PASS
CE	4.00	12.00	0.000090	PASS
PR	0.75	2.25	0.000049	PASS
ND	0.75	2.25	0.000013	PASS
SM	4.00	12.00	0.000022	PASS
HF	4.00	12.00	0.000028	PASS
TA	4.00	12.00	0.001010	PASS
W	10.00	30.00	0.000249	PASS
RE	4.00	12.00	0.000037	PASS
PT	0.40	1.20	0.000036	PASS
AU	2.00	6.00	0.000110	PASS
TL	2.00	6.00	0.000401	PASS
(PB 206)	1.25	3.75	0.000548	PASS
(PB 207)	1.25	3.75	0.000491	PASS
PB	1.25	3.75	0.002126	PASS
BI	7.50	22.50	0.001656	PASS
TH	0.90	2.70	0.000449	PASS
U	0.40	1.20	0.000201	PASS

012920B1-2

Tune Ste	Mass	Name	R	a	b (blank)	DL	BEC	Units
3	7	Li	0.999891	0.005861	0.057449003	0.021972	9.801973	ug/l
3	9	Be	0.999913	0.001834	3.87612E-05	0.002268	0.021133	ug/l
3	11	B	0.999434	0.001316	0.004250378	0.658148	3.230841	ug/l
2	23	Na	0.999898	0.008023	0.129038619	1.542068	16.08349	ug/l
2	24	Mg	0.999928	0.004213	0.011753695	0.731023	2.789712	ug/l
2	27	Al	0.99994	0.001724	0.007213716	1.555003	4.184918	ug/l
2	31	P	0.999996	0.000114	0.000571601	2.211396	5.008608	ug/l
2	39	K	0.999911	0.004429	0.211912538	0.992082	47.84836	ug/l
3	44	Ca	0.999998	0.000464	0.01394656	7.198574	30.0683	ug/l
3	47	Ti	0.999942	0.001341	0.000280066	0.032712	0.208849	ug/l
2	51	V	1	0.05149	0.011880296	0.044234	0.230732	ug/l
2	52	Cr	0.999999	0.062389	0.00833448	0.007169	0.133589	ug/l
2	55	Mn	0.999952	0.016104	0.00339191	0.015553	0.210623	ug/l
2	57	Fe	0.999832	0.000537	0.00352094	1.534561	6.56242	ug/l
2	59	Co	0.999938	0.041003	0.002206674	0.013188	0.053817	ug/l
2	60	Ni	0.999892	0.010101	0.000917206	0.020167	0.090799	ug/l
2	63	Cu	0.999949	0.0285	0.03742199	0.035644	1.313049	ug/l
2	66	Zn	0.999828	0.005209	0.002982282	0.118002	0.572558	ug/l
2	75	As	0.999226	0.003579	0.000492354	0.072372	0.137557	ug/l
2	78	Se	0.998797	0.000254	0.000239947	1.102971	0.945712	ug/l
3	88	Sr	1	0.031092	0.001889437	0.016474	0.060769	ug/l
2	89	Y	0.99944	0.04879	0.00100016	0.009095	0.020499	ug/l
2	90	Zr	0.999488	0.039354	0.013981447	0.00929	0.355277	ug/l
2	93	Nb	0.999307	0.075314	0.015513953	0.026499	0.205989	ug/l
3	95	Mo	0.999608	0.005884	0.000426435	0.010162	0.072479	ug/l
2	101	Ru	0.999998	0.021729	0.000498617	0.008815	0.022948	ug/l
2	103	Rh	0.999659	0.129698	0.002862718	0.005088	0.022072	ug/l
2	105	Pd	0.999513	0.023614	0.000163055	0.006421	0.006905	ug/l
3	107	Ag	0.999465	0.002604	3.6641E-05	0.00294	0.014069	ug/l
3	111	Cd	0.99933	0.000531	1.47979E-05	0.007292	0.027876	ug/l
3	118	Sn	0.999887	0.001547	0.00041851	0.045283	0.270603	ug/l
3	121	Sb	0.999869	0.001993	7.80602E-05	0.007589	0.039167	ug/l
2	125	Te	0.999998	2.38E-05	2.38471E-07	0.052092	0.010025	ug/l
2	133	Cs	0.999996	0.00198	2.46182E-05	0.003947	0.012436	ug/l
3	137	Ba	0.998289	0.000708	9.62509E-05	0.020356	0.135993	ug/l
2	139	La	0.999944	0.004399	8.66583E-05	0.003668	0.0197	ug/l
2	140	Ce	0.999881	0.004944	0.000102087	0.003961	0.020647	ug/l
2	141	Pr	0.999963	0.005129	6.05801E-05	0.003147	0.01181	ug/l
2	146	Nd	0.999495	0.000934	1.38617E-05	0.003365	0.014841	ug/l
3	147	Sm	0.999931	0.001056	2.50661E-05	0.006213	0.023738	ug/l
2	178	Hf	0.999948	0.001989	6.39391E-05	0.002465	0.032147	ug/l
2	181	Ta	0.999915	0.008041	0.001555888	0.006531	0.193483	ug/l
2	182	W	0.999959	0.001983	0.000372649	0.039761	0.18793	ug/l
3	185	Re	0.999987	0.004458	4.37798E-05	0.002526	0.009821	ug/l
2	195	Pt	0.999977	0.00196	3.17875E-05	0.010012	0.016217	ug/l
3	197	Au	0.999957	0.003389	0.000213858	0.017072	0.063105	ug/l
3	205	Tl	0.998912	0.007132	0.000159935	0.004639	0.022424	ug/l
3	206	(Pb)	0.999968	0.002521	0.000490715	0.049138	0.194683	ug/l
3	207	(Pb)	0.999999	0.002197	0.000457177	0.056235	0.208076	ug/l
3	208	Pb	0.999999	0.010034	0.001946404	0.058101	0.193977	ug/l
2	209	Bi	0.999922	0.007509	0.000961874	0.014992	0.1281	ug/l
3	232	Th	0.999983	0.011787	0.000413189	0.008929	0.035055	ug/l
3	238	U	0.999987	0.011139	0.000228178	0.002615	0.020485	ug/l
3	6	Li (IS)						ug/l
2	45	Sc (IS)						ug/l
3	45	Sc (IS)						ug/l
2	72	Ge (IS)						ug/l
3	72	Ge (IS)						ug/l
3	115	In (IS)						ug/l
2	165	Ho (IS)						ug/l
3	165	Ho (IS)						ug/l
2	193	Ir (IS)						ug/l
3	193	Ir (IS)						ug/l

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Metals Y Intercept

Analyst: LKP
Instrument: 7700
Calibration File: 012920B1
Matrix: Water
Units: PPB

Date: 1/30/2020

Element	MDL	3XMDL	Y-intercept	Pass/Fail
LI	2.00	6.00	0.057449	PASS
BE	0.20	0.60	3.876E-05	PASS
B	45.00	135.00	0.0042504	PASS
NA	20.00	60.00	0.1290386	PASS
MG	20.00	60.00	0.0117537	PASS
AL	20.00	60.00	0.0072137	PASS
P	45.00	135.00	0.0005716	PASS
K	45.00	135.00	0.2119125	PASS
CA	45.00	135.00	0.0139466	PASS
TI	2.00	6.00	0.0002801	PASS
V	4.00	12.00	0.0118803	PASS
CR	4.00	12.00	0.0083345	PASS
MN	0.90	2.70	0.0033919	PASS
FE	20.00	60.00	0.0035209	PASS
CO	0.90	2.70	0.0022067	PASS
NI	2.00	6.00	0.0009172	PASS
CU	0.40	1.20	0.037422	PASS
ZN	7.50	22.50	0.0029823	PASS
AS	4.00	12.00	0.0004924	PASS
SE	2.00	6.00	0.0002399	PASS
SR	2.00	6.00	0.0018894	PASS
Y	2.00	6.00	0.0010002	PASS
ZR	2.00	6.00	0.0139814	PASS
NB	10.00	30.00	0.015514	PASS
MO	2.00	6.00	0.0004264	PASS
RU	4.00	12.00	0.0004986	PASS
RH	4.00	12.00	0.0028627	PASS
PD	0.20	0.60	0.0001631	PASS
AG	0.90	2.70	3.664E-05	PASS
CD	0.20	0.60	1.48E-05	PASS
SN	1.20	3.60	0.0004185	PASS
SB	2.00	6.00	7.806E-05	PASS
TE	7.50	22.50	2.385E-07	PASS
CS	0.20	0.60	2.462E-05	PASS
BA	0.90	2.70	9.625E-05	PASS
LA	0.90	2.70	8.666E-05	PASS
CE	4.00	12.00	0.0001021	PASS
PR	0.90	2.70	6.058E-05	PASS
ND	0.90	2.70	1.386E-05	PASS
SM	4.00	12.00	2.507E-05	PASS
HF	4.00	12.00	6.394E-05	PASS
TA	4.00	12.00	0.0015559	PASS
W	2.00	6.00	0.0003726	PASS
RE	0.40	1.20	4.378E-05	PASS
PT	0.40	1.20	3.179E-05	PASS
AU	5.00	15.00	0.0002139	PASS
TL	0.90	2.70	0.0001599	PASS
(PB 206)	1.00	3.00	0.0004907	PASS
(PB 207)	1.00	3.00	0.0004572	PASS
PB	1.00	3.00	0.0013404	PASS
BI	7.50	22.50	0.0009619	PASS
TH	0.90	2.70	0.0004132	PASS
U	0.40	1.20	0.0002282	PASS

Analyst:
Instrument: 7700
Calibration File: 012920B1
Matrix: Soil
Units: PPB

Element	MDL	3XMDL	Y-Intercept	Pass/Fail
LI	4.00	12.00	0.057449	PASS
BE	0.40	1.20	0.000039	PASS
B	45.00	135.00	0.004250	PASS
NA	75.00	225.00	0.129039	PASS
MG	25.00	75.00	0.011754	PASS
AL	20.00	60.00	0.007214	PASS
P	200.00	600.00	0.000572	PASS
K	40.00	120.00	0.211913	PASS
CA	100.00	300.00	0.013947	PASS
TI	2.40	7.20	0.000280	PASS
V	4.00	12.00	0.011880	PASS
CR	4.50	13.50	0.008334	PASS
MN	2.00	6.00	0.003392	PASS
FE	20.00	60.00	0.003521	PASS
CO	0.75	2.25	0.002207	PASS
NI	2.00	6.00	0.000917	PASS
CU	4.00	12.00	0.037422	PASS
ZN	20.00	60.00	0.002982	PASS
AS	4.00	12.00	0.000492	PASS
SE	3.20	9.60	0.000240	PASS
SR	2.40	7.20	0.001889	PASS
Y	4.00	12.00	0.001000	PASS
ZR	4.00	12.00	0.013981	PASS
NB	12.00	36.00	0.015514	PASS
MO	2.00	6.00	0.000426	PASS
RU	4.00	12.00	0.000499	PASS
RH	4.00	12.00	0.002863	PASS
PD	0.40	1.20	0.000163	PASS
AG	0.75	2.25	0.000037	PASS
CD	0.24	0.72	0.000015	PASS
SN	0.90	2.70	0.000419	PASS
SB	2.00	6.00	0.000078	PASS
TE	4.00	12.00	0.000000	PASS
CS	2.00	6.00	0.000025	PASS
BA	5.00	15.00	0.000096	PASS
LA	0.75	2.25	0.000087	PASS
CE	4.00	12.00	0.000102	PASS
PR	0.75	2.25	0.000061	PASS
ND	0.75	2.25	0.000014	PASS
SM	4.00	12.00	0.000025	PASS
HF	4.00	12.00	0.000064	PASS
TA	4.00	12.00	0.001556	PASS
W	10.00	30.00	0.000373	PASS
RE	4.00	12.00	0.000044	PASS
PT	0.40	1.20	0.000032	PASS
AU	2.00	6.00	0.000214	PASS
TL	2.00	6.00	0.000160	PASS
(PB 206)	1.25	3.75	0.000491	PASS
(PB 207)	1.25	3.75	0.000457	PASS
PB	1.25	3.75	0.001946	PASS
BI	7.50	22.50	0.000962	PASS
TH	0.90	2.70	0.000413	PASS
U	0.40	1.20	0.000228	PASS

	Method	Type	Vial	Sample	Comment	Dil/Lvl	ISTD Conc
1		Keyword		Start of TUNE			
2		Keyword		TN_6020.U			
3		Keyword		1307			
4		Keyword		End of TUNE			
5		Keyword		Start of SMPL			
6	C:\ICPMH\1\METHODS\MET_2014.m	6-Blank	1	RINSE (458649)		1.000	Level 1
7	C:\ICPMH\1\METHODS\MET_2014.m	CalBlk	4	ICIS 1865845		Level 1	Level 1
8	C:\ICPMH\1\METHODS\MET_2014.m	CalStd	1101	IC 1866890		Level 2	Level 1
9	C:\ICPMH\1\METHODS\MET_2014.m	CalStd	1102	IC 1866891		Level 3	Level 1
10	C:\ICPMH\1\METHODS\MET_2014.m	CalStd	1103	IC 1866892		Level 4	Level 1
11	C:\ICPMH\1\METHODS\MET_2014.m	ICV	1104	ICV 1869187		1.000	Level 1
12	C:\ICPMH\1\METHODS\MET_2014.m	ICB	4	ICB 1865845		1.000	Level 1
13	C:\ICPMH\1\METHODS\MET_2014.m	CRI	1101	CRI 1866890		1.000	Level 1
14	C:\ICPMH\1\METHODS\MET_2014.m	ICSA	1105	ICSA 1867438		1.000	Level 1
15	C:\ICPMH\1\METHODS\MET_2014.m	ICSAB	1106	ICSAB 1867439		1.000	Level 1
16	C:\ICPMH\1\METHODS\MET_2014.m	Sample	1301	LRC 1867429		1.000	Level 1
17	C:\ICPMH\1\METHODS\MET_2014.m	Sample	1302	LRC 1867437		1.000	Level 1
18	C:\ICPMH\1\METHODS\MET_2014.m	CCV	1102	CCV 1866891		1.000	Level 1
19	C:\ICPMH\1\METHODS\MET_2014.m	CCB	4	CCB 1865845		1.000	Level 1
20	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2101	MB	Calgon	2.000	Level 1
21	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2102	LCS		2.000	Level 1
22	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2103	180-101579-A-1		2.000	Level 1
23	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2104	180-101579-A-1 SD		10.00	Level 1
24	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2105	180-101579-A-2 -2r		2.000	Level 1
25	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2106	180-101579-A-5		2.000	Level 1
26	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2107	180-101579-A-6		2.000	Level 1
27	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2108	180-101579-A-7		2.000	Level 1
28	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2109	180-101579-A-8		2.000	Level 1
29	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2110	160-36906-A-4-D	456652	2.000	Level 1
30	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2111	160-36906-A-4-D SD		10.00	Level 1
31	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2112	160-36906-A-4-E MS -mo 2020		2.000	Level 1
32	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2201	160-36906-A-4-F MSD		2.000	Level 1
33	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2202	160-36906-A-4-D PDS		2.000	Level 1

1st by James Bonnette
LKP 01/30/20 File: 013028 Tune: 1867742 IS: 1848675 Pin: 1861970 Rinse: 1848843

2nd reviewed on 1/30/20 by FLC:

02/10/2020

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	Method	Type	Vial	Sample		Comment	Dil/Lvl	ISTD Conc
34	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2203	MB 160-457307/1-A		457307	2.000	Level 1
35	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2204	LCSSRM 160-457307/2-A			2.000	Level 1
36	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2205	160-36961-A-21-B			2.000	Level 1
37	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2206	160-36961-A-21-B SD			10.00	Level 1
38	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2207	160-36961-A-21-C MS			2.000	Level 1
39	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2208	160-36961-A-21-D MSD			2.000	Level 1
40	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2209	160-36961-A-22-B			2.000	Level 1
41	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2210	160-36961-A-23-B			2.000	Level 1
42	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2211	160-36961-A-24-B	-As		2.000	Level 1
43	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2212	160-36961-A-25-B			2.000	Level 1
44	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2301	160-36961-A-26-B			2.000	Level 1
45	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2302	160-36961-A-27-B			2.000	Level 1
46	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2303	160-36961-A-28-B			2.000	Level 1
47	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2304	160-36961-A-29-B			2.000	Level 1
48	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2305	160-36961-A-30-B			2.000	Level 1
49	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2306	MB 160-457938/1-A		457938	2.000	Level 1
50	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2307	LCS 160-457938/2-A			2.000	Level 1
51	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2308	LCSSRM 160-457938/3-A			2.000	Level 1
52	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2309	160-36943-B-18-A			2.000	Level 1
53	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2310	160-36943-B-19-A			2.000	Level 1
54	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2311	160-36943-B-20-A			2.000	Level 1
55	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2312	160-36943-B-21-A			2.000	Level 1
56	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2401	160-36943-B-22-A			2.000	Level 1
57	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2402	160-36943-B-23-A			2.000	Level 1
58	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2403	160-36943-B-23-A SD	-Th,U		10.00	Level 1
59	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2404	160-36943-B-23-B DU			2.000	Level 1
60	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2405	160-36943-A-23-J MS			2.000	Level 1
61	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2406	160-36943-A-23-K MSD			2.000	Level 1
62	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2407	160-36943-B-24-B			2.000	Level 1
63	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2408	160-36943-B-25-B			2.000	Level 1
64	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2409	160-36943-B-26-B			2.000	Level 1
65	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2410	160-36943-B-27-B			2.000	Level 1
66	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2411	160-36943-B-28-B			2.000	Level 1

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	Method	Type	Vial	Sample	Comment	Dil/Lvl	ISTD Conc
67	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2412	160-36943-B-29-B		2.000	Level 1
68	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2501	160-36943-B-30-B		2.000	Level 1
69	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2502	160-36943-B-31-B		2.000	Level 1
70	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2503	160-36943-B-32-B		2.000	Level 1
71	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2504	160-36943-B-33-B		2.000	Level 1
72	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2505	160-36943-B-34-B -Th,Li		2.000	Level 1
73	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2506	160-36943-B-35-B		2.000	Level 1
74	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2507	160-36943-B-36-B		2.000	Level 1
75	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2508	MB	Calgon	2.000	Level 1
76	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2509	LCS		2.000	Level 1
77	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2510	180-101266-A-1		10.00	Level 1
78	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2511	180-101266-A-1 SD		50.00	Level 1
79	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2512	180-101266-A-2		10.00	Level 1
80	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3101	180-101266-A-3		10.00	Level 1
81	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3102	180-101266-A-1		100.0	Level 1
82	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3103	180-101266-A-1 SD		500.0	Level 1
83	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3104	180-101266-A-2		100.0	Level 1
84	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3105	180-101266-A-3		100.0	Level 1
85	C:\ICPMH\1\METHODS\MET_2014.m	CRI	1101	CCVL 1866890		1.000	Level 1
86	C:\ICPMH\1\METHODS\MET_2014.m	CCV	1102	CCV 1866891		1.000	Level 1
87	C:\ICPMH\1\METHODS\MET_2014.m	CCB	4	CCB 1865845		1.000	Level 1
88	C:\ICPMH\1\METHODS\MET_2014.m	6-Blank	1	RINSE (458662) File:012920B1A		1.000	Level 1
89	C:\ICPMH\1\METHODS\MET_2014.m	CalBlk	4	ICIS 1865845		Level 1	Level 1
90	C:\ICPMH\1\METHODS\MET_2014.m	CalStd	1101	IC 1866890		Level 2	Level 1
91	C:\ICPMH\1\METHODS\MET_2014.m	CalStd	1102	IC 1866891		Level 3	Level 1
92	C:\ICPMH\1\METHODS\MET_2014.m	CalStd	1103	IC 1866892		Level 4	Level 1
93	C:\ICPMH\1\METHODS\MET_2014.m	ICV	1104	ICV 1869187		1.000	Level 1
94	C:\ICPMH\1\METHODS\MET_2014.m	ICB	4	ICB 1865845		1.000	Level 1
95	C:\ICPMH\1\METHODS\MET_2014.m	CRI	1101	CRI 1866890		1.000	Level 1
96	C:\ICPMH\1\METHODS\MET_2014.m	ICSA	1105	ICSA 1867438		1.000	Level 1
97	C:\ICPMH\1\METHODS\MET_2014.m	ICSAB	1106	ICSAB 1867439		1.000	Level 1
98	C:\ICPMH\1\METHODS\MET_2014.m	CCV	1102	CCV 1866891		1.000	Level 1
99	C:\ICPMH\1\METHODS\MET_2014.m	CCB	4	CCB 1865845		1.000	Level 1

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	Method	Type	Vial	Sample	Comment	Dil/Lvl	ISTD Conc
100	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3106	MB 160-457940/1-A	457940	2.000	Level 1
101	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3107	LCS 160-457940/2-A		2.000	Level 1
102	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3108	LCSSRM 160-457940/3-A		10.00	Level 1
103	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3109	160-36943-B-37-B		2.000	Level 1
104	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3110	160-36943-B-38-B		2.000	Level 1
105	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3111	160-36943-B-39-B		2.000	Level 1
106	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3112	160-36943-B-40-B		2.000	Level 1
107	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3201	160-36943-B-40-B SD		10.00	Level 1
108	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3202	160-36943-B-40-C DU -U,Th		2.000	Level 1
109	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3203	160-36943-A-40-I MS		2.000	Level 1
110	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3204	160-36943-A-40-J MSD		2.000	Level 1
111	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3205	160-36943-B-41-B		2.000	Level 1
112	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3206	160-36943-B-42-B		2.000	Level 1
113	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3207	160-36943-B-43-B		2.000	Level 1
114	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3208	160-36943-B-44-B		2.000	Level 1
115	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3209	MB 160-457937/1-A	457937	2.000	Level 1
116	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3210	LCS 160-457937/2-A		2.000	Level 1
117	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3211	LCSSRM 160-457937/3-A		2.000	Level 1
118	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3212	160-36942-B-21-A		2.000	Level 1
119	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3301	160-36942-B-21-A SD		10.00	Level 1
120	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3302	160-36942-B-21-B MS		2.000	Level 1
121	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3303	160-36942-B-21-C MSD		2.000	Level 1
122	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3304	160-36942-B-22-A		2.000	Level 1
123	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3305	160-36942-B-23-A		2.000	Level 1
124	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3306	160-36943-B-1-A		2.000	Level 1
125	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3307	160-36943-B-2-A -U,Th		2.000	Level 1
126	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3308	160-36943-B-3-A		2.000	Level 1
127	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3309	160-36943-B-4-A		2.000	Level 1
128	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3310	160-36943-B-5-A		2.000	Level 1
129	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3311	160-36943-B-6-A		2.000	Level 1
130	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3312	160-36943-B-7-A		2.000	Level 1
131	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3401	160-36943-B-8-A		2.000	Level 1
132	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3402	160-36943-B-9-A		2.000	Level 1

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	Method	Type	Vial	Sample	Comment	Dil/Lvl	ISTD Conc
133	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3403	160-36943-B-10-A		2.000	Level 1
134	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3404	160-36943-B-11-A		2.000	Level 1
135	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3405	160-36943-B-12-A		2.000	Level 1
136	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3406	160-36943-B-13-A		2.000	Level 1
137	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3407	160-36943-B-14-A -4th		2.000	Level 1
138	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3408	160-36943-B-15-A		2.000	Level 1
139	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3409	160-36943-B-16-A		2.000	Level 1
140	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3410	160-36943-B-17-A		2.000	Level 1
141	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3411	~~MB 160-458195/1-A~~	458195	2.000	Level 1
142	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3412	LCS 160-458195/2-A		2.000	Level 1
143	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3501	LCSSRM 160-458195/3-A		10.00	Level 1
144	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3502	160-37020-A-1-A		2.000	Level 1
145	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3503	160-37020-A-1-A SD		10.00	Level 1
146	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3504	160-37020-A-1-B MS		2.000	Level 1
147	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3505	160-37020-A-1-C MSD		2.000	Level 1
148	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3506	160-37020-A-2-A		2.000	Level 1
149	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3507	160-37020-A-3-A		2.000	Level 1
150	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3508	160-37020-A-4-A		2.000	Level 1
151	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3509	160-37020-A-5-A		2.000	Level 1
152	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3510	160-37020-A-6-A		2.000	Level 1
153	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3511	160-37020-A-7-A		2.000	Level 1
154	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3512	160-37020-A-8-A		2.000	Level 1
155	C:\ICPMH\1\METHODS\MET_2014.m	Sample	4101	160-37020-A-9 LKP		2.000	Level 1
156	C:\ICPMH\1\METHODS\MET_2014.m	Sample	4102	160-37020-A-10-A 01/30/20		2.000	Level 1
157	C:\ICPMH\1\METHODS\MET_2014.m	Sample	4103	160-37020-A-11-A		2.000	Level 1
158	C:\ICPMH\1\METHODS\MET_2014.m	Sample	4104	160-37020-A-12-A		2.000	Level 1
159	C:\ICPMH\1\METHODS\MET_2014.m	Sample	4105	160-37020-A-13-A		2.000	Level 1
160	C:\ICPMH\1\METHODS\MET_2014.m	Sample	4106	160-37020-A-14-A		2.000	Level 1
161	C:\ICPMH\1\METHODS\MET_2014.m	Sample	4107	160-37020-A-15-A		2.000	Level 1
162	C:\ICPMH\1\METHODS\MET_2014.m	Sample	4108	160-37020-A-16-A		2.000	Level 1
163	C:\ICPMH\1\METHODS\MET_2014.m	Sample	4109	160-37020-A-17-A		2.000	Level 1
164	C:\ICPMH\1\METHODS\MET_2014.m	Sample	4110	160-37020-A-18-A		2.000	Level 1
165	C:\ICPMH\1\METHODS\MET_2014.m	Sample	4111	~~160-37020-A-19-A~~		2.000	Level 1

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	Method	Type	Vial	Sample	Comment	Dil/Lvl	ISTD Conc
166	C:\ICPMH\1\METHODS\MET_2014.m	Sample	4112	~~160-37020-A-20-A~~ LKP 01/30/20		2.000	Level 1
167		Keyword		End of SMPL			
168		Keyword		Start of CCV			
169	C:\ICPMH\1\METHODS\MET_2014.m	CRI	1101	CCVL 1866890		1.000	Level 1
170	C:\ICPMH\1\METHODS\MET_2014.m	CCV	1102	CCV 1866891		1.000	Level 1
171	C:\ICPMH\1\METHODS\MET_2014.m	CCB	4	CCB 1865845		1.000	Level 1
172		Keyword		End of CCV			
173		Keyword		Start of TERM			
174		Keyword					
175		Keyword		End of TERM			
176		Keyword		End of Sequence			
177		Keyword		Start of CALIB			
178		Keyword		End of CALIB			
179		Keyword		Start of BLANK			
180		Keyword		End of BLANK			
181		Keyword		Start of ERRTERM			
182		Keyword		End of ERRTERM			

GENERAL CHEMISTRY

COVER PAGE
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, St. Louis Job Number: 160-36942-1

SDG No.: 160-36942-1

Project: ACMS - Yerington OU-4b_OU-5_Soil

Client Sample ID	Lab Sample ID
WRSB208_0-0.5	160-36942-6
WRSB208_0.5-3	160-36942-7
WRSB208_3-6	160-36942-8
WRSB208_6-15	160-36942-9
WRSB208_15-25	160-36942-10
WRSB208-FD_15-25	160-36942-11
WRSB208_25-35	160-36942-12
WRSB208_35-45	160-36942-13
WRSB208_45-55	160-36942-14
WRSB208_55-65	160-36942-15
WRSB208_65-75	160-36942-16
WRSB208-FD_65-75	160-36942-17
WRSB208_75-85	160-36942-18
WRSB208_85-95	160-36942-19
WRSB208_95-105	160-36942-20
WRSB208_105-115	160-36942-21
WRSB208_115-125	160-36942-22
WRSB208_125-131.5	160-36942-23

Comments:

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, St. Louis Job Number: 160-36942-1

SDG Number: 160-36942-1

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: 160-36942-1

SDG Number: 160-36942-1

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.: 160-36942-1

SDG No.: 160-36942-1

Instrument ID: NOEQUIP Analysis Method: Moisture

Start Date: 01/13/2020 09:00 End Date: 01/13/2020 09:02

Lab Sample Id	D/F	Type	Time	% Sol	Moist	Analytes
160-36942-21	1	T	09:00	X	X	
160-36942-21 DU	1	T	09:00	X	X	
160-36942-22	1	T	09:00	X	X	
160-36942-23	1	T	09:00	X	X	
ZZZZZZ			09:00			
ZZZZZZ			09:00			
ZZZZZZ			09:00			
ZZZZZZ			09:00			
ZZZZZZ			09:00			
ZZZZZZ			09:00			
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ZZZZZZ			09:00			
ZZZZZZ			09:00			
ZZZZZZ			09:00			
ZZZZZZ			09:00			
ZZZZZZ			09:00			
ZZZZZZ			09:02			

Prep Types:
T = Total/NA

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-1

SDG No.: 160-36942-1

Instrument ID: NOEQUIP Analysis Method: Moisture

Start Date: 01/15/2020 08:32 End Date: 01/15/2020 08:32

Lab Sample Id	D/F	Type	Time	% Sol	Moist	Analytes
ZZZZZZ			08:32			
160-36942-B-1 DU	1	T	08:32	X	X	
ZZZZZZ			08:32			
ZZZZZZ			08:32			
ZZZZZZ			08:32			
ZZZZZZ			08:32			
160-36942-6	1	T	08:32	X	X	
160-36942-7	1	T	08:32	X	X	
160-36942-8	1	T	08:32	X	X	
160-36942-9	1	T	08:32	X	X	
160-36942-10	1	T	08:32	X	X	
160-36942-11	1	T	08:32	X	X	
160-36942-12	1	T	08:32	X	X	
160-36942-13	1	T	08:32	X	X	
160-36942-14	1	T	08:32	X	X	
160-36942-15	1	T	08:32	X	X	
160-36942-16	1	T	08:32	X	X	
160-36942-17	1	T	08:32	X	X	
160-36942-18	1	T	08:32	X	X	
160-36942-19	1	T	08:32	X	X	
160-36942-20	1	T	08:32	X	X	

Prep Types:
T = Total/NA

FORM XIII-IN

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 456585 Batch Start Date: 01/13/20 09:00 Batch Analyst: Cates, Samuel E

Batch Method: Moisture Batch End Date: 01/14/20 07:25

Lab Sample ID	Client Sample ID	Method Chain	Basis	DishWeight	SampleMassWet	SampleMassDry	
160-36942-B-21	WRSB208_105-115	Moisture	T	1.0648 g	11.0724 g	10.5895 g	95.2%
160-36942-B-21 DU	WRSB208_105-115	Moisture	T	1.0617 g	11.0508 g	10.6206 g	
160-36942-B-22	WRSB208_115-125	Moisture	T	1.1041 g	11.0956 g	10.6613 g	95.7%
160-36942-B-23	WRSB208_125-131.5	Moisture	T	1.0690 g	11.6809 g	11.3390 g	

Batch Notes	
Balance ID	0034150065
Date samples were placed in the oven	01/13/2020
Oven Temp In	104 Degrees C
Time samples were place in the oven	09:50
Date samples were removed from oven	01/14/2020
Oven Temp Out	104 Degrees C
Time Samples were removed from oven	06:10
Oven ID	OC
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.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 456781 Batch Start Date: 01/15/20 08:32 Batch Analyst: Domalewski, Ryan J

Batch Method: Moisture Batch End Date: 01/16/20 06:52

Lab Sample ID	Client Sample ID	Method Chain	Basis	DishWeight	SampleMassWet	SampleMassDry	
160-36942-B-1 DU		Moisture	T	1.0664 g	11.2347 g	10.6998 g	
160-36942-B-6	WRSB208_0-0.5	Moisture	T	1.0659 g	11.4238 g	10.9460 g	95.4
160-36942-B-7	WRSB208_0.5-3	Moisture	T	1.0630 g	11.4572 g	11.0332 g	
160-36942-B-8	WRSB208_3-6	Moisture	T	1.0663 g	11.0709 g	10.6766 g	
160-36942-B-9	WRSB208_6-15	Moisture	T	1.0671 g	11.1583 g	10.7683 g	
160-36942-B-10	WRSB208_15-25	Moisture	T	1.0783 g	11.2404 g	10.8561 g	96.2
160-36942-B-11	WRSB208-FD_15-25	Moisture	T	1.0564 g	11.2388 g	10.8357 g	
160-36942-B-12	WRSB208_25-35	Moisture	T	1.0689 g	11.4047 g	11.0336 g	
160-36942-B-13	WRSB208_35-45	Moisture	T	1.0681 g	11.6476 g	11.3334 g	
160-36942-B-14	WRSB208_45-55	Moisture	T	1.0572 g	11.1852 g	10.6710 g	
160-36942-B-15	WRSB208_55-65	Moisture	T	1.0689 g	11.2361 g	10.8047 g	95.8
160-36942-B-16	WRSB208_65-75	Moisture	T	1.0654 g	11.7967 g	11.2851 g	95.2
160-36942-B-17	WRSB208-FD_65-75	Moisture	T	1.0513 g	11.2301 g	10.7207 g	
160-36942-B-18	WRSB208_75-85	Moisture	T	1.0510 g	11.8132 g	11.1709 g	
160-36942-B-19	WRSB208_85-95	Moisture	T	1.0512 g	11.7328 g	11.0949 g	
160-36942-B-20	WRSB208_95-105	Moisture	T	1.0698 g	11.3456 g	10.7260 g	

Batch Notes	
Balance ID	1119252511
Date samples were placed in the oven	01/15/2020
Oven Temp In	103 Degrees C
Time samples were place in the oven	09:21
Date samples were removed from oven	01/16/2020
Oven Temp Out	101 Degrees C
Time Samples were removed from oven	06:20
Oven ID	OC
Thermometer ID	A142186

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.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 456781 Batch Start Date: 01/15/20 08:32 Batch Analyst: Domalewski, Ryan J

Batch Method: Moisture Batch End Date: 01/16/20 06:52

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.

Sample Report

Sample Name	160-36942-B-6-A
Data File Name	113SMPL.D
DataPath	C:\ICPMH\1\DATA\012820B1.B
Acq Date Time	2020-01-29T04:11:33-06:00
Type	Sample
VialNumber	3301
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	072CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	34.58997	69.17993	ug/l	1000	Li	
Be	9	6	3	2.61076	5.22152	ug/l	1000	Be	
B	11	6	3	18.88265	37.76529	ug/l	2000	B	
Na	23	45	2	2771.25401	5542.50802	ug/l	50000	Na	
Mg	24	45	2	13727.83524	27455.67047	ug/l	50000	Mg	
Al	27	45	2	30649.49437	61298.98874	ug/l	100000	Al	
P	31	45	2	2255.97324	4511.94648	ug/l	100000	P	
K	39	45	2	6492.71540	12985.43081	ug/l	100000	K	
Ca	44	45	3	30779.15043	61558.30086	ug/l	100000	Ca	
Ti	47	45	3	1079.11341	2158.22682	ug/l	2000	Ti	
V	51	45	2	110.46911	220.93822	ug/l	2000	V	
Cr	52	45	2	22.26365	44.52730	ug/l	2000	Cr	
Mn	55	72	2	1029.27140	2058.54280	ug/l	5000	Mn	
Fe	57	72	2	63718.26383	127436.52767	ug/l	100000	Fe	
Co	59	72	2	20.13543	40.27086	ug/l	2000	Co	
Ni	60	72	2	28.45912	56.91824	ug/l	2000	Ni	
Cu	63	72	2	324.07113	648.14226	ug/l	2000	Cu	
Zn	66	72	2	102.64829	205.29657	ug/l	5000	Zn	
As	75	72	2	30.30462	60.60925	ug/l	2000	As	
Se	78	72	2	3.86028	7.72056	ug/l	1000	Se	
Sr	88	72	3	758.19222	1516.38443	ug/l	2000	Sr	
Y	89	72	2	21.84125	43.68250	ug/l	200	Y	
Zr	90	72	2	33.73125	67.46250	ug/l	2000	Zr	
Nb	93	72	2	0.77242	1.54485	ug/l	100	Nb	
Mo	95	72	3	4.68735	9.37469	ug/l	1000	Mo	
Ru	101	72	2	-0.01562	-0.03125	ug/l	200	Ru	
Rh	103	72	2	-0.01300	-0.02601	ug/l	200	Rh	
Pd	105	72	2	0.04660	0.09320	ug/l	20	Pd	
Ag	107	115	3	0.11545	0.23091	ug/l	400	Ag	
Cd	111	115	3	0.17490	0.34980	ug/l	2000	Cd	
Sn	118	115	3	8.14254	16.28508	ug/l	2000	Sn	
Sb	121	115	3	0.96800	1.93600	ug/l	1000	Sb	
Te	125	165	2	0.57935	1.15870	ug/l	200	Te	
Cs	133	165	2	7.90498	15.80996	ug/l	2000	Cs	
Ba	137	165	3	1011.85479	2023.70958	ug/l	5000	Ba	
La	139	165	2	67.79887	135.59774	ug/l	200	La	
Ce	140	165	2	129.02817	258.05635	ug/l	200	Ce	
Pr	141	165	2	13.96190	27.92381	ug/l	200	Pr	
Nd	146	165	2	51.21644	102.43287	ug/l	200	Nd	
Sm	147	165	3	8.83588	17.67177	ug/l	2000	Sm	
Hf	178	165	2	0.94220	1.88440	ug/l	200	Hf	
Ta	181	165	2	0.02461	0.04923	ug/l	200	Ta	
W	182	165	2	4.30374	8.60749	ug/l	2000	W	
Re	185	193	3	-0.01008	-0.02016	ug/l	200	Re	
Pt	195	193	2	0.00708	0.01415	ug/l	200	Pt	
Au	197	193	3	-0.03775	-0.07551	ug/l	2000	Au	
Tl	205	193	3	0.35660	0.71319	ug/l	400	Tl	
Pb	208	193	3	16.56982	33.13964	ug/l	5000	Pb	
Bi	209	193	2	0.90829	1.81658	ug/l	2000	Bi	
Th	232	193	3	47.82963	95.65927	ug/l	2000	Th	
U	238	193	3	5.44088	10.88175	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5678886	0.49	6074310	93.5	80	120	Li (IS)	
Sc (IS)	45	2	206519	1.06	180614	114.3	80	120	Sc (IS)	
Sc (IS)	45	3	4014566	0.66	3261875	123.1	80	120	Sc (IS)	FAILED
Ge (IS)	72	2	392297	1.25	380448	103.1	80	120	Ge (IS)	
Ge (IS)	72	3	2495812	0.51	2329877	107.1	80	120	Ge (IS)	
In (IS)	115	3	14715597	0.85	14581735	100.9	80	120	In (IS)	
Ho (IS)	165	2	10467129	1.54	10848635	96.5	80	120	Ho (IS)	
Ho (IS)	165	3	17085815	0.29	16597373	102.9	80	120	Ho (IS)	
Ir (IS)	193	2	6739610	1.10	7388306	91.2	80	120	Ir (IS)	
Ir (IS)	193	3	8294423	0.53	8451056	98.1	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Report

Sample Name	160-36942-B-7-A
Data File Name	114SMPL.D
DataPath	C:\ICPMH\1\DATA\012820B1.B
Acq Date Time	2020-01-29T04:18:17-06:00
Type	Sample
VialNumber	3302
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	072CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	31.19603	62.39205	ug/l	1000	Li	
Be	9	6	3	1.92164	3.84328	ug/l	1000	Be	
B	11	6	3	19.06501	38.13002	ug/l	2000	B	
Na	23	45	2	2614.88943	5229.77887	ug/l	50000	Na	
Mg	24	45	2	12179.04084	24358.08168	ug/l	50000	Mg	
Al	27	45	2	26887.59513	53775.19026	ug/l	100000	Al	
P	31	45	2	2069.38442	4138.76885	ug/l	100000	P	
K	39	45	2	5216.40375	10432.80750	ug/l	100000	K	
Ca	44	45	3	26042.07743	52084.15486	ug/l	100000	Ca	
Ti	47	45	3	1159.47888	2318.95777	ug/l	2000	Ti	
V	51	45	2	120.05513	240.11025	ug/l	2000	V	
Cr	52	45	2	23.89282	47.78565	ug/l	2000	Cr	
Mn	55	72	2	1115.21347	2230.42694	ug/l	5000	Mn	
Fe	57	72	2	55298.54689	110597.09379	ug/l	100000	Fe	
Co	59	72	2	20.30929	40.61858	ug/l	2000	Co	
Ni	60	72	2	24.84082	49.68165	ug/l	2000	Ni	
Cu	63	72	2	295.32876	590.65753	ug/l	2000	Cu	
Zn	66	72	2	112.41570	224.83141	ug/l	5000	Zn	
As	75	72	2	24.94356	49.88713	ug/l	2000	As	
Se	78	72	2	3.78212	7.56423	ug/l	1000	Se	
Sr	88	72	3	355.62625	711.25249	ug/l	2000	Sr	
Y	89	72	2	24.93059	49.86117	ug/l	200	Y	
Zr	90	72	2	37.99135	75.98269	ug/l	2000	Zr	
Nb	93	72	2	0.92073	1.84145	ug/l	100	Nb	
Mo	95	72	3	2.13706	4.27411	ug/l	1000	Mo	
Ru	101	72	2	-0.01286	-0.02573	ug/l	200	Ru	
Rh	103	72	2	-0.01382	-0.02765	ug/l	200	Rh	
Pd	105	72	2	0.03366	0.06732	ug/l	20	Pd	
Ag	107	115	3	0.08277	0.16554	ug/l	400	Ag	
Cd	111	115	3	0.15610	0.31221	ug/l	2000	Cd	
Sn	118	115	3	8.48211	16.96422	ug/l	2000	Sn	
Sb	121	115	3	1.06497	2.12993	ug/l	1000	Sb	
Te	125	165	2	0.17368	0.34737	ug/l	200	Te	
Cs	133	165	2	8.40050	16.80101	ug/l	2000	Cs	
Ba	137	165	3	439.76441	879.52881	ug/l	5000	Ba	
La	139	165	2	71.77634	143.55267	ug/l	200	La	
Ce	140	165	2	143.59047	287.18093	ug/l	200	Ce	
Pr	141	165	2	16.12901	32.25803	ug/l	200	Pr	
Nd	146	165	2	60.90023	121.80047	ug/l	200	Nd	
Sm	147	165	3	10.43882	20.87764	ug/l	2000	Sm	
Hf	178	165	2	1.05594	2.11189	ug/l	200	Hf	
Ta	181	165	2	0.04899	0.09797	ug/l	200	Ta	
W	182	165	2	3.56698	7.13395	ug/l	2000	W	
Re	185	193	3	-0.00961	-0.01922	ug/l	200	Re	
Pt	195	193	2	0.00786	0.01573	ug/l	200	Pt	
Au	197	193	3	-0.03893	-0.07787	ug/l	2000	Au	
Tl	205	193	3	0.33667	0.67334	ug/l	400	Tl	
Pb	208	193	3	18.31457	36.62914	ug/l	5000	Pb	
Bi	209	193	2	0.71622	1.43244	ug/l	2000	Bi	
Th	232	193	3	34.18860	68.37719	ug/l	2000	Th	
U	238	193	3	5.31963	10.63926	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5726947	0.99	6074310	94.3	80	120	Li (IS)	
Sc (IS)	45	2	208106	3.27	180614	115.2	80	120	Sc (IS)	
Sc (IS)	45	3	3999443	0.49	3261875	122.6	80	120	Sc (IS)	FAILED
Ge (IS)	72	2	391574	2.47	380448	102.9	80	120	Ge (IS)	
Ge (IS)	72	3	2486473	0.12	2329877	106.7	80	120	Ge (IS)	
In (IS)	115	3	14784377	0.70	14581735	101.4	80	120	In (IS)	
Ho (IS)	165	2	10501783	3.16	10848635	96.8	80	120	Ho (IS)	
Ho (IS)	165	3	17036273	0.72	16597373	102.6	80	120	Ho (IS)	
Ir (IS)	193	2	6784401	3.74	7388306	91.8	80	120	Ir (IS)	
Ir (IS)	193	3	8302258	1.12	8451056	98.2	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Name	160-36942-B-8-A
Data File Name	115SMPL.D
DataPath	C:\ICPMH\1\DATA\012820B1.B
Acq Date Time	2020-01-29T04:25:02-06:00
Type	Sample
VialNumber	3303
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	072CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	27.99107	55.98214	ug/l	1000	Li	
Be	9	6	3	1.81018	3.62035	ug/l	1000	Be	
B	11	6	3	18.09519	36.19037	ug/l	2000	B	
Na	23	45	2	2165.17239	4330.34478	ug/l	50000	Na	
Mg	24	45	2	12821.97259	25643.94518	ug/l	50000	Mg	
Al	27	45	2	23940.66985	47881.33970	ug/l	100000	Al	
P	31	45	2	2088.36572	4176.73144	ug/l	100000	P	
K	39	45	2	4260.68667	8521.37333	ug/l	100000	K	
Ca	44	45	3	21974.21419	43948.42837	ug/l	100000	Ca	
Ti	47	45	3	1149.02144	2298.04288	ug/l	2000	Ti	
V	51	45	2	111.67152	223.34304	ug/l	2000	V	
Cr	52	45	2	21.03600	42.07200	ug/l	2000	Cr	
Mn	55	72	2	899.02606	1798.05213	ug/l	5000	Mn	
Fe	57	72	2	49183.42996	98366.85992	ug/l	100000	Fe	
Co	59	72	2	16.66449	33.32897	ug/l	2000	Co	
Ni	60	72	2	23.48277	46.96554	ug/l	2000	Ni	
Cu	63	72	2	248.68340	497.36679	ug/l	2000	Cu	
Zn	66	72	2	99.78139	199.56278	ug/l	5000	Zn	
As	75	72	2	20.44033	40.88067	ug/l	2000	As	
Se	78	72	2	3.23245	6.46490	ug/l	1000	Se	
Sr	88	72	3	243.22017	486.44035	ug/l	2000	Sr	
Y	89	72	2	21.81870	43.63739	ug/l	200	Y	
Zr	90	72	2	34.04255	68.08509	ug/l	2000	Zr	
Nb	93	72	2	0.95834	1.91668	ug/l	100	Nb	
Mo	95	72	3	1.70833	3.41666	ug/l	1000	Mo	
Ru	101	72	2	-0.01461	-0.02922	ug/l	200	Ru	
Rh	103	72	2	-0.01337	-0.02674	ug/l	200	Rh	
Pd	105	72	2	0.02835	0.05670	ug/l	20	Pd	
Ag	107	115	3	0.07179	0.14357	ug/l	400	Ag	
Cd	111	115	3	0.14730	0.29461	ug/l	2000	Cd	
Sn	118	115	3	8.32254	16.64507	ug/l	2000	Sn	
Sb	121	115	3	0.86699	1.73398	ug/l	1000	Sb	
Te	125	165	2	0.15120	0.30241	ug/l	200	Te	
Cs	133	165	2	7.55845	15.11691	ug/l	2000	Cs	
Ba	137	165	3	345.01518	690.03037	ug/l	5000	Ba	
La	139	165	2	64.44014	128.88028	ug/l	200	La	
Ce	140	165	2	126.18901	252.37802	ug/l	200	Ce	
Pr	141	165	2	14.00794	28.01589	ug/l	200	Pr	
Nd	146	165	2	52.09624	104.19248	ug/l	200	Nd	
Sm	147	165	3	9.19463	18.38926	ug/l	2000	Sm	
Hf	178	165	2	0.97187	1.94374	ug/l	200	Hf	
Ta	181	165	2	0.06680	0.13359	ug/l	200	Ta	
W	182	165	2	2.42885	4.85771	ug/l	2000	W	
Re	185	193	3	-0.00987	-0.01974	ug/l	200	Re	
Pt	195	193	2	0.00553	0.01105	ug/l	200	Pt	
Au	197	193	3	-0.04194	-0.08389	ug/l	2000	Au	
Tl	205	193	3	0.29338	0.58676	ug/l	400	Tl	
Pb	208	193	3	18.14140	36.28279	ug/l	5000	Pb	
Bi	209	193	2	0.51835	1.03669	ug/l	2000	Bi	
Th	232	193	3	27.33394	54.66788	ug/l	2000	Th	
U	238	193	3	4.64023	9.28047	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5746784	0.43	6074310	94.6	80	120	Li (IS)	
Sc (IS)	45	2	208185	2.74	180614	115.3	80	120	Sc (IS)	
Sc (IS)	45	3	4037708	0.24	3261875	123.8	80	120	Sc (IS)	FAILED
Ge (IS)	72	2	391641	2.18	380448	102.9	80	120	Ge (IS)	
Ge (IS)	72	3	2509103	0.56	2329877	107.7	80	120	Ge (IS)	
In (IS)	115	3	14822721	1.23	14581735	101.7	80	120	In (IS)	
Ho (IS)	165	2	10569864	3.84	10848635	97.4	80	120	Ho (IS)	
Ho (IS)	165	3	17192739	0.73	16597373	103.6	80	120	Ho (IS)	
Ir (IS)	193	2	6871991	3.47	7388306	93.0	80	120	Ir (IS)	
Ir (IS)	193	3	8393459	0.62	8451056	99.3	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Report

Sample Name	160-36942-B-9-A
Data File Name	116SMPL.D
DataPath	C:\ICPMH\1\DATA\012820B1.B
Acq Date Time	2020-01-29T04:31:46-06:00
Type	Sample
VialNumber	3304
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	072CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	31.50131	63.00261	ug/l	1000	Li	
Be	9	6	3	2.03576	4.07151	ug/l	1000	Be	
B	11	6	3	22.09944	44.19889	ug/l	2000	B	
Na	23	45	2	2238.23535	4476.47070	ug/l	50000	Na	
Mg	24	45	2	12732.06025	25464.12050	ug/l	50000	Mg	
Al	27	45	2	27343.42501	54686.85002	ug/l	100000	Al	
P	31	45	2	1986.80396	3973.60791	ug/l	100000	P	
K	39	45	2	4822.12758	9644.25516	ug/l	100000	K	
Ca	44	45	3	27933.14250	55866.28501	ug/l	100000	Ca	
Ti	47	45	3	1115.41899	2230.83799	ug/l	2000	Ti	
V	51	45	2	120.60295	241.20590	ug/l	2000	V	
Cr	52	45	2	24.14838	48.29676	ug/l	2000	Cr	
Mn	55	72	2	1101.24083	2202.48166	ug/l	5000	Mn	
Fe	57	72	2	56705.36608	113410.73215	ug/l	100000	Fe	
Co	59	72	2	23.33099	46.66199	ug/l	2000	Co	
Ni	60	72	2	25.70926	51.41852	ug/l	2000	Ni	
Cu	63	72	2	299.72739	599.45478	ug/l	2000	Cu	
Zn	66	72	2	112.61280	225.22560	ug/l	5000	Zn	
As	75	72	2	24.71333	49.42667	ug/l	2000	As	
Se	78	72	2	3.26197	6.52393	ug/l	1000	Se	
Sr	88	72	3	306.99380	613.98761	ug/l	2000	Sr	
Y	89	72	2	25.14692	50.29385	ug/l	200	Y	
Zr	90	72	2	39.47718	78.95436	ug/l	2000	Zr	
Nb	93	72	2	0.86658	1.73316	ug/l	100	Nb	
Mo	95	72	3	2.38698	4.77395	ug/l	1000	Mo	
Ru	101	72	2	-0.01395	-0.02790	ug/l	200	Ru	
Rh	103	72	2	-0.01327	-0.02654	ug/l	200	Rh	
Pd	105	72	2	0.03210	0.06421	ug/l	20	Pd	
Ag	107	115	3	0.07726	0.15451	ug/l	400	Ag	
Cd	111	115	3	0.18367	0.36734	ug/l	2000	Cd	
Sn	118	115	3	8.51070	17.02141	ug/l	2000	Sn	
Sb	121	115	3	0.86039	1.72079	ug/l	1000	Sb	
Te	125	165	2	0.12162	0.24323	ug/l	200	Te	
Cs	133	165	2	8.69118	17.38235	ug/l	2000	Cs	
Ba	137	165	3	350.25586	700.51172	ug/l	5000	Ba	
La	139	165	2	64.89038	129.78077	ug/l	200	La	
Ce	140	165	2	135.75035	271.50070	ug/l	200	Ce	
Pr	141	165	2	14.89243	29.78486	ug/l	200	Pr	
Nd	146	165	2	56.43047	112.86093	ug/l	200	Nd	
Sm	147	165	3	10.12308	20.24616	ug/l	2000	Sm	
Hf	178	165	2	1.06821	2.13643	ug/l	200	Hf	
Ta	181	165	2	0.02064	0.04127	ug/l	200	Ta	
W	182	165	2	2.77412	5.54823	ug/l	2000	W	
Re	185	193	3	-0.00955	-0.01910	ug/l	200	Re	
Pt	195	193	2	0.00587	0.01174	ug/l	200	Pt	
Au	197	193	3	-0.04380	-0.08760	ug/l	2000	Au	
Tl	205	193	3	0.33231	0.66463	ug/l	400	Tl	
Pb	208	193	3	18.04316	36.08632	ug/l	5000	Pb	
Bi	209	193	2	0.56683	1.13367	ug/l	2000	Bi	
Th	232	193	3	41.72809	83.45617	ug/l	2000	Th	
U	238	193	3	6.34687	12.69374	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5640859	1.72	6074310	92.9	80	120	Li (IS)	
Sc (IS)	45	2	211695	1.78	180614	117.2	80	120	Sc (IS)	
Sc (IS)	45	3	4039714	1.44	3261875	123.8	80	120	Sc (IS)	FAILED
Ge (IS)	72	2	388733	0.38	380448	102.2	80	120	Ge (IS)	
Ge (IS)	72	3	2449644	0.55	2329877	105.1	80	120	Ge (IS)	
In (IS)	115	3	14559851	0.85	14581735	99.8	80	120	In (IS)	
Ho (IS)	165	2	10508369	0.64	10848635	96.9	80	120	Ho (IS)	
Ho (IS)	165	3	16791518	0.89	16597373	101.2	80	120	Ho (IS)	
Ir (IS)	193	2	6740141	1.29	7388306	91.2	80	120	Ir (IS)	
Ir (IS)	193	3	8190026	0.81	8451056	96.9	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Report

Sample Name	160-36942-B-10-A
Data File Name	117SMPL.D
DataPath	C:\ICPMH\1\DATA\012820B1.B
Acq Date Time	2020-01-29T04:38:31-06:00
Type	Sample
VialNumber	3305
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	072CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	34.84751	69.69502	ug/l	1000	Li	
Be	9	6	3	2.14312	4.28624	ug/l	1000	Be	
B	11	6	3	24.22367	48.44735	ug/l	2000	B	
Na	23	45	2	2371.18819	4742.37638	ug/l	50000	Na	
Mg	24	45	2	14683.08930	29366.17861	ug/l	50000	Mg	
Al	27	45	2	29928.65086	59857.30173	ug/l	100000	Al	
P	31	45	2	2203.87987	4407.75974	ug/l	100000	P	
K	39	45	2	5554.81785	11109.63570	ug/l	100000	K	
Ca	44	45	3	31369.37850	62738.75700	ug/l	100000	Ca	
Ti	47	45	3	1239.58426	2479.16852	ug/l	2000	Ti	
V	51	45	2	135.73121	271.46242	ug/l	2000	V	
Cr	52	45	2	27.36887	54.73774	ug/l	2000	Cr	
Mn	55	72	2	1194.91663	2389.83326	ug/l	5000	Mn	
Fe	57	72	2	63754.81958	127509.63916	ug/l	100000	Fe	
Co	59	72	2	22.50512	45.01024	ug/l	2000	Co	
Ni	60	72	2	28.60574	57.21149	ug/l	2000	Ni	
Cu	63	72	2	517.63299	1035.26598	ug/l	2000	Cu	
Zn	66	72	2	115.24871	230.49742	ug/l	5000	Zn	
As	75	72	2	28.25384	56.50768	ug/l	2000	As	
Se	78	72	2	3.20152	6.40304	ug/l	1000	Se	
Sr	88	72	3	319.45610	638.91220	ug/l	2000	Sr	
Y	89	72	2	22.63309	45.26618	ug/l	200	Y	
Zr	90	72	2	38.48251	76.96502	ug/l	2000	Zr	
Nb	93	72	2	0.75914	1.51828	ug/l	100	Nb	
Mo	95	72	3	5.36680	10.73361	ug/l	1000	Mo	
Ru	101	72	2	-0.01430	-0.02859	ug/l	200	Ru	
Rh	103	72	2	-0.01397	-0.02793	ug/l	200	Rh	
Pd	105	72	2	0.02579	0.05159	ug/l	20	Pd	
Ag	107	115	3	0.09035	0.18070	ug/l	400	Ag	
Cd	111	115	3	0.19515	0.39031	ug/l	2000	Cd	
Sn	118	115	3	8.36750	16.73500	ug/l	2000	Sn	
Sb	121	115	3	1.10775	2.21551	ug/l	1000	Sb	
Te	125	165	2	0.18436	0.36873	ug/l	200	Te	
Cs	133	165	2	8.77325	17.54649	ug/l	2000	Cs	
Ba	137	165	3	444.95897	889.91793	ug/l	5000	Ba	
La	139	165	2	63.01691	126.03382	ug/l	200	La	
Ce	140	165	2	129.81639	259.63277	ug/l	200	Ce	
Pr	141	165	2	13.86588	27.73177	ug/l	200	Pr	
Nd	146	165	2	52.21245	104.42490	ug/l	200	Nd	
Sm	147	165	3	9.17717	18.35433	ug/l	2000	Sm	
Hf	178	165	2	1.04969	2.09938	ug/l	200	Hf	
Ta	181	165	2	0.02174	0.04347	ug/l	200	Ta	
W	182	165	2	3.44212	6.88423	ug/l	2000	W	
Re	185	193	3	-0.00928	-0.01857	ug/l	200	Re	
Pt	195	193	2	0.00536	0.01072	ug/l	200	Pt	
Au	197	193	3	-0.04032	-0.08064	ug/l	2000	Au	
Tl	205	193	3	0.41280	0.82559	ug/l	400	Tl	
Pb	208	193	3	30.59549	61.19097	ug/l	5000	Pb	
Bi	209	193	2	0.69334	1.38668	ug/l	2000	Bi	
Th	232	193	3	30.48572	60.97145	ug/l	2000	Th	
U	238	193	3	7.14813	14.29626	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5737643	0.80	6074310	94.5	80	120	Li (IS)	
Sc (IS)	45	2	212270	0.83	180614	117.5	80	120	Sc (IS)	
Sc (IS)	45	3	4145578	0.63	3261875	127.1	80	120	Sc (IS)	FAILED
Ge (IS)	72	2	401590	0.35	380448	105.6	80	120	Ge (IS)	
Ge (IS)	72	3	2530032	1.52	2329877	108.6	80	120	Ge (IS)	
In (IS)	115	3	14831886	0.76	14581735	101.7	80	120	In (IS)	
Ho (IS)	165	2	10588979	1.27	10848635	97.6	80	120	Ho (IS)	
Ho (IS)	165	3	17237898	1.06	16597373	103.9	80	120	Ho (IS)	
Ir (IS)	193	2	6744324	1.75	7388306	91.3	80	120	Ir (IS)	
Ir (IS)	193	3	8297454	0.67	8451056	98.2	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Report

Sample Name	160-36942-B-11-A
Data File Name	118SMPL.D
DataPath	C:\ICPMH\1\DATA\012820B1.B
Acq Date Time	2020-01-29T04:45:14-06:00
Type	Sample
VialNumber	3306
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	072CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	32.45719	64.91437	ug/l	1000	Li	
Be	9	6	3	2.11643	4.23286	ug/l	1000	Be	
B	11	6	3	23.06459	46.12917	ug/l	2000	B	
Na	23	45	2	2323.71703	4647.43406	ug/l	50000	Na	
Mg	24	45	2	14146.66954	28293.33909	ug/l	50000	Mg	
Al	27	45	2	28853.93166	57707.86332	ug/l	100000	Al	
P	31	45	2	2087.57163	4175.14325	ug/l	100000	P	
K	39	45	2	5379.71273	10759.42545	ug/l	100000	K	
Ca	44	45	3	27874.26011	55748.52022	ug/l	100000	Ca	
Ti	47	45	3	1091.11903	2182.23806	ug/l	2000	Ti	
V	51	45	2	135.98724	271.97449	ug/l	2000	V	
Cr	52	45	2	28.93854	57.87708	ug/l	2000	Cr	
Mn	55	72	2	1481.61304	2963.22608	ug/l	5000	Mn	
Fe	57	72	2	65843.73869	131687.47739	ug/l	100000	Fe	
Co	59	72	2	26.16909	52.33817	ug/l	2000	Co	
Ni	60	72	2	28.99247	57.98494	ug/l	2000	Ni	
Cu	63	72	2	647.02290	1294.04580	ug/l	2000	Cu	
Zn	66	72	2	113.17239	226.34478	ug/l	5000	Zn	
As	75	72	2	31.84309	63.68617	ug/l	2000	As	
Se	78	72	2	4.08633	8.17265	ug/l	1000	Se	
Sr	88	72	3	307.78303	615.56607	ug/l	2000	Sr	
Y	89	72	2	22.25659	44.51318	ug/l	200	Y	
Zr	90	72	2	36.85441	73.70883	ug/l	2000	Zr	
Nb	93	72	2	0.79140	1.58280	ug/l	100	Nb	
Mo	95	72	3	5.87408	11.74816	ug/l	1000	Mo	
Ru	101	72	2	-0.01533	-0.03066	ug/l	200	Ru	
Rh	103	72	2	-0.01247	-0.02494	ug/l	200	Rh	
Pd	105	72	2	0.02937	0.05875	ug/l	20	Pd	
Ag	107	115	3	0.08426	0.16851	ug/l	400	Ag	
Cd	111	115	3	0.19354	0.38709	ug/l	2000	Cd	
Sn	118	115	3	8.02872	16.05744	ug/l	2000	Sn	
Sb	121	115	3	1.16094	2.32189	ug/l	1000	Sb	
Te	125	165	2	0.12476	0.24952	ug/l	200	Te	
Cs	133	165	2	8.20047	16.40094	ug/l	2000	Cs	
Ba	137	165	3	437.39077	874.78155	ug/l	5000	Ba	
La	139	165	2	58.67340	117.34680	ug/l	200	La	
Ce	140	165	2	132.64258	265.28517	ug/l	200	Ce	
Pr	141	165	2	13.08442	26.16883	ug/l	200	Pr	
Nd	146	165	2	49.33177	98.66354	ug/l	200	Nd	
Sm	147	165	3	8.96667	17.93333	ug/l	2000	Sm	
Hf	178	165	2	0.99429	1.98859	ug/l	200	Hf	
Ta	181	165	2	0.00696	0.01392	ug/l	200	Ta	
W	182	165	2	3.77064	7.54129	ug/l	2000	W	
Re	185	193	3	-0.00954	-0.01908	ug/l	200	Re	
Pt	195	193	2	0.00453	0.00905	ug/l	200	Pt	
Au	197	193	3	-0.04181	-0.08362	ug/l	2000	Au	
Tl	205	193	3	0.44984	0.89969	ug/l	400	Tl	
Pb	208	193	3	35.01775	70.03549	ug/l	5000	Pb	
Bi	209	193	2	0.67679	1.35359	ug/l	2000	Bi	
Th	232	193	3	30.33315	60.66630	ug/l	2000	Th	
U	238	193	3	7.63746	15.27492	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5730817	0.17	6074310	94.3	80	120	Li (IS)	
Sc (IS)	45	2	209910	0.84	180614	116.2	80	120	Sc (IS)	
Sc (IS)	45	3	4072027	0.21	3261875	124.8	80	120	Sc (IS)	FAILED
Ge (IS)	72	2	389422	0.97	380448	102.4	80	120	Ge (IS)	
Ge (IS)	72	3	2507870	0.20	2329877	107.6	80	120	Ge (IS)	
In (IS)	115	3	14941786	0.33	14581735	102.5	80	120	In (IS)	
Ho (IS)	165	2	10573365	0.43	10848635	97.5	80	120	Ho (IS)	
Ho (IS)	165	3	17161232	1.08	16597375	103.4	80	120	Ho (IS)	
Ir (IS)	193	2	6729188	0.81	7388316	91.1	80	120	Ir (IS)	
Ir (IS)	193	3	8354679	0.84	8451056	98.9	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
5	nogas.u

Sample Report

Sample Name	160-36942-B-12-A
Data File Name	122SMPL.D
DataPath	C:\ICPMH\1\DATA\012820B1.B
Acq Date Time	2020-01-29T05:12:11-06:00
Type	Sample
VialNumber	3307
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	072CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	34.31802	68.63604	ug/l	1000	Li	
Be	9	6	3	2.21318	4.42636	ug/l	1000	Be	
B	11	6	3	28.56246	57.12493	ug/l	2000	B	
Na	23	45	2	2875.87822	5751.75644	ug/l	50000	Na	
Mg	24	45	2	14445.77623	28891.55247	ug/l	50000	Mg	
Al	27	45	2	32138.36094	64276.72188	ug/l	100000	Al	
P	31	45	2	2256.33132	4512.66264	ug/l	100000	P	
K	39	45	2	6280.05535	12560.11069	ug/l	100000	K	
Ca	44	45	3	26861.95168	53723.90335	ug/l	100000	Ca	
Ti	47	45	3	1331.24987	2662.49973	ug/l	2000	Ti	
V	51	45	2	139.00749	278.01499	ug/l	2000	V	
Cr	52	45	2	40.54162	81.08324	ug/l	2000	Cr	
Mn	55	72	2	1499.55244	2999.10487	ug/l	5000	Mn	
Fe	57	72	2	71753.30125	143506.60250	ug/l	100000	Fe	
Co	59	72	2	24.29320	48.58640	ug/l	2000	Co	
Ni	60	72	2	31.43121	62.86241	ug/l	2000	Ni	
Cu	63	72	2	579.58429	1159.16858	ug/l	2000	Cu	
Zn	66	72	2	125.73897	251.47794	ug/l	5000	Zn	
As	75	72	2	31.73154	63.46308	ug/l	2000	As	
Se	78	72	2	4.80686	9.61371	ug/l	1000	Se	
Sr	88	72	3	356.39896	712.79793	ug/l	2000	Sr	
Y	89	72	2	28.21154	56.42308	ug/l	200	Y	
Zr	90	72	2	45.31556	90.63113	ug/l	2000	Zr	
Nb	93	72	2	1.10426	2.20851	ug/l	100	Nb	
Mo	95	72	3	7.31925	14.63850	ug/l	1000	Mo	
Ru	101	72	2	-0.01312	-0.02625	ug/l	200	Ru	
Rh	103	72	2	-0.01083	-0.02166	ug/l	200	Rh	
Pd	105	72	2	0.04179	0.08359	ug/l	20	Pd	
Ag	107	115	3	0.14994	0.29988	ug/l	400	Ag	
Cd	111	115	3	0.19574	0.39147	ug/l	2000	Cd	
Sn	118	115	3	8.66772	17.33544	ug/l	2000	Sn	
Sb	121	115	3	1.31809	2.63618	ug/l	1000	Sb	
Te	125	165	2	0.16721	0.33443	ug/l	200	Te	
Cs	133	165	2	9.30943	18.61886	ug/l	2000	Cs	
Ba	137	165	3	518.22934	1036.45868	ug/l	5000	Ba	
La	139	165	2	74.97069	149.94139	ug/l	200	La	
Ce	140	165	2	154.35137	308.70273	ug/l	200	Ce	
Pr	141	165	2	16.92698	33.85396	ug/l	200	Pr	
Nd	146	165	2	64.29598	128.59196	ug/l	200	Nd	
Sm	147	165	3	11.24589	22.49178	ug/l	2000	Sm	
Hf	178	165	2	1.33282	2.66564	ug/l	200	Hf	
Ta	181	165	2	0.07857	0.15714	ug/l	200	Ta	
W	182	165	2	4.09755	8.19510	ug/l	2000	W	
Re	185	193	3	-0.00681	-0.01363	ug/l	200	Re	
Pt	195	193	2	0.00851	0.01703	ug/l	200	Pt	
Au	197	193	3	-0.00436	-0.00871	ug/l	2000	Au	
Tl	205	193	3	0.47049	0.94099	ug/l	400	Tl	
Pb	208	193	3	37.54914	75.09828	ug/l	5000	Pb	
Bi	209	193	2	0.82830	1.65660	ug/l	2000	Bi	
Th	232	193	3	35.68592	71.37184	ug/l	2000	Th	
U	238	193	3	8.10841	16.21681	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5777107	0.41	6074310	95.1	80	120	Li (IS)	
Sc (IS)	45	2	217920	0.82	180614	120.7	80	120	Sc (IS)	FAILED
Sc (IS)	45	3	4199627	0.63	3261875	128.7	80	120	Sc (IS)	FAILED
Ge (IS)	72	2	397193	0.31	380448	104.4	80	120	Ge (IS)	
Ge (IS)	72	3	2508749	1.35	2329877	107.7	80	120	Ge (IS)	
In (IS)	115	3	14840046	1.08	14581735	101.8	80	120	In (IS)	
Ho (IS)	165	2	10583774	0.10	10848635	97.6	80	120	Ho (IS)	
Ho (IS)	165	3	17223027	0.40	16597373	103.8	80	120	Ho (IS)	
Ir (IS)	193	2	6738716	0.36	7388306	91.2	80	120	Ir (IS)	
Ir (IS)	193	3	8364089	0.93	8451056	99.0	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Report

Sample Name	160-36942-B-13-A
Data File Name	123SMPL.D
DataPath	C:\ICPMH\1\DATA\012820B1.B
Acq Date Time	2020-01-29T05:18:54-06:00
Type	Sample
VialNumber	3308
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	072CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	31.70824	63.41649	ug/l	1000	Li	
Be	9	6	3	2.15101	4.30203	ug/l	1000	Be	
B	11	6	3	22.19357	44.38715	ug/l	2000	B	
Na	23	45	2	2841.64407	5683.28815	ug/l	50000	Na	
Mg	24	45	2	14179.78740	28359.57480	ug/l	50000	Mg	
Al	27	45	2	31697.54236	63395.08472	ug/l	100000	Al	
P	31	45	2	2184.74131	4369.48262	ug/l	100000	P	
K	39	45	2	6240.18314	12480.36627	ug/l	100000	K	
Ca	44	45	3	25346.44741	50692.89482	ug/l	100000	Ca	
Ti	47	45	3	1263.13411	2526.26822	ug/l	2000	Ti	
V	51	45	2	132.01299	264.02597	ug/l	2000	V	
Cr	52	45	2	48.66474	97.32949	ug/l	2000	Cr	
Mn	55	72	2	1530.74015	3061.48030	ug/l	5000	Mn	
Fe	57	72	2	71119.17930	142238.35859	ug/l	100000	Fe	
Co	59	72	2	21.77805	43.55610	ug/l	2000	Co	
Ni	60	72	2	31.15940	62.31879	ug/l	2000	Ni	
Cu	63	72	2	382.70499	765.40997	ug/l	2000	Cu	
Zn	66	72	2	131.30553	262.61105	ug/l	5000	Zn	
As	75	72	2	26.66106	53.32211	ug/l	2000	As	
Se	78	72	2	4.05006	8.10013	ug/l	1000	Se	
Sr	88	72	3	341.11303	682.22607	ug/l	2000	Sr	
Y	89	72	2	28.90557	57.81113	ug/l	200	Y	
Zr	90	72	2	44.42959	88.85919	ug/l	2000	Zr	
Nb	93	72	2	0.95524	1.91048	ug/l	100	Nb	
Mo	95	72	3	8.81534	17.63067	ug/l	1000	Mo	
Ru	101	72	2	-0.01401	-0.02802	ug/l	200	Ru	
Rh	103	72	2	-0.01208	-0.02416	ug/l	200	Rh	
Pd	105	72	2	0.04135	0.08271	ug/l	20	Pd	
Ag	107	115	3	0.10053	0.20107	ug/l	400	Ag	
Cd	111	115	3	0.16252	0.32504	ug/l	2000	Cd	
Sn	118	115	3	8.39722	16.79443	ug/l	2000	Sn	
Sb	121	115	3	1.13467	2.26933	ug/l	1000	Sb	
Te	125	165	2	0.16805	0.33610	ug/l	200	Te	
Cs	133	165	2	9.00550	18.01101	ug/l	2000	Cs	
Ba	137	165	3	485.86303	971.72606	ug/l	5000	Ba	
La	139	165	2	76.98491	153.96982	ug/l	200	La	
Ce	140	165	2	156.78693	313.57386	ug/l	200	Ce	
Pr	141	165	2	17.30205	34.60410	ug/l	200	Pr	
Nd	146	165	2	65.10662	130.21323	ug/l	200	Nd	
Sm	147	165	3	11.14067	22.28134	ug/l	2000	Sm	
Hf	178	165	2	1.27542	2.55084	ug/l	200	Hf	
Ta	181	165	2	0.06513	0.13025	ug/l	200	Ta	
W	182	165	2	3.26703	6.53406	ug/l	2000	W	
Re	185	193	3	-0.00776	-0.01553	ug/l	200	Re	
Pt	195	193	2	0.00732	0.01464	ug/l	200	Pt	
Au	197	193	3	-0.02540	-0.05079	ug/l	2000	Au	
Tl	205	193	3	0.41140	0.82281	ug/l	400	Tl	
Pb	208	193	3	32.48028	64.96056	ug/l	5000	Pb	
Bi	209	193	2	0.67759	1.35517	ug/l	2000	Bi	
Th	232	193	3	34.86582	69.73165	ug/l	2000	Th	
U	238	193	3	6.44926	12.89853	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5782347	3.15	6074310	95.2	80	120	Li (IS)	
Sc (IS)	45	2	213597	0.60	180614	118.3	80	120	Sc (IS)	
Sc (IS)	45	3	4220322	4.10	3261875	129.4	80	120	Sc (IS)	FAILED
Ge (IS)	72	2	393205	1.06	380448	103.4	80	120	Ge (IS)	
Ge (IS)	72	3	2517224	3.25	2329877	108.0	80	120	Ge (IS)	
In (IS)	115	3	15186513	5.63	14581735	104.1	80	120	In (IS)	
Ho (IS)	165	2	10540510	0.34	10848635	97.2	80	120	Ho (IS)	
Ho (IS)	165	3	17433224	4.72	16597372	105.0	80	120	Ho (IS)	
Ir (IS)	193	2	6755248	0.48	7388306	91.4	80	120	Ir (IS)	
Ir (IS)	193	3	8398141	4.36	8451056	99.4	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Report

Sample Name	160-36942-B-14-A
Data File Name	124SMPL.D
DataPath	C:\ICPMH\1\DATA\012820B1.B
Acq Date Time	2020-01-29T05:25:39-06:00
Type	Sample
VialNumber	3309
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	072CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	34.90412	69.80824	ug/l	1000	Li	
Be	9	6	3	2.59971	5.19942	ug/l	1000	Be	
B	11	6	3	23.74482	47.48963	ug/l	2000	B	
Na	23	45	2	2426.41034	4852.82069	ug/l	50000	Na	
Mg	24	45	2	12966.82123	25933.64246	ug/l	50000	Mg	
Al	27	45	2	33142.46736	66284.93471	ug/l	100000	Al	
P	31	45	2	1937.97200	3875.94399	ug/l	100000	P	
K	39	45	2	6527.79090	13055.58180	ug/l	100000	K	
Ca	44	45	3	27306.12745	54612.25489	ug/l	100000	Ca	
Ti	47	45	3	1384.22152	2768.44305	ug/l	2000	Ti	
V	51	45	2	131.35101	262.70202	ug/l	2000	V	
Cr	52	45	2	35.79061	71.58122	ug/l	2000	Cr	
Mn	55	72	2	1598.03262	3196.06524	ug/l	5000	Mn	
Fe	57	72	2	67468.50813	134937.01626	ug/l	100000	Fe	
Co	59	72	2	23.14046	46.28092	ug/l	2000	Co	
Ni	60	72	2	28.07593	56.15185	ug/l	2000	Ni	
Cu	63	72	2	258.96106	517.92212	ug/l	2000	Cu	
Zn	66	72	2	146.14886	292.29772	ug/l	5000	Zn	
As	75	72	2	25.47626	50.95251	ug/l	2000	As	
Se	78	72	2	4.89851	9.79703	ug/l	1000	Se	
Sr	88	72	3	368.22285	736.44570	ug/l	2000	Sr	
Y	89	72	2	35.13580	70.27160	ug/l	200	Y	
Zr	90	72	2	49.54528	99.09057	ug/l	2000	Zr	
Nb	93	72	2	1.05653	2.11305	ug/l	100	Nb	
Mo	95	72	3	5.62955	11.25910	ug/l	1000	Mo	
Ru	101	72	2	-0.01531	-0.03062	ug/l	200	Ru	
Rh	103	72	2	-0.01220	-0.02440	ug/l	200	Rh	
Pd	105	72	2	0.04964	0.09928	ug/l	20	Pd	
Ag	107	115	3	0.09059	0.18117	ug/l	400	Ag	
Cd	111	115	3	0.21042	0.42084	ug/l	2000	Cd	
Sn	118	115	3	9.30426	18.60852	ug/l	2000	Sn	
Sb	121	115	3	1.15327	2.30655	ug/l	1000	Sb	
Te	125	165	2	0.13461	0.26921	ug/l	200	Te	
Cs	133	165	2	10.79156	21.58311	ug/l	2000	Cs	
Ba	137	165	3	548.79070	1097.58139	ug/l	5000	Ba	
La	139	165	2	88.28219	176.56439	ug/l	200	La	
Ce	140	165	2	185.74006	371.48011	ug/l	200	Ce	
Pr	141	165	2	21.62253	43.24506	ug/l	200	Pr	
Nd	146	165	2	76.19614	152.39229	ug/l	200	Nd	
Sm	147	165	3	13.84043	27.68086	ug/l	2000	Sm	
Hf	178	165	2	1.34063	2.68126	ug/l	200	Hf	
Ta	181	165	2	0.06490	0.12980	ug/l	200	Ta	
W	182	165	2	2.66165	5.32330	ug/l	2000	W	
Re	185	193	3	-0.00835	-0.01669	ug/l	200	Re	
Pt	195	193	2	0.00749	0.01499	ug/l	200	Pt	
Au	197	193	3	-0.02852	-0.05705	ug/l	2000	Au	
Tl	205	193	3	0.47552	0.95104	ug/l	400	Tl	
Pb	208	193	3	28.99043	57.98086	ug/l	5000	Pb	
Bi	209	193	2	0.71437	1.42874	ug/l	2000	Bi	
Th	232	193	3	40.08097	80.16194	ug/l	2000	Th	
U	238	193	3	6.48743	12.97485	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5732181	0.91	6074310	94.4	80	120	Li (IS)	
Sc (IS)	45	2	224897	1.52	180614	124.5	80	120	Sc (IS)	FAILED
Sc (IS)	45	3	4298700	0.73	3261875	131.8	80	120	Sc (IS)	FAILED
Ge (IS)	72	2	405298	0.95	380448	106.5	80	120	Ge (IS)	
Ge (IS)	72	3	2532760	0.69	2329877	108.7	80	120	Ge (IS)	
In (IS)	115	3	14967302	1.35	14581735	102.6	80	120	In (IS)	
Ho (IS)	165	2	10755904	0.22	10848635	99.1	80	120	Ho (IS)	
Ho (IS)	165	3	17180982	0.53	16597373	103.5	80	120	Ho (IS)	
Ir (IS)	193	2	6812305	0.44	7388306	92.2	80	120	Ir (IS)	
Ir (IS)	193	3	8360173	0.36	8451056	98.9	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Name	160-36942-B-15-A
Data File Name	125SMPL.D
DataPath	C:\ICPMH\1\DATA\012820B1.B
Acq Date Time	2020-01-29T05:32:23-06:00
Type	Sample
VialNumber	3310
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	072CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	29.80276	59.60551	ug/l	1000	Li	
Be	9	6	3	2.26518	4.53036	ug/l	1000	Be	
B	11	6	3	21.49741	42.99482	ug/l	2000	B	
Na	23	45	2	2447.05631	4894.11263	ug/l	50000	Na	
Mg	24	45	2	11996.60635	23993.21269	ug/l	50000	Mg	
Al	27	45	2	29717.55362	59435.10725	ug/l	100000	Al	
P	31	45	2	1803.35483	3606.70967	ug/l	100000	P	
K	39	45	2	5902.25579	11804.51158	ug/l	100000	K	
Ca	44	45	3	22663.83494	45327.66987	ug/l	100000	Ca	
Ti	47	45	3	1235.58329	2471.16658	ug/l	2000	Ti	
V	51	45	2	124.63182	249.26364	ug/l	2000	V	
Cr	52	45	2	34.22618	68.45237	ug/l	2000	Cr	
Mn	55	72	2	1331.09437	2662.18874	ug/l	5000	Mn	
Fe	57	72	2	62967.59174	125935.18348	ug/l	100000	Fe	
Co	59	72	2	18.97458	37.94916	ug/l	2000	Co	
Ni	60	72	2	24.62920	49.25840	ug/l	2000	Ni	
Cu	63	72	2	434.62591	869.25182	ug/l	2000	Cu	
Zn	66	72	2	122.08811	244.17623	ug/l	5000	Zn	
As	75	72	2	25.21974	50.43948	ug/l	2000	As	
Se	78	72	2	4.60811	9.21622	ug/l	1000	Se	
Sr	88	72	3	315.47699	630.95399	ug/l	2000	Sr	
Y	89	72	2	30.19660	60.39319	ug/l	200	Y	
Zr	90	72	2	41.99594	83.99187	ug/l	2000	Zr	
Nb	93	72	2	1.19382	2.38764	ug/l	100	Nb	
Mo	95	72	3	5.05381	10.10762	ug/l	1000	Mo	
Ru	101	72	2	-0.01414	-0.02828	ug/l	200	Ru	
Rh	103	72	2	-0.01316	-0.02632	ug/l	200	Rh	
Pd	105	72	2	0.04278	0.08555	ug/l	20	Pd	
Ag	107	115	3	0.14696	0.29392	ug/l	400	Ag	
Cd	111	115	3	0.18218	0.36436	ug/l	2000	Cd	
Sn	118	115	3	8.92381	17.84762	ug/l	2000	Sn	
Sb	121	115	3	1.23103	2.46207	ug/l	1000	Sb	
Te	125	165	2	0.12230	0.24460	ug/l	200	Te	
Cs	133	165	2	9.26269	18.52538	ug/l	2000	Cs	
Ba	137	165	3	595.96583	1191.93166	ug/l	5000	Ba	
La	139	165	2	81.56152	163.12304	ug/l	200	La	
Ce	140	165	2	164.11045	328.22090	ug/l	200	Ce	
Pr	141	165	2	18.39290	36.78580	ug/l	200	Pr	
Nd	146	165	2	68.36869	136.73739	ug/l	200	Nd	
Sm	147	165	3	11.90425	23.80849	ug/l	2000	Sm	
Hf	178	165	2	1.19926	2.39852	ug/l	200	Hf	
Ta	181	165	2	0.04687	0.09375	ug/l	200	Ta	
W	182	165	2	2.73654	5.47307	ug/l	2000	W	
Re	185	193	3	-0.00848	-0.01695	ug/l	200	Re	
Pt	195	193	2	0.00878	0.01756	ug/l	200	Pt	
Au	197	193	3	-0.03653	-0.07306	ug/l	2000	Au	
Tl	205	193	3	0.39040	0.78080	ug/l	400	Tl	
Pb	208	193	3	23.84609	47.69218	ug/l	5000	Pb	
Bi	209	193	2	0.65872	1.31744	ug/l	2000	Bi	
Th	232	193	3	40.58461	81.16922	ug/l	2000	Th	
U	238	193	3	6.48004	12.96008	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5782834	0.65	6074310	95.2	80	120	Li (IS)	
Sc (IS)	45	2	214920	1.31	180614	119.0	80	120	Sc (IS)	
Sc (IS)	45	3	4185710	0.81	3261875	128.3	80	120	Sc (IS)	FAILED
Ge (IS)	72	2	399973	1.22	380448	105.1	80	120	Ge (IS)	
Ge (IS)	72	3	2533594	0.38	2329877	108.7	80	120	Ge (IS)	
In (IS)	115	3	14999879	0.58	14581735	102.9	80	120	In (IS)	
Ho (IS)	165	2	10476647	0.73	10848635	96.6	80	120	Ho (IS)	
Ho (IS)	165	3	17232610	0.70	16597373	103.8	80	120	Ho (IS)	
Ir (IS)	193	2	6742467	0.87	7388306	91.3	80	120	Ir (IS)	
Ir (IS)	193	3	8316045	0.30	8451056	98.4	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Name	160-36942-B-16-A
Data File Name	126SMPL.D
DataPath	C:\ICPMH\1\DATA\012820B1.B
Acq Date Time	2020-01-29T05:39:06-06:00
Type	Sample
VialNumber	3311
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	072CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	29.56267	59.12535	ug/l	1000	Li	
Be	9	6	3	2.34539	4.69078	ug/l	1000	Be	
B	11	6	3	19.42867	38.85734	ug/l	2000	B	
Na	23	45	2	2628.76471	5257.52942	ug/l	50000	Na	
Mg	24	45	2	10811.65116	21623.30231	ug/l	50000	Mg	
Al	27	45	2	29801.08798	59602.17595	ug/l	100000	Al	
P	31	45	2	1649.69591	3299.39181	ug/l	100000	P	
K	39	45	2	6095.77463	12191.54925	ug/l	100000	K	
Ca	44	45	3	19734.45818	39468.91635	ug/l	100000	Ca	
Ti	47	45	3	1296.17552	2592.35104	ug/l	2000	Ti	
V	51	45	2	120.31441	240.62881	ug/l	2000	V	
Cr	52	45	2	44.22834	88.45669	ug/l	2000	Cr	
Mn	55	72	2	1526.68059	3053.36118	ug/l	5000	Mn	
Fe	57	72	2	65004.65206	130009.30412	ug/l	100000	Fe	
Co	59	72	2	19.77229	39.54458	ug/l	2000	Co	
Ni	60	72	2	25.10226	50.20452	ug/l	2000	Ni	
Cu	63	72	2	177.53358	355.06716	ug/l	2000	Cu	
Zn	66	72	2	132.29674	264.59347	ug/l	5000	Zn	
As	75	72	2	21.93898	43.87796	ug/l	2000	As	
Se	78	72	2	4.81536	9.63073	ug/l	1000	Se	
Sr	88	72	3	368.24436	736.48872	ug/l	2000	Sr	
Y	89	72	2	31.26643	62.53287	ug/l	200	Y	
Zr	90	72	2	47.01850	94.03701	ug/l	2000	Zr	
Nb	93	72	2	1.22877	2.45755	ug/l	100	Nb	
Mo	95	72	3	6.58917	13.17835	ug/l	1000	Mo	
Ru	101	72	2	-0.01420	-0.02840	ug/l	200	Ru	
Rh	103	72	2	-0.01303	-0.02606	ug/l	200	Rh	
Pd	105	72	2	0.03927	0.07853	ug/l	20	Pd	
Ag	107	115	3	0.08609	0.17217	ug/l	400	Ag	
Cd	111	115	3	0.17910	0.35821	ug/l	2000	Cd	
Sn	118	115	3	9.37468	18.74936	ug/l	2000	Sn	
Sb	121	115	3	1.02770	2.05540	ug/l	1000	Sb	
Te	125	165	2	0.12166	0.24332	ug/l	200	Te	
Cs	133	165	2	9.75113	19.50226	ug/l	2000	Cs	
Ba	137	165	3	552.88702	1105.77404	ug/l	5000	Ba	
La	139	165	2	85.55795	171.11590	ug/l	200	La	
Ce	140	165	2	179.24472	358.48944	ug/l	200	Ce	
Pr	141	165	2	19.44311	38.88621	ug/l	200	Pr	
Nd	146	165	2	71.91658	143.83316	ug/l	200	Nd	
Sm	147	165	3	12.81630	25.63260	ug/l	2000	Sm	
Hf	178	165	2	1.29504	2.59008	ug/l	200	Hf	
Ta	181	165	2	0.03758	0.07515	ug/l	200	Ta	
W	182	165	2	2.60601	5.21202	ug/l	2000	W	
Re	185	193	3	-0.00885	-0.01770	ug/l	200	Re	
Pt	195	193	2	0.00607	0.01214	ug/l	200	Pt	
Au	197	193	3	-0.03946	-0.07892	ug/l	2000	Au	
Tl	205	193	3	0.39831	0.79662	ug/l	400	Tl	
Pb	208	193	3	24.38886	48.77772	ug/l	5000	Pb	
Bi	209	193	2	0.63477	1.26954	ug/l	2000	Bi	
Th	232	193	3	39.47246	78.94492	ug/l	2000	Th	
U	238	193	3	5.83659	11.67318	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5819448	1.23	6074310	95.8	80	120	Li (IS)	
Sc (IS)	45	2	222237	3.54	180614	123.0	80	120	Sc (IS)	FAILED
Sc (IS)	45	3	4226061	0.47	3261875	129.6	80	120	Sc (IS)	FAILED
Ge (IS)	72	2	408411	4.05	380448	107.4	80	120	Ge (IS)	
Ge (IS)	72	3	2516092	0.47	2329877	108.0	80	120	Ge (IS)	
In (IS)	115	3	14984664	0.06	14581735	102.8	80	120	In (IS)	
Ho (IS)	165	2	10783949	5.09	10848635	99.4	80	120	Ho (IS)	
Ho (IS)	165	3	17261780	2.12	16597373	104.0	80	120	Ho (IS)	
Ir (IS)	193	2	6914874	4.80	7388306	93.6	80	120	Ir (IS)	
Ir (IS)	193	3	8382516	0.42	8451056	99.2	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Report

Sample Name	160-36942-B-17-A
Data File Name	127SMPL.D
DataPath	C:\ICPMH\1\DATA\012820B1.B
Acq Date Time	2020-01-29T05:45:51-06:00
Type	Sample
VialNumber	3312
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	072CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	30.01597	60.03193	ug/l	1000	Li	
Be	9	6	3	2.31007	4.62014	ug/l	1000	Be	
B	11	6	3	18.61620	37.23241	ug/l	2000	B	
Na	23	45	2	2577.26361	5154.52721	ug/l	50000	Na	
Mg	24	45	2	11323.59241	22647.18482	ug/l	50000	Mg	
Al	27	45	2	29399.78240	58799.56480	ug/l	100000	Al	
P	31	45	2	1784.08389	3568.16778	ug/l	100000	P	
K	39	45	2	5864.94920	11729.89840	ug/l	100000	K	
Ca	44	45	3	19737.50270	39475.00540	ug/l	100000	Ca	
Ti	47	45	3	1262.82508	2525.65016	ug/l	2000	Ti	
V	51	45	2	119.97341	239.94683	ug/l	2000	V	
Cr	52	45	2	41.10089	82.20178	ug/l	2000	Cr	
Mn	55	72	2	1420.56506	2841.13012	ug/l	5000	Mn	
Fe	57	72	2	62671.48003	125342.96005	ug/l	100000	Fe	
Co	59	72	2	19.54223	39.08446	ug/l	2000	Co	
Ni	60	72	2	23.95011	47.90022	ug/l	2000	Ni	
Cu	63	72	2	170.35427	340.70853	ug/l	2000	Cu	
Zn	66	72	2	126.92285	253.84570	ug/l	5000	Zn	
As	75	72	2	22.72112	45.44223	ug/l	2000	As	
Se	78	72	2	4.01232	8.02464	ug/l	1000	Se	
Sr	88	72	3	331.22477	662.44955	ug/l	2000	Sr	
Y	89	72	2	31.90121	63.80242	ug/l	200	Y	
Zr	90	72	2	46.02157	92.04313	ug/l	2000	Zr	
Nb	93	72	2	1.15575	2.31149	ug/l	100	Nb	
Mo	95	72	3	5.73425	11.46849	ug/l	1000	Mo	
Ru	101	72	2	-0.01688	-0.03375	ug/l	200	Ru	
Rh	103	72	2	-0.01320	-0.02640	ug/l	200	Rh	
Pd	105	72	2	0.04118	0.08235	ug/l	20	Pd	
Ag	107	115	3	0.09177	0.18353	ug/l	400	Ag	
Cd	111	115	3	0.17471	0.34941	ug/l	2000	Cd	
Sn	118	115	3	9.10984	18.21968	ug/l	2000	Sn	
Sb	121	115	3	1.12762	2.25524	ug/l	1000	Sb	
Te	125	165	2	0.11262	0.22524	ug/l	200	Te	
Cs	133	165	2	9.44213	18.88425	ug/l	2000	Cs	
Ba	137	165	3	507.62143	1015.24286	ug/l	5000	Ba	
La	139	165	2	82.95192	165.90384	ug/l	200	La	
Ce	140	165	2	168.90791	337.81582	ug/l	200	Ce	
Pr	141	165	2	18.99400	37.98800	ug/l	200	Pr	
Nd	146	165	2	70.69279	141.38559	ug/l	200	Nd	
Sm	147	165	3	12.49471	24.98942	ug/l	2000	Sm	
Hf	178	165	2	1.26556	2.53112	ug/l	200	Hf	
Ta	181	165	2	0.02389	0.04777	ug/l	200	Ta	
W	182	165	2	2.27627	4.55255	ug/l	2000	W	
Re	185	193	3	-0.00903	-0.01805	ug/l	200	Re	
Pt	195	193	2	0.00683	0.01366	ug/l	200	Pt	
Au	197	193	3	-0.04111	-0.08222	ug/l	2000	Au	
Tl	205	193	3	0.37741	0.75482	ug/l	400	Tl	
Pb	208	193	3	22.16514	44.33029	ug/l	5000	Pb	
Bi	209	193	2	0.63307	1.26614	ug/l	2000	Bi	
Th	232	193	3	43.89706	87.79413	ug/l	2000	Th	
U	238	193	3	6.71301	13.42602	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5698332	0.92	6074310	93.8	80	120	Li (IS)	
Sc (IS)	45	2	218222	0.27	180614	120.8	80	120	Sc (IS)	FAILED
Sc (IS)	45	3	4166227	0.66	3261875	127.7	80	120	Sc (IS)	FAILED
Ge (IS)	72	2	404466	0.59	380448	106.3	80	120	Ge (IS)	
Ge (IS)	72	3	2513169	0.09	2329877	107.9	80	120	Ge (IS)	
In (IS)	115	3	14750501	1.09	14581735	101.2	80	120	In (IS)	
Ho (IS)	165	2	10539071	1.71	10848635	97.1	80	120	Ho (IS)	
Ho (IS)	165	3	16943696	0.48	16597373	102.1	80	120	Ho (IS)	
Ir (IS)	193	2	6718433	0.75	7388306	90.9	80	120	Ir (IS)	
Ir (IS)	193	3	8304687	0.79	8451056	98.3	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Report

Sample Name	160-36942-B-18-A
Data File Name	128SMPL.D
DataPath	C:\ICPMH\1\DATA\012820B1.B
Acq Date Time	2020-01-29T05:52:35-06:00
Type	Sample
VialNumber	3401
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	072CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	34.04247	68.08493	ug/l	1000	Li	
Be	9	6	3	2.72491	5.44982	ug/l	1000	Be	
B	11	6	3	20.67509	41.35017	ug/l	2000	B	
Na	23	45	2	2854.71262	5709.42523	ug/l	50000	Na	
Mg	24	45	2	13253.41699	26506.83398	ug/l	50000	Mg	
Al	27	45	2	31096.88951	62193.77902	ug/l	100000	Al	
P	31	45	2	2104.30236	4208.60472	ug/l	100000	P	
K	39	45	2	6672.84760	13345.69520	ug/l	100000	K	
Ca	44	45	3	20423.69940	40847.39879	ug/l	100000	Ca	
Ti	47	45	3	1477.96191	2955.92382	ug/l	2000	Ti	
V	51	45	2	148.10445	296.20890	ug/l	2000	V	
Cr	52	45	2	33.06996	66.13991	ug/l	2000	Cr	
Mn	55	72	2	1928.98708	3857.97417	ug/l	5000	Mn	
Fe	57	72	2	70371.45928	140742.91856	ug/l	100000	Fe	
Co	59	72	2	26.24694	52.49388	ug/l	2000	Co	
Ni	60	72	2	29.36078	58.72157	ug/l	2000	Ni	
Cu	63	72	2	169.79336	339.58672	ug/l	2000	Cu	
Zn	66	72	2	152.47034	304.94069	ug/l	5000	Zn	
As	75	72	2	25.92195	51.84390	ug/l	2000	As	
Se	78	72	2	5.18593	10.37186	ug/l	1000	Se	
Sr	88	72	3	306.31089	612.62178	ug/l	2000	Sr	
Y	89	72	2	35.66987	71.33973	ug/l	200	Y	
Zr	90	72	2	58.17930	116.35861	ug/l	2000	Zr	
Nb	93	72	2	1.52030	3.04061	ug/l	100	Nb	
Mo	95	72	3	2.99882	5.99764	ug/l	1000	Mo	
Ru	101	72	2	-0.01840	-0.03679	ug/l	200	Ru	
Rh	103	72	2	-0.01332	-0.02664	ug/l	200	Rh	
Pd	105	72	2	0.04557	0.09114	ug/l	20	Pd	
Ag	107	115	3	0.12026	0.24052	ug/l	400	Ag	
Cd	111	115	3	0.21421	0.42842	ug/l	2000	Cd	
Sn	118	115	3	10.64636	21.29272	ug/l	2000	Sn	
Sb	121	115	3	1.49073	2.98147	ug/l	1000	Sb	
Te	125	165	2	0.15001	0.30002	ug/l	200	Te	
Cs	133	165	2	14.55902	29.11804	ug/l	2000	Cs	
Ba	137	165	3	498.08344	996.16688	ug/l	5000	Ba	
La	139	165	2	99.24227	198.48454	ug/l	200	La	
Ce	140	165	2	208.29468	416.58936	ug/l	200	Ce	FAILED
Pr	141	165	2	23.97742	47.95484	ug/l	200	Pr	
Nd	146	165	2	82.63728	165.27457	ug/l	200	Nd	
Sm	147	165	3	13.82599	27.65198	ug/l	2000	Sm	
Hf	178	165	2	1.54896	3.09791	ug/l	200	Hf	
Ta	181	165	2	0.02028	0.04056	ug/l	200	Ta	
W	182	165	2	3.25499	6.50998	ug/l	2000	W	
Re	185	193	3	-0.00939	-0.01878	ug/l	200	Re	
Pt	195	193	2	0.01340	0.02680	ug/l	200	Pt	
Au	197	193	3	-0.04604	-0.09207	ug/l	2000	Au	
Tl	205	193	3	0.51789	1.03577	ug/l	400	Tl	
Pb	208	193	3	30.45481	60.90963	ug/l	5000	Pb	
Bi	209	193	2	0.94281	1.88561	ug/l	2000	Bi	
Th	232	193	3	40.51621	81.03241	ug/l	2000	Th	
U	238	193	3	6.38712	12.77423	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5717720	0.82	6074310	94.1	80	120	Li (IS)	
Sc (IS)	45	2	221088	2.13	180614	122.4	80	120	Sc (IS)	FAILED
Sc (IS)	45	3	4189701	0.25	3261875	128.4	80	120	Sc (IS)	FAILED
Ge (IS)	72	2	401340	2.15	380448	105.5	80	120	Ge (IS)	
Ge (IS)	72	3	2497917	0.85	2329877	107.2	80	120	Ge (IS)	
In (IS)	115	3	14810739	0.82	14581735	101.6	80	120	In (IS)	
Ho (IS)	165	2	10596533	1.90	10848635	97.7	80	120	Ho (IS)	
Ho (IS)	165	3	17120963	0.23	16597373	103.2	80	120	Ho (IS)	
Ir (IS)	193	2	6667385	3.84	7388306	90.2	80	120	Ir (IS)	
Ir (IS)	193	3	8256217	0.29	8451056	97.7	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Report

Sample Name	160-36942-B-19-A
Data File Name	129SMPL.D
DataPath	C:\ICPMH\1\DATA\012820B1.B
Acq Date Time	2020-01-29T05:59:17-06:00
Type	Sample
VialNumber	3402
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	072CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	32.30408	64.60815	ug/l	1000	Li	
Be	9	6	3	2.66082	5.32163	ug/l	1000	Be	
B	11	6	3	19.79017	39.58034	ug/l	2000	B	
Na	23	45	2	2611.27481	5222.54962	ug/l	50000	Na	
Mg	24	45	2	11487.11096	22974.22191	ug/l	50000	Mg	
Al	27	45	2	28417.32874	56834.65749	ug/l	100000	Al	
P	31	45	2	1831.58746	3663.17491	ug/l	100000	P	
K	39	45	2	5885.15476	11770.30951	ug/l	100000	K	
Ca	44	45	3	22199.78305	44399.56609	ug/l	100000	Ca	
Ti	47	45	3	1248.66082	2497.32164	ug/l	2000	Ti	
V	51	45	2	130.55242	261.10484	ug/l	2000	V	
Cr	52	45	2	30.87397	61.74794	ug/l	2000	Cr	
Mn	55	72	2	2053.15280	4106.30560	ug/l	5000	Mn	
Fe	57	72	2	61987.54096	123975.08191	ug/l	100000	Fe	
Co	59	72	2	20.84891	41.69782	ug/l	2000	Co	
Ni	60	72	2	24.96628	49.93256	ug/l	2000	Ni	
Cu	63	72	2	162.07200	324.14401	ug/l	2000	Cu	
Zn	66	72	2	138.88036	277.76072	ug/l	5000	Zn	
As	75	72	2	25.99438	51.98876	ug/l	2000	As	
Se	78	72	2	5.39009	10.78019	ug/l	1000	Se	
Sr	88	72	3	313.56784	627.13567	ug/l	2000	Sr	
Y	89	72	2	38.19542	76.39084	ug/l	200	Y	
Zr	90	72	2	47.02251	94.04502	ug/l	2000	Zr	
Nb	93	72	2	1.41409	2.82818	ug/l	100	Nb	
Mo	95	72	3	3.59377	7.18754	ug/l	1000	Mo	
Ru	101	72	2	-0.01813	-0.03626	ug/l	200	Ru	
Rh	103	72	2	-0.01359	-0.02718	ug/l	200	Rh	
Pd	105	72	2	0.04599	0.09197	ug/l	20	Pd	
Ag	107	115	3	0.08263	0.16525	ug/l	400	Ag	
Cd	111	115	3	0.26176	0.52352	ug/l	2000	Cd	
Sn	118	115	3	10.64959	21.29918	ug/l	2000	Sn	
Sb	121	115	3	1.12644	2.25288	ug/l	1000	Sb	
Te	125	165	2	0.08896	0.17792	ug/l	200	Te	
Cs	133	165	2	10.22729	20.45458	ug/l	2000	Cs	
Ba	137	165	3	515.96828	1031.93657	ug/l	5000	Ba	
La	139	165	2	104.82021	209.64042	ug/l	200	La	
Ce	140	165	2	261.94011	523.88022	ug/l	200	Ce	FAILED
Pr	141	165	2	24.96589	49.93178	ug/l	200	Pr	
Nd	146	165	2	86.03864	172.07728	ug/l	200	Nd	
Sm	147	165	3	14.71890	29.43779	ug/l	2000	Sm	
Hf	178	165	2	1.31071	2.62143	ug/l	200	Hf	
Ta	181	165	2	0.02096	0.04193	ug/l	200	Ta	
W	182	165	2	2.79753	5.59507	ug/l	2000	W	
Re	185	193	3	-0.00904	-0.01808	ug/l	200	Re	
Pt	195	193	2	0.00770	0.01541	ug/l	200	Pt	
Au	197	193	3	-0.04568	-0.09137	ug/l	2000	Au	
Tl	205	193	3	0.45772	0.91545	ug/l	400	Tl	
Pb	208	193	3	30.26986	60.53972	ug/l	5000	Pb	
Bi	209	193	2	0.70166	1.40333	ug/l	2000	Bi	
Th	232	193	3	45.64423	91.28847	ug/l	2000	Th	
U	238	193	3	6.92119	13.84238	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5649674	2.01	6074310	93.0	80	120	Li (IS)	
Sc (IS)	45	2	222629	3.66	180614	123.3	80	120	Sc (IS)	FAILED
Sc (IS)	45	3	4112555	2.06	3261875	126.1	80	120	Sc (IS)	FAILED
Ge (IS)	72	2	411594	3.67	380448	108.2	80	120	Ge (IS)	
Ge (IS)	72	3	2477533	2.06	2329877	106.3	80	120	Ge (IS)	
In (IS)	115	3	14807942	1.70	14581735	101.6	80	120	In (IS)	
Ho (IS)	165	2	10746030	4.33	10848635	99.1	80	120	Ho (IS)	
Ho (IS)	165	3	16911752	2.54	16597373	101.9	80	120	Ho (IS)	
Ir (IS)	193	2	6840321	4.28	7388306	92.6	80	120	Ir (IS)	
Ir (IS)	193	3	8233871	2.71	8451056	97.4	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Report

Sample Name	160-36942-B-20-A
Data File Name	130SMPL.D
DataPath	C:\ICPMH\1\DATA\012820B1.B
Acq Date Time	2020-01-29T06:05:59-06:00
Type	Sample
VialNumber	3403
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	072CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	41.55253	83.10506	ug/l	1000	Li	
Be	9	6	3	2.91867	5.83734	ug/l	1000	Be	
B	11	6	3	28.47843	56.95686	ug/l	2000	B	
Na	23	45	2	3440.96404	6881.92808	ug/l	50000	Na	
Mg	24	45	2	15511.01617	31022.03234	ug/l	50000	Mg	
Al	27	45	2	35726.49600	71452.99200	ug/l	100000	Al	
P	31	45	2	2330.65911	4661.31822	ug/l	100000	P	
K	39	45	2	6750.68154	13501.36309	ug/l	100000	K	
Ca	44	45	3	32374.62396	64749.24791	ug/l	100000	Ca	
Ti	47	45	3	1458.92790	2917.85580	ug/l	2000	Ti	
V	51	45	2	154.56221	309.12443	ug/l	2000	V	
Cr	52	45	2	60.53308	121.06616	ug/l	2000	Cr	
Mn	55	72	2	1972.00669	3944.01339	ug/l	5000	Mn	
Fe	57	72	2	79754.98617	159509.97234	ug/l	100000	Fe	
Co	59	72	2	26.92336	53.84671	ug/l	2000	Co	
Ni	60	72	2	34.08876	68.17752	ug/l	2000	Ni	
Cu	63	72	2	253.49950	506.99900	ug/l	2000	Cu	
Zn	66	72	2	160.84306	321.68613	ug/l	5000	Zn	
As	75	72	2	33.04622	66.09244	ug/l	2000	As	
Se	78	72	2	5.31974	10.63949	ug/l	1000	Se	
Sr	88	72	3	352.53346	705.06692	ug/l	2000	Sr	
Y	89	72	2	38.19652	76.39304	ug/l	200	Y	
Zr	90	72	2	54.10368	108.20736	ug/l	2000	Zr	
Nb	93	72	2	1.51563	3.03127	ug/l	100	Nb	
Mo	95	72	3	5.08871	10.17741	ug/l	1000	Mo	
Ru	101	72	2	-0.01727	-0.03455	ug/l	200	Ru	
Rh	103	72	2	-0.01285	-0.02569	ug/l	200	Rh	
Pd	105	72	2	0.04521	0.09043	ug/l	20	Pd	
Ag	107	115	3	0.09820	0.19639	ug/l	400	Ag	
Cd	111	115	3	0.25002	0.50005	ug/l	2000	Cd	
Sn	118	115	3	11.52117	23.04235	ug/l	2000	Sn	
Sb	121	115	3	1.40743	2.81487	ug/l	1000	Sb	
Te	125	165	2	0.16986	0.33972	ug/l	200	Te	
Cs	133	165	2	12.44686	24.89371	ug/l	2000	Cs	
Ba	137	165	3	522.24807	1044.49615	ug/l	5000	Ba	
La	139	165	2	100.73659	201.47317	ug/l	200	La	
Ce	140	165	2	210.96452	421.92904	ug/l	200	Ce	FAILED
Pr	141	165	2	24.80123	49.60246	ug/l	200	Pr	
Nd	146	165	2	85.82382	171.64765	ug/l	200	Nd	
Sm	147	165	3	14.43105	28.86210	ug/l	2000	Sm	
Hf	178	165	2	1.55047	3.10095	ug/l	200	Hf	
Ta	181	165	2	0.01999	0.03997	ug/l	200	Ta	
W	182	165	2	3.85382	7.70764	ug/l	2000	W	
Re	185	193	3	-0.00892	-0.01784	ug/l	200	Re	
Pt	195	193	2	0.00637	0.01273	ug/l	200	Pt	
Au	197	193	3	-0.04610	-0.09220	ug/l	2000	Au	
Tl	205	193	3	0.48375	0.96750	ug/l	400	Tl	
Pb	208	193	3	30.58558	61.17116	ug/l	5000	Pb	
Bi	209	193	2	0.89015	1.78030	ug/l	2000	Bi	
Th	232	193	3	42.31135	84.62269	ug/l	2000	Th	
U	238	193	3	7.34724	14.69447	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5668263	1.45	6074310	93.3	80	120	Li (IS)	
Sc (IS)	45	2	228288	0.63	180614	126.4	80	120	Sc (IS)	FAILED
Sc (IS)	45	3	4433638	2.46	3261875	135.9	80	120	Sc (IS)	FAILED
Ge (IS)	72	2	397144	0.70	380448	104.4	80	120	Ge (IS)	
Ge (IS)	72	3	2525754	1.69	2329877	108.4	80	120	Ge (IS)	
In (IS)	115	3	14928767	3.13	14581735	102.4	80	120	In (IS)	
Ho (IS)	165	2	10451537	0.51	10848635	96.3	80	120	Ho (IS)	
Ho (IS)	165	3	17276562	2.27	16597373	104.[illegible]	80	120	Ho (IS)	
Ir (IS)	193	2	6581258	1.16	7388306	89.1	80	120	Ir (IS)	
Ir (IS)	193	3	8266830	2.76	8451056	97.8	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Report

Sample Name	160-36942-B-21-A
Data File Name	135SMPL.D
DataPath	C:\ICPMH\1\DATA\012920B1.B
Acq Date Time	2020-01-30T07:40:29-06:00
Type	Sample
VialNumber	3212
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	103CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	38.73300	77.46600	ug/l	1000	Li	
Be	9	6	3	2.00120	4.00241	ug/l	1000	Be	
B	11	6	3	42.46539	84.93077	ug/l	2000	B	
Na	23	45	2	4047.97219	8095.94438	ug/l	50000	Na	
Mg	24	45	2	14719.81859	29439.63718	ug/l	50000	Mg	
Al	27	45	2	33123.74220	66247.48440	ug/l	100000	Al	
P	31	45	2	2290.27950	4580.55899	ug/l	100000	P	
K	39	45	2	6050.82972	12101.65945	ug/l	100000	K	
Ca	44	45	3	27379.76216	54759.52433	ug/l	100000	Ca	
Ti	47	45	3	1414.72244	2829.44489	ug/l	2000	Ti	
V	51	45	2	129.35235	258.70470	ug/l	2000	V	
Cr	52	45	2	34.39201	68.78402	ug/l	2000	Cr	
Mn	55	72	2	1355.96377	2711.92754	ug/l	5000	Mn	
Fe	57	72	2	68252.94769	136505.89537	ug/l	100000	Fe	
Co	59	72	2	20.08174	40.16348	ug/l	2000	Co	
Ni	60	72	2	27.08519	54.17038	ug/l	2000	Ni	
Cu	63	72	2	364.94102	729.88205	ug/l	2000	Cu	
Zn	66	72	2	122.88216	245.76432	ug/l	5000	Zn	
As	75	72	2	30.61802	61.23603	ug/l	2000	As	
Se	78	72	2	4.01552	8.03104	ug/l	1000	Se	
Sr	88	72	3	335.95956	671.91913	ug/l	2000	Sr	
Y	89	72	2	26.33608	52.67217	ug/l	200	Y	
Zr	90	72	2	37.97747	75.95494	ug/l	2000	Zr	
Nb	93	72	2	0.89986	1.79973	ug/l	100	Nb	
Mo	95	72	3	5.26665	10.53330	ug/l	1000	Mo	
Ru	101	72	2	-0.01848	-0.03696	ug/l	200	Ru	
Rh	103	72	2	-0.01073	-0.02147	ug/l	200	Rh	
Pd	105	72	2	0.03691	0.07382	ug/l	20	Pd	
Ag	107	115	3	0.12069	0.24139	ug/l	400	Ag	
Cd	111	115	3	0.24046	0.48093	ug/l	2000	Cd	
Sn	118	115	3	9.23654	18.47309	ug/l	2000	Sn	
Sb	121	115	3	1.14602	2.29203	ug/l	1000	Sb	
Te	125	165	2	0.19479	0.38958	ug/l	200	Te	
Cs	133	165	2	8.54555	17.09110	ug/l	2000	Cs	
Ba	137	165	3	409.26726	818.53452	ug/l	5000	Ba	
La	139	165	2	73.87594	147.75188	ug/l	200	La	
Ce	140	165	2	150.60024	301.20049	ug/l	200	Ce	
Pr	141	165	2	16.39636	32.79272	ug/l	200	Pr	
Nd	146	165	2	60.67258	121.34516	ug/l	200	Nd	
Sm	147	165	3	10.33135	20.66270	ug/l	2000	Sm	
Hf	178	165	2	1.24223	2.48446	ug/l	200	Hf	
Ta	181	165	2	0.00812	0.01624	ug/l	200	Ta	
W	182	165	2	5.02282	10.04565	ug/l	2000	W	
Re	185	193	3	-0.00670	-0.01340	ug/l	200	Re	
Pt	195	193	2	0.00837	0.01674	ug/l	200	Pt	
Au	197	193	3	-0.03714	-0.07427	ug/l	2000	Au	
Tl	205	193	3	0.62001	1.24001	ug/l	400	Tl	
Pb	208	193	3	22.12847	44.25693	ug/l	5000	Pb	
Bi	209	193	2	1.05081	2.10162	ug/l	2000	Bi	
Th	232	193	3	39.10184	78.20369	ug/l	2000	Th	
U	238	193	3	6.83000	13.66001	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5118255	0.99	5669753	90.3	80	120	Li (IS)	
Sc (IS)	45	2	188400	0.98	159326	118.2	80	120	Sc (IS)	
Sc (IS)	45	3	3899650	0.09	3433865	113.6	80	120	Sc (IS)	
Ge (IS)	72	2	366496	1.25	361019	101.5	80	120	Ge (IS)	
Ge (IS)	72	3	2311304	1.64	2460124	94.0	80	120	Ge (IS)	
In (IS)	115	3	13451357	0.21	14712226	91.4	80	120	In (IS)	
Ho (IS)	165	2	9117898	0.91	9297179	98.1	80	120	Ho (IS)	
Ho (IS)	165	3	15460621	1.27	15717830	98.4	80	120	Ho (IS)	
Ir (IS)	193	2	5674621	1.18	6159233	92.1	80	120	Ir (IS)	
Ir (IS)	193	3	7261051	0.38	7740235	93.8	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Report

Sample Name	160-36942-B-21-A SD
Data File Name	136SMPL.D
DataPath	C:\ICPMH\1\DATA\012920B1.B
Acq Date Time	2020-01-30T07:47:10-06:00
Type	Sample
VialNumber	3301
Dilution	10
Comment	
Operator	LP 7700
ISTDRefDataFileName	103CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	7.97473	79.74726	ug/l	1000	Li	
Be	9	6	3	0.37844	3.78439	ug/l	1000	Be	
B	11	6	3	9.83799	98.37994	ug/l	2000	B	
Na	23	45	2	962.26206	9622.62062	ug/l	50000	Na	
Mg	24	45	2	3416.98817	34169.88174	ug/l	50000	Mg	
Al	27	45	2	7760.37700	77603.76996	ug/l	100000	Al	
P	31	45	2	546.94935	5469.49346	ug/l	100000	P	
K	39	45	2	1456.77427	14567.74270	ug/l	100000	K	
Ca	44	45	3	6568.51330	65685.13296	ug/l	100000	Ca	
Ti	47	45	3	339.32688	3393.26883	ug/l	2000	Ti	
V	51	45	2	29.38643	293.86431	ug/l	2000	V	
Cr	52	45	2	8.13898	81.38981	ug/l	2000	Cr	
Mn	55	72	2	292.18214	2921.82136	ug/l	5000	Mn	
Fe	57	72	2	14666.25765	146662.57653	ug/l	100000	Fe	
Co	59	72	2	4.35135	43.51354	ug/l	2000	Co	
Ni	60	72	2	6.00001	60.00010	ug/l	2000	Ni	
Cu	63	72	2	75.95883	759.58830	ug/l	2000	Cu	
Zn	66	72	2	28.83289	288.32886	ug/l	5000	Zn	
As	75	72	2	6.67632	66.76317	ug/l	2000	As	
Se	78	72	2	0.57782	5.77819	ug/l	1000	Se	
Sr	88	72	3	69.36203	693.62028	ug/l	2000	Sr	
Y	89	72	2	5.54632	55.46318	ug/l	200	Y	
Zr	90	72	2	7.19541	71.95406	ug/l	2000	Zr	
Nb	93	72	2	0.07951	0.79510	ug/l	100	Nb	
Mo	95	72	3	1.10541	11.05405	ug/l	1000	Mo	
Ru	101	72	2	-0.01698	-0.16982	ug/l	200	Ru	
Rh	103	72	2	-0.01213	-0.12134	ug/l	200	Rh	
Pd	105	72	2	0.00345	0.03452	ug/l	20	Pd	
Ag	107	115	3	0.01925	0.19248	ug/l	400	Ag	
Cd	111	115	3	0.03510	0.35101	ug/l	2000	Cd	
Sn	118	115	3	1.75792	17.57918	ug/l	2000	Sn	
Sb	121	115	3	0.22828	2.28281	ug/l	1000	Sb	
Te	125	165	2	0.03352	0.33521	ug/l	200	Te	
Cs	133	165	2	1.77361	17.73608	ug/l	2000	Cs	
Ba	137	165	3	81.11204	811.12036	ug/l	5000	Ba	
La	139	165	2	14.12711	141.27114	ug/l	200	La	
Ce	140	165	2	31.22254	312.22536	ug/l	200	Ce	
Pr	141	165	2	3.33494	33.34944	ug/l	200	Pr	
Nd	146	165	2	12.47327	124.73274	ug/l	200	Nd	
Sm	147	165	3	2.13247	21.32472	ug/l	2000	Sm	
Hf	178	165	2	0.21301	2.13009	ug/l	200	Hf	
Ta	181	165	2	-0.02859	-0.28589	ug/l	200	Ta	
W	182	165	2	0.98246	9.82463	ug/l	2000	W	
Re	185	193	3	-0.00854	-0.08541	ug/l	200	Re	
Pt	195	193	2	0.00501	0.05009	ug/l	200	Pt	
Au	197	193	3	-0.04477	-0.44771	ug/l	2000	Au	
Tl	205	193	3	0.15734	1.57342	ug/l	400	Tl	
Pb	208	193	3	4.57496	45.74962	ug/l	5000	Pb	
Bi	209	193	2	0.18154	1.81545	ug/l	2000	Bi	
Th	232	193	3	6.92183	69.21826	ug/l	2000	Th	
U	238	193	3	1.33703	13.37027	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5497782	0.72	5669753	97.0	80	120	Li (IS)	
Sc (IS)	45	2	176278	0.50	159326	110.6	80	120	Sc (IS)	
Sc (IS)	45	3	3491346	1.45	3433865	101.7	80	120	Sc (IS)	
Ge (IS)	72	2	377471	1.52	361019	104.6	80	120	Ge (IS)	
Ge (IS)	72	3	2409641	0.85	2460124	97.9	80	120	Ge (IS)	
In (IS)	115	3	14189656	0.15	14712226	96.4	80	120	In (IS)	
Ho (IS)	165	2	9636115	0.59	9297179	103.6	80	120	Ho (IS)	
Ho (IS)	165	3	15671639	1.10	15717830	99.7	80	120	Ho (IS)	
Ir (IS)	193	2	6091345	0.84	6159233	98.9	80	120	Ir (IS)	
Ir (IS)	193	3	7599937	0.61	7740235	98.2	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Name	160-36942-B-21-B MS
Data File Name	140SMPL.D
DataPath	C:\ICPMH\1\DATA\012920B1.B
Acq Date Time	2020-01-30T08:14:09-06:00
Type	Sample
VialNumber	3302
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	103CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	93.76378	187.52756	ug/l	1000	Li	
Be	9	6	3	47.71735	95.43469	ug/l	1000	Be	
B	11	6	3	136.56997	273.13994	ug/l	2000	B	
Na	23	45	2	8392.21267	16784.42534	ug/l	50000	Na	
Mg	24	45	2	20919.96834	41839.93669	ug/l	50000	Mg	
Al	27	45	2	48046.21763	96092.43526	ug/l	100000	Al	
P	31	45	2	2780.10060	5560.20120	ug/l	100000	P	
K	39	45	2	9964.81751	19929.63501	ug/l	100000	K	
Ca	44	45	3	30536.69778	61073.39556	ug/l	100000	Ca	
Ti	47	45	3	2283.98181	4567.96362	ug/l	2000	Ti	FAILED
V	51	45	2	490.41874	980.83749	ug/l	2000	V	
Cr	52	45	2	401.17660	802.35321	ug/l	2000	Cr	
Mn	55	72	2	1766.44491	3532.88981	ug/l	5000	Mn	
Fe	57	72	2	73913.49228	147826.98456	ug/l	100000	Fe	
Co	59	72	2	492.65175	985.30350	ug/l	2000	Co	
Ni	60	72	2	526.34972	1052.69944	ug/l	2000	Ni	
Cu	63	72	2	796.98695	1593.97389	ug/l	2000	Cu	
Zn	66	72	2	588.69209	1177.38417	ug/l	5000	Zn	
As	75	72	2	504.74918	1009.49836	ug/l	2000	As	
Se	78	72	2	243.68530	487.37060	ug/l	1000	Se	
Sr	88	72	3	831.16772	1662.33544	ug/l	2000	Sr	
Y	89	72	2	29.79916	59.59831	ug/l	200	Y	
Zr	90	72	2	511.72909	1023.45817	ug/l	2000	Zr	
Nb	93	72	2	2.61774	5.23548	ug/l	100	Nb	
Mo	95	72	3	249.51680	499.03359	ug/l	1000	Mo	
Ru	101	72	2	-0.01476	-0.02952	ug/l	200	Ru	
Rh	103	72	2	0.01124	0.02248	ug/l	200	Rh	
Pd	105	72	2	0.05374	0.10749	ug/l	20	Pd	
Ag	107	115	3	89.10112	178.20225	ug/l	400	Ag	
Cd	111	115	3	464.62295	929.24590	ug/l	2000	Cd	
Sn	118	115	3	462.97716	925.95432	ug/l	2000	Sn	
Sb	121	115	3	145.61817	291.23633	ug/l	1000	Sb	
Te	125	165	2	0.26032	0.52065	ug/l	200	Te	
Cs	133	165	2	9.42956	18.85912	ug/l	2000	Cs	
Ba	137	165	3	849.66098	1699.32196	ug/l	5000	Ba	
La	139	165	2	74.32965	148.65929	ug/l	200	La	
Ce	140	165	2	137.26092	274.52183	ug/l	200	Ce	
Pr	141	165	2	15.88968	31.77936	ug/l	200	Pr	
Nd	146	165	2	60.58007	121.16013	ug/l	200	Nd	
Sm	147	165	3	471.77294	943.54588	ug/l	2000	Sm	
Hf	178	165	2	2.24480	4.48961	ug/l	200	Hf	
Ta	181	165	2	0.25981	0.51962	ug/l	200	Ta	
W	182	165	2	373.22801	746.45602	ug/l	2000	W	
Re	185	193	3	0.00266	0.00533	ug/l	200	Re	
Pt	195	193	2	0.01807	0.03614	ug/l	200	Pt	
Au	197	193	3	0.01232	0.02464	ug/l	2000	Au	
Tl	205	193	3	95.00664	190.01328	ug/l	400	Tl	
Pb	208	193	3	490.29445	980.58891	ug/l	5000	Pb	
Bi	209	193	2	474.16641	948.33283	ug/l	2000	Bi	
Th	232	193	3	508.82951	1017.65901	ug/l	2000	Th	
U	238	193	3	493.35164	986.70327	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	4902181	0.35	5669753	86.5	80	120	Li (IS)	
Sc (IS)	45	2	195189	0.45	159326	122.5	80	120	Sc (IS)	FAILED
Sc (IS)	45	3	3881209	0.52	3433865	113.0	80	120	Sc (IS)	
Ge (IS)	72	2	350651	1.87	361019	97.1	80	120	Ge (IS)	
Ge (IS)	72	3	2220043	0.93	2460124	90.2	80	120	Ge (IS)	
In (IS)	115	3	13045771	0.39	14712226	88.7	80	120	In (IS)	
Ho (IS)	165	2	8985478	0.32	9297179	96.6	80	120	Ho (IS)	
Ho (IS)	165	3	14941832	0.89	15717830	95.1	80	120	Ho (IS)	
Ir (IS)	193	2	5540529	0.82	6159233	90.0	80	120	Ir (IS)	
Ir (IS)	193	3	7147022	1.27	7740235	92.3	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Report

Sample Name	160-36942-B-21-C MSD
Data File Name	141SMPL.D
DataPath	C:\ICPMH\1\DATA\012920B1.B
Acq Date Time	2020-01-30T08:20:54-06:00
Type	Sample
VialNumber	3303
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	103CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	95.01809	190.03619	ug/l	1000	Li	
Be	9	6	3	47.64832	95.29665	ug/l	1000	Be	
B	11	6	3	135.31141	270.62282	ug/l	2000	B	
Na	23	45	2	8551.20391	17102.40781	ug/l	50000	Na	
Mg	24	45	2	21011.34718	42022.69435	ug/l	50000	Mg	
Al	27	45	2	48443.47738	96886.95475	ug/l	100000	Al	
P	31	45	2	2345.51053	4691.02106	ug/l	100000	P	
K	39	45	2	9956.42185	19912.84371	ug/l	100000	K	
Ca	44	45	3	32384.91794	64769.83587	ug/l	100000	Ca	
Ti	47	45	3	2214.70181	4429.40361	ug/l	2000	Ti	FAILED
V	51	45	2	486.50114	973.00228	ug/l	2000	V	
Cr	52	45	2	397.85210	795.70420	ug/l	2000	Cr	
Mn	55	72	2	1906.80509	3813.61018	ug/l	5000	Mn	
Fe	57	72	2	77031.29559	154062.59119	ug/l	100000	Fe	
Co	59	72	2	507.97659	1015.95318	ug/l	2000	Co	
Ni	60	72	2	539.60026	1079.20053	ug/l	2000	Ni	
Cu	63	72	2	851.15824	1702.31648	ug/l	2000	Cu	
Zn	66	72	2	607.88262	1215.76524	ug/l	5000	Zn	
As	75	72	2	509.05423	1018.10845	ug/l	2000	As	
Se	78	72	2	238.64676	477.29351	ug/l	1000	Se	
Sr	88	72	3	879.29359	1758.58718	ug/l	2000	Sr	
Y	89	72	2	27.42836	54.85673	ug/l	200	Y	
Zr	90	72	2	528.38031	1056.76063	ug/l	2000	Zr	
Nb	93	72	2	2.34655	4.69309	ug/l	100	Nb	
Mo	95	72	3	251.76481	503.52963	ug/l	1000	Mo	
Ru	101	72	2	-0.01657	-0.03313	ug/l	200	Ru	
Rh	103	72	2	0.01142	0.02283	ug/l	200	Rh	
Pd	105	72	2	0.05685	0.11369	ug/l	20	Pd	
Ag	107	115	3	90.73195	181.46390	ug/l	400	Ag	
Cd	111	115	3	470.34033	940.68066	ug/l	2000	Cd	
Sn	118	115	3	469.06982	938.13964	ug/l	2000	Sn	
Sb	121	115	3	145.68057	291.36113	ug/l	1000	Sb	
Te	125	165	2	0.18686	0.37372	ug/l	200	Te	
Cs	133	165	2	9.23711	18.47422	ug/l	2000	Cs	
Ba	137	165	3	870.90683	1741.81367	ug/l	5000	Ba	
La	139	165	2	73.63251	147.26501	ug/l	200	La	
Ce	140	165	2	151.68447	303.36895	ug/l	200	Ce	
Pr	141	165	2	16.59463	33.18927	ug/l	200	Pr	
Nd	146	165	2	62.00507	124.01015	ug/l	200	Nd	
Sm	147	165	3	478.77882	957.55764	ug/l	2000	Sm	
Hf	178	165	2	2.12305	4.24610	ug/l	200	Hf	
Ta	181	165	2	0.29127	0.58255	ug/l	200	Ta	
W	182	165	2	373.95592	747.91184	ug/l	2000	W	
Re	185	193	3	0.00223	0.00445	ug/l	200	Re	
Pt	195	193	2	0.01735	0.03471	ug/l	200	Pt	
Au	197	193	3	-0.00732	-0.01464	ug/l	2000	Au	
Tl	205	193	3	96.01606	192.03212	ug/l	400	Tl	
Pb	208	193	3	499.50419	999.00837	ug/l	5000	Pb	
Bi	209	193	2	481.83783	963.67566	ug/l	2000	Bi	
Th	232	193	3	524.32881	1048.65762	ug/l	2000	Th	
U	238	193	3	499.38384	998.76767	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	4864399	0.34	5669753	85.8	80	120	Li (IS)	
Sc (IS)	45	2	197668	1.43	159326	124.1	80	120	Sc (IS)	FAILED
Sc (IS)	45	3	3866008	0.52	3433865	112.6	80	120	Sc (IS)	
Ge (IS)	72	2	344546	1.04	361019	95.4	80	120	Ge (IS)	
Ge (IS)	72	3	2214144	0.27	2460124	90.0	80	120	Ge (IS)	
In (IS)	115	3	12888313	0.74	14712226	87.6	80	120	In (IS)	
Ho (IS)	165	2	9017979	1.01	9297179	97.0	80	120	Ho (IS)	
Ho (IS)	165	3	15058534	0.37	15717830	95.8	80	120	Ho (IS)	
Ir (IS)	193	2	5529704	1.29	6159233	89.8	80	120	Ir (IS)	
Ir (IS)	193	3	7159909	0.36	7740235	92.5	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Report

Sample Name	160-36942-B-22-A
Data File Name	142SMPL.D
DataPath	C:\ICPMH\1\DATA\012920B1.B
Acq Date Time	2020-01-30T08:27:36-06:00
Type	Sample
VialNumber	3304
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	103CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	43.15874	86.31747	ug/l	1000	Li	
Be	9	6	3	1.77122	3.54244	ug/l	1000	Be	
B	11	6	3	50.33646	100.67291	ug/l	2000	B	
Na	23	45	2	4504.16732	9008.33464	ug/l	50000	Na	
Mg	24	45	2	15997.58920	31995.17839	ug/l	50000	Mg	
Al	27	45	2	31768.85582	63537.71165	ug/l	100000	Al	
P	31	45	2	2893.18795	5786.37591	ug/l	100000	P	
K	39	45	2	5831.31064	11662.62127	ug/l	100000	K	
Ca	44	45	3	42457.23809	84914.47619	ug/l	100000	Ca	
Ti	47	45	3	1276.67510	2553.35021	ug/l	2000	Ti	
V	51	45	2	136.27782	272.55563	ug/l	2000	V	
Cr	52	45	2	33.65392	67.30784	ug/l	2000	Cr	
Mn	55	72	2	1364.08787	2728.17575	ug/l	5000	Mn	
Fe	57	72	2	72123.47550	144246.95101	ug/l	100000	Fe	
Co	59	72	2	23.91581	47.83161	ug/l	2000	Co	
Ni	60	72	2	31.74398	63.48797	ug/l	2000	Ni	
Cu	63	72	2	462.40754	924.81507	ug/l	2000	Cu	
Zn	66	72	2	128.60556	257.21112	ug/l	5000	Zn	
As	75	72	2	39.84712	79.69424	ug/l	2000	As	
Se	78	72	2	3.70862	7.41723	ug/l	1000	Se	
Sr	88	72	3	359.56718	719.13435	ug/l	2000	Sr	
Y	89	72	2	23.38989	46.77977	ug/l	200	Y	
Zr	90	72	2	40.93001	81.86002	ug/l	2000	Zr	
Nb	93	72	2	0.89537	1.79073	ug/l	100	Nb	
Mo	95	72	3	5.81863	11.63726	ug/l	1000	Mo	
Ru	101	72	2	-0.01479	-0.02959	ug/l	200	Ru	
Rh	103	72	2	-0.00979	-0.01958	ug/l	200	Rh	
Pd	105	72	2	0.02817	0.05634	ug/l	20	Pd	
Ag	107	115	3	0.16478	0.32956	ug/l	400	Ag	
Cd	111	115	3	0.34185	0.68370	ug/l	2000	Cd	
Sn	118	115	3	8.44049	16.88098	ug/l	2000	Sn	
Sb	121	115	3	1.30354	2.60708	ug/l	1000	Sb	
Te	125	165	2	0.12652	0.25303	ug/l	200	Te	
Cs	133	165	2	8.07775	16.15549	ug/l	2000	Cs	
Ba	137	165	3	388.95254	777.90508	ug/l	5000	Ba	
La	139	165	2	58.63753	117.27506	ug/l	200	La	
Ce	140	165	2	118.23707	236.47413	ug/l	200	Ce	
Pr	141	165	2	12.68957	25.37915	ug/l	200	Pr	
Nd	146	165	2	48.29578	96.59156	ug/l	200	Nd	
Sm	147	165	3	8.43951	16.87902	ug/l	2000	Sm	
Hf	178	165	2	1.17858	2.35715	ug/l	200	Hf	
Ta	181	165	2	0.10633	0.21265	ug/l	200	Ta	
W	182	165	2	8.86913	17.73826	ug/l	2000	W	
Re	185	193	3	-0.00739	-0.01477	ug/l	200	Re	
Pt	195	193	2	0.01061	0.02121	ug/l	200	Pt	
Au	197	193	3	-0.02179	-0.04357	ug/l	2000	Au	
Tl	205	193	3	0.54138	1.08276	ug/l	400	Tl	
Pb	208	193	3	21.83383	43.66766	ug/l	5000	Pb	
Bi	209	193	2	1.05186	2.10373	ug/l	2000	Bi	
Th	232	193	3	33.45660	66.91320	ug/l	2000	Th	
U	238	193	3	8.10443	16.20886	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5142361	1.16	5669753	90.7	80	120	Li (IS)	
Sc (IS)	45	2	189393	0.63	159326	118.9	80	120	Sc (IS)	
Sc (IS)	45	3	3861729	0.60	3433865	112.5	80	120	Sc (IS)	
Ge (IS)	72	2	351702	1.18	361019	97.4	80	120	Ge (IS)	
Ge (IS)	72	3	2304262	0.06	2460124	93.7	80	120	Ge (IS)	
In (IS)	115	3	13569363	0.55	14712226	92.2	80	120	In (IS)	
Ho (IS)	165	2	9245159	0.50	9297179	99.4	80	120	Ho (IS)	
Ho (IS)	165	3	15413103	1.27	15717830	98.1	80	120	Ho (IS)	
Ir (IS)	193	2	5808489	1.36	6159233	94.3	80	120	Ir (IS)	
Ir (IS)	193	3	7269462	0.95	7740235	93.9	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Report

Sample Name	160-36942-B-23-A
Data File Name	143SMPL.D
DataPath	C:\ICPMH\1\DATA\012920B1.B
Acq Date Time	2020-01-30T08:34:22-06:00
Type	Sample
VialNumber	3305
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	103CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	45.22125	90.44250	ug/l	1000	Li	
Be	9	6	3	1.84966	3.69932	ug/l	1000	Be	
B	11	6	3	45.30772	90.61545	ug/l	2000	B	
Na	23	45	2	4217.44778	8434.89556	ug/l	50000	Na	
Mg	24	45	2	17981.17154	35962.34309	ug/l	50000	Mg	
Al	27	45	2	37691.90961	75383.81922	ug/l	100000	Al	
P	31	45	2	2781.75378	5563.50757	ug/l	100000	P	
K	39	45	2	6391.74144	12783.48288	ug/l	100000	K	
Ca	44	45	3	35421.01736	70842.03472	ug/l	100000	Ca	
Ti	47	45	3	1799.23273	3598.46546	ug/l	2000	Ti	
V	51	45	2	141.63268	283.26537	ug/l	2000	V	
Cr	52	45	2	45.47099	90.94198	ug/l	2000	Cr	
Mn	55	72	2	1207.79979	2415.59958	ug/l	5000	Mn	
Fe	57	72	2	80520.31627	161040.63254	ug/l	100000	Fe	
Co	59	72	2	23.33492	46.66984	ug/l	2000	Co	
Ni	60	72	2	35.46501	70.93001	ug/l	2000	Ni	
Cu	63	72	2	976.82992	1953.65983	ug/l	2000	Cu	
Zn	66	72	2	127.34024	254.68048	ug/l	5000	Zn	
As	75	72	2	31.15032	62.30065	ug/l	2000	As	
Se	78	72	2	4.22171	8.44342	ug/l	1000	Se	
Sr	88	72	3	355.00574	710.01148	ug/l	2000	Sr	
Y	89	72	2	23.19905	46.39810	ug/l	200	Y	
Zr	90	72	2	42.78464	85.56929	ug/l	2000	Zr	
Nb	93	72	2	0.92830	1.85660	ug/l	100	Nb	
Mo	95	72	3	6.90301	13.80601	ug/l	1000	Mo	
Ru	101	72	2	-0.01547	-0.03095	ug/l	200	Ru	
Rh	103	72	2	-0.01048	-0.02097	ug/l	200	Rh	
Pd	105	72	2	0.02518	0.05036	ug/l	20	Pd	
Ag	107	115	3	0.19249	0.38497	ug/l	400	Ag	
Cd	111	115	3	0.25716	0.51432	ug/l	2000	Cd	
Sn	118	115	3	8.59505	17.19011	ug/l	2000	Sn	
Sb	121	115	3	1.06628	2.13255	ug/l	1000	Sb	
Te	125	165	2	0.17877	0.35755	ug/l	200	Te	
Cs	133	165	2	8.18872	16.37744	ug/l	2000	Cs	
Ba	137	165	3	409.14864	818.29727	ug/l	5000	Ba	
La	139	165	2	61.52892	123.05784	ug/l	200	La	
Ce	140	165	2	121.29432	242.58864	ug/l	200	Ce	
Pr	141	165	2	13.26892	26.53785	ug/l	200	Pr	
Nd	146	165	2	50.24911	100.49821	ug/l	200	Nd	
Sm	147	165	3	8.55939	17.11878	ug/l	2000	Sm	
Hf	178	165	2	1.37064	2.74128	ug/l	200	Hf	
Ta	181	165	2	0.06704	0.13409	ug/l	200	Ta	
W	182	165	2	6.57507	13.15013	ug/l	2000	W	
Re	185	193	3	-0.00692	-0.01383	ug/l	200	Re	
Pt	195	193	2	0.01240	0.02480	ug/l	200	Pt	
Au	197	193	3	-0.02267	-0.04534	ug/l	2000	Au	
Tl	205	193	3	0.46666	0.93332	ug/l	400	Tl	
Pb	208	193	3	22.01969	44.03938	ug/l	5000	Pb	
Bi	209	193	2	1.12785	2.25569	ug/l	2000	Bi	
Th	232	193	3	30.11298	60.22597	ug/l	2000	Th	
U	238	193	3	6.44121	12.88241	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5134282	0.83	5669753	90.6	80	120	Li (IS)	
Sc (IS)	45	2	189938	1.30	159326	119.2	80	120	Sc (IS)	
Sc (IS)	45	3	3937528	0.89	3433865	114.7	80	120	Sc (IS)	
Ge (IS)	72	2	363458	1.31	361019	100.7	80	120	Ge (IS)	
Ge (IS)	72	3	2342450	0.72	2460124	95.2	80	120	Ge (IS)	
In (IS)	115	3	13534826	0.57	14712226	92.0	80	120	In (IS)	
Ho (IS)	165	2	9156021	0.62	9297179	98.5	80	120	Ho (IS)	
Ho (IS)	165	3	15485859	0.87	15717830	98.5	80	120	Ho (IS)	
Ir (IS)	193	2	5724979	0.15	6159233	92.9	80	120	Ir (IS)	
Ir (IS)	193	3	7208120	0.20	7740235	93.1	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

GAMMA SPECTROSCOPY

Method 901.1
Ra-226

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

Prep Batch: 456720

Fill Geometry, 21-Day In-Growth

Gamma Spectroscopy Analysis Detail Report
Prep Batch: 456720

Lab Id: MB 160-456720/1-A | Analyzed: 02/04/20 10:38 | Ts: 30 | Sigma: 2
Client ID: | Detector: GV14 | Decay Corrected: No | Ingrowth:

Analyte	MB Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	-0.1255	0.119	0.119	U	pCi/g	1.00	0.360	459110
Radium-228	0.08826	0.0789	0.0795	U	pCi/g	1.00	0.129	459110

Lab Id: LCS 160-456720/2-A | Analyzed: 02/05/20 09:00 | Ts: 30 | Sigma: 2
Client ID: | Detector: GV9 | Decay Corrected: No | Ingrowth:

Analyte	LCS Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Americium-241	97.24	1.42	10.2		pCi/g		0.973	459382
Cesium-137	26.61	0.581	2.83		pCi/g		0.175	459382
Cobalt-60	10.26	0.302	1.07		pCi/g		0.0623	459382

Lab Id: 160-36942-A-1-C DU | Analyzed: 02/04/20 11:23 | Ts: 30 | Sigma: 2
Client ID: | Detector: GV9 | Decay Corrected: No | Ingrowth:

Analyte	DU Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.731	0.240	0.300		pCi/g	1.00	0.176	459118
Radium-228	4.622	0.367	0.598		pCi/g	1.00	0.174	459118

Lab Id: 160-36942-6 | Analyzed: 02/04/20 11:24 | Ts: 30 | Sigma: 2
Client ID: WRSB208_0-0.5 | Detector: GV8 | Decay Corrected: No | Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.04	0.203	0.229		pCi/g	1.00	0.215	459128
Radium-228	1.50	0.286	0.324		pCi/g	1.00	0.105	459128

Lab Id: 160-36942-7 | Analyzed: 02/04/20 11:26 | Ts: 30 | Sigma: 2
Client ID: WRSB208_0.5-3 | Detector: GV14 | Decay Corrected: No | Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.28	0.215	0.253		pCi/g	1.00	0.156	459110
Radium-228	1.33	0.188	0.232		pCi/g	1.00	0.0897	459110

Lab Id: 160-36942-8 | Analyzed: 02/04/20 11:27 | Ts: 30 | Sigma: 2
Client ID: WRSB208_3-6 | Detector: GV15 | Decay Corrected: No | Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	0.140	0.242	0.242	U	pCi/g	1.00	0.581	459111
Radium-228	1.50	0.333	0.367		pCi/g	1.00	0.189	459111

Gamma Spectroscopy Analysis Detail Report
Prep Batch: 456720

Lab Id: 160-36942-9 Analyzed: 02/04/20 11:28 Ts: 30 Sigma: 2
Client ID: WRSB208_6-15 Detector: GV16 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.24	0.198	0.237		pCi/g	1.00	0.151	459112
Radium-228	1.17	0.308	0.331		pCi/g	1.00	0.261	459112

Lab Id: 160-36942-10 Analyzed: 02/04/20 11:29 Ts: 30 Sigma: 2
Client ID: WRSB208_15-25 Detector: GV17 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.10	0.180	0.213		pCi/g	1.00	0.130	459113
Radium-228	1.25	0.220	0.254		pCi/g	1.00	0.135	459113

Lab Id: 160-36942-11 Analyzed: 02/04/20 12:06 Ts: 30 Sigma: 2
Client ID: WRSB208-FD_15-25 Detector: GV9 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.41	0.186	0.236		pCi/g	1.00	0.119	459118
Radium-228	1.52	0.214	0.264		pCi/g	1.00	0.224	459118

Lab Id: 160-36942-12 Analyzed: 02/04/20 12:07 Ts: 30 Sigma: 2
Client ID: WRSB208_25-35 Detector: GV12 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.75	0.280	0.332		pCi/g	1.00	0.198	459117
Radium-228	1.71	0.319	0.363		pCi/g	1.00	0.404	459117

Lab Id: 160-36942-13 Analyzed: 02/04/20 12:08 Ts: 30 Sigma: 2
Client ID: WRSB208_35-45 Detector: GV5 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.34	0.256	0.291		pCi/g	1.00	0.202	459127
Radium-228	1.55	0.295	0.334		pCi/g	1.00	0.260	459127

Lab Id: 160-36942-14 Analyzed: 02/04/20 12:09 Ts: 30 Sigma: 2
Client ID: WRSB208_45-55 Detector: GV8 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.47	0.236	0.281		pCi/g	1.00	0.145	459128
Radium-228	1.94	0.347	0.400		pCi/g	1.00	0.339	459128

Gamma Spectroscopy Analysis Detail Report
Prep Batch: 456720

Lab Id: 160-36942-15 Analyzed: 02/04/20 12:09 Ts: 30 Sigma: 2
Client ID: WRSB208_55-65 Detector: GV14 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.61	0.239	0.292		pCi/g	1.00	0.160	459110
Radium-228	1.53	0.303	0.341		pCi/g	1.00	0.277	459110

Lab Id: 160-36942-16 Analyzed: 02/04/20 12:10 Ts: 30 Sigma: 2
Client ID: WRSB208_65-75 Detector: GV15 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.64	0.304	0.348		pCi/g	1.00	0.216	459111
Radium-228	1.41	0.332	0.362		pCi/g	1.00	0.324	459111

Lab Id: 160-36942-17 Analyzed: 02/04/20 12:11 Ts: 30 Sigma: 2
Client ID: WRSB208-FD_65-75 Detector: GV16 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.40	0.218	0.262		pCi/g	1.00	0.207	459112
Radium-228	1.78	0.361	0.404		pCi/g	1.00	0.294	459112

Lab Id: 160-36942-18 Analyzed: 02/04/20 12:13 Ts: 30 Sigma: 2
Client ID: WRSB208_75-85 Detector: GV17 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.39	0.249	0.288		pCi/g	1.00	0.194	459113
Radium-228	1.79	0.280	0.334		pCi/g	1.00	0.263	459113

Lab Id: 160-36942-19 Analyzed: 02/04/20 12:49 Ts: 30 Sigma: 2
Client ID: WRSB208_85-95 Detector: GV5 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.26	0.248	0.280		pCi/g	1.00	0.248	459127
Radium-228	1.80	0.340	0.386		pCi/g	1.00	0.369	459127

Lab Id: 160-36942-20 Analyzed: 02/04/20 12:50 Ts: 30 Sigma: 2
Client ID: WRSB208_95-105 Detector: GV8 Decay Corrected: No Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.59	0.246	0.296		pCi/g	1.00	0.148	459128
Radium-228	1.73	0.265	0.319		pCi/g	1.00	0.281	459128

Gamma Spectroscopy Analysis Detail Report
Prep Batch: 456720

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 160-456720/1-A	Radium-226			-0.1255	U	pCi/g							-2.1054
MB 160-456720/1-A	Radium-228		Clear	0.08826	U	pCi/g							2.2217
Lab Control Sample ID:	**Analyte**	**Parent Result**	**Spike Added**	**LCS Result**	**Qualifier**	**Unit**	**% Rec**	**% Rec Limits**	**RPD**	**RER**	**DER**	**DER Limit**	**Z Factor**
LCS 160-456720/2-A	Americium-241		96.6	97.24		pCi/g	101	75 - 125					.1259
LCS 160-456720/2-A	Cesium-137		27.3	26.61		pCi/g	98	75 - 125					-.433
LCS 160-456720/2-A	Cobalt-60		10.6	10.26		pCi/g	97	75 - 125					-.5798
Duplicate ID:	**Analyte**	**Parent Result**	**Spike Added**	**DU Result**	**Qualifier**	**Unit**	**% Rec**	**% Rec Limits**	**RPD**	**RER**	**DER**	**DER Limit**	**Z Factor**
160-36942-A-1-C DU	Radium-226	1.42		1.731		pCi/g			20	0.55	1.56	2	1.5585
160-36942-A-1-C DU	Radium-228	4.55		4.622		pCi/g			1	0.06	0.16	2	.1573

Glossary:

Ts = Count Duration, Sample

GAMMA SPECTROSCOPY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 456720 Batch Start Date: 01/14/20 09:54 Batch Analyst: Curtright, Logan T

Batch Method: Fill_Geo-21 Batch End Date: 01/14/20 11:25

Lab Sample ID	Client Sample ID	Method Chain	Basis	TareWeight	GrossWeight	InitialAmount	IngDecDate1	IngDecDate3	Geometry
MB 160-456720/1		Fill_Geo-21, 901.1				291.18 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
LCS 160-456720/2		Fill_Geo-21, 901.1				341.9 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-1-A DU		Fill_Geo-21, 901.1	T	46.2 g	438.1 g	391.9 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-6-A	WRSB208_0-0.5	Fill_Geo-21, 901.1	T	46.5 g	440.2 g	393.7 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-7-A	WRSB208_0.5-3	Fill_Geo-21, 901.1	T	46.3 g	466.0 g	419.7 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-8-A	WRSB208_3-6	Fill_Geo-21, 901.1	T	46.0 g	442.5 g	396.5 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-9-A	WRSB208_6-15	Fill_Geo-21, 901.1	T	46.2 g	444.5 g	398.3 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-10-A	WRSB208_15-25	Fill_Geo-21, 901.1	T	46.2 g	458.4 g	412.2 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-11-A	WRSB208-FD_15-25	Fill_Geo-21, 901.1	T	46.3 g	418.4 g	372.1 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-12-A	WRSB208_25-35	Fill_Geo-21, 901.1	T	46.1 g	393.4 g	347.3 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-13-A	WRSB208_35-45	Fill_Geo-21, 901.1	T	46.3 g	390.0 g	343.7 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-14-A	WRSB208_45-55	Fill_Geo-21, 901.1	T	46.1 g	384.3 g	338.2 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-15-A	WRSB208_55-65	Fill_Geo-21, 901.1	T	46.4 g	417.4 g	371 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-16-A	WRSB208_65-75	Fill_Geo-21, 901.1	T	46.1 g	419.4 g	373.3 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-17-A	WRSB208-FD_65-75	Fill_Geo-21, 901.1	T	46.0 g	375.9 g	329.9 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-18-A	WRSB208_75-85	Fill_Geo-21, 901.1	T	46.3 g	410.0 g	363.7 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-19-A	WRSB208_85-95	Fill_Geo-21, 901.1	T	46.1 g	406.4 g	360.3 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-20-A	WRSB208_95-105	Fill_Geo-21, 901.1	T	46.0 g	393.1 g	347.1 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can

Lab Sample ID	Client Sample ID	Method Chain	Basis	Tuna Can LCS 00009
MB 160-456720/1		Fill_Geo-21, 901.1		

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.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 456720 Batch Start Date: 01/14/20 09:54 Batch Analyst: Curtright, Logan T

Batch Method: Fill_Geo-21 Batch End Date: 01/14/20 11:25

Lab Sample ID	Client Sample ID	Method Chain	Basis	Tuna Can LCS 00009			
LCS 160-456720/2		Fill_Geo-21, 901.1		# g			
160-36942-A-1-A DU		Fill_Geo-21, 901.1	T				
160-36942-A-6-A	WRSB208_0-0.5	Fill_Geo-21, 901.1	T				
160-36942-A-7-A	WRSB208_0.5-3	Fill_Geo-21, 901.1	T				
160-36942-A-8-A	WRSB208_3-6	Fill_Geo-21, 901.1	T				
160-36942-A-9-A	WRSB208_6-15	Fill_Geo-21, 901.1	T				
160-36942-A-10-A	WRSB208_15-25	Fill_Geo-21, 901.1	T				
160-36942-A-11-A	WRSB208-FD_15-25	Fill_Geo-21, 901.1	T				
160-36942-A-12-A	WRSB208_25-35	Fill_Geo-21, 901.1	T				
160-36942-A-13-A	WRSB208_35-45	Fill_Geo-21, 901.1	T				
160-36942-A-14-A	WRSB208_45-55	Fill_Geo-21, 901.1	T				
160-36942-A-15-A	WRSB208_55-65	Fill_Geo-21, 901.1	T				
160-36942-A-16-A	WRSB208_65-75	Fill_Geo-21, 901.1	T				
160-36942-A-17-A	WRSB208-FD_65-75	Fill_Geo-21, 901.1	T				
160-36942-A-18-A	WRSB208_75-85	Fill_Geo-21, 901.1	T				
160-36942-A-19-A	WRSB208_85-95	Fill_Geo-21, 901.1	T				
160-36942-A-20-A	WRSB208_95-105	Fill_Geo-21, 901.1	T				

Batch Notes	
Balance ID	121432711
SOP Number	ST-RC-0025

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.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 456720 Batch Start Date: 01/14/20 09:54 Batch Analyst: Curtright, Logan T

Batch Method: Fill_Geo-21 Batch End Date: 01/14/20 11:25

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: 456756

Fill Geometry, 21-Day In-Growth

Gamma Spectroscopy Analysis Detail Report
Prep Batch: 456756

Lab Id: MB 160-456756/1-A | Analyzed: 02/04/20 12:45 | 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	0.009099	0.0453	0.0453	U	pCi/g	1.00	0.237	459118
Radium-228	0.0000	0.0251	0.0251	U	pCi/g	1.00	0.0924	459118

Lab Id: LCS 160-456756/2-A | Analyzed: 02/04/20 12:46 | 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	99.44	1.47	11.7		pCi/g		1.10	459117
Cesium-137	30.78	0.762	3.23		pCi/g		0.284	459117
Cobalt-60	11.57	0.383	1.21		pCi/g		0.141	459117

Lab Id: 160-36942-21 | Analyzed: 02/04/20 12:47 | Ts: 30 | Sigma: 2
Client ID: WRSB208_105-115 | Detector: GV14 | Decay Corrected: No | Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.22	0.223	0.257		pCi/g	1.00	0.173	459110
Radium-228	1.65	0.242	0.295		pCi/g	1.00	0.239	459110

Lab Id: 160-36942-21 DU | Analyzed: 02/04/20 13:21 | Ts: 30 | Sigma: 2
Client ID: WRSB208_105-115 | Detector: GV9 | Decay Corrected: No | Ingrowth:

Analyte	DU Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.321	0.220	0.259		pCi/g	1.00	0.156	459118
Radium-228	1.566	0.259	0.305		pCi/g	1.00	0.122	459118

Lab Id: 160-36942-22 | Analyzed: 02/04/20 12:47 | Ts: 30 | Sigma: 2
Client ID: WRSB208_115-125 | Detector: GV15 | Decay Corrected: No | Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.00	0.221	0.244		pCi/g	1.00	0.183	459111
Radium-228	1.40	0.257	0.294		pCi/g	1.00	0.110	459111

Lab Id: 160-36942-23 | Analyzed: 02/04/20 12:48 | Ts: 30 | Sigma: 2
Client ID: WRSB208_125-131.5 | Detector: GV16 | Decay Corrected: No | Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.09	0.184	0.216		pCi/g	1.00	0.136	459112
Radium-228	1.07	0.227	0.252		pCi/g	1.00	0.194	459112

Gamma Spectroscopy Analysis Detail Report
Prep Batch: 456756

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 160-456756/1-A	Radium-226			0.009099	U	pCi/g							.402
MB 160-456756/1-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 160-456756/2-A	Americium-241		96.6	99.44		pCi/g	103	75 - 125					.4729
LCS 160-456756/2-A	Cesium-137		27.3	30.78		pCi/g	113	75 - 125					2.0931
LCS 160-456756/2-A	Cobalt-60		10.6	11.57		pCi/g	109	75 - 125					1.5379
Duplicate ID:	**Analyte**	**Parent Result**	**Spike Added**	**DU Result**	**Qualifier**	**Unit**	**% Rec**	**% Rec Limits**	**RPD**	**RER**	**DER**	**DER Limit**	**Z Factor**
160-36942-21	Radium-226	1.22		1.321		pCi/g			8	0.20	0.57	2	.571
160-36942-21	Radium-228	1.65		1.566		pCi/g			5	0.15	0.41	2	.4126

Glossary:

Ts = Count Duration, Sample

GAMMA SPECTROSCOPY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36942-1

SDG No.: 160-36942-1

Batch Number: 456756 Batch Start Date: 01/14/20 16:58 Batch Analyst: Harris, Kayla L

Batch Method: Fill_Geo-21 Batch End Date: 01/14/20 17:10

Lab Sample ID	Client Sample ID	Method Chain	Basis	TareWeight	GrossWeight	InitialAmount	IngDecDate1	IngDecDate3	Geometry
MB 160-456756/1		Fill_Geo-21, 901.1				291.18 g	01/14/2020 17:10	02/04/2020 17:10	TUNA CAN
LCS 160-456756/2		Fill_Geo-21, 901.1				341.9 g	01/14/2020 17:10	02/04/2020 17:10	TUNA CAN
160-36942-A-21-A	WRSB208_105-115	Fill_Geo-21, 901.1	T	46.1 g	433.9 g	387.8 g	01/14/2020 17:10	02/04/2020 17:10	TUNA CAN
160-36942-A-21-A DU	WRSB208_105-115	Fill_Geo-21, 901.1	T	46.1 g	433.9 g	387.8 g	01/14/2020 17:10	02/04/2020 17:10	TUNA CAN
160-36942-A-22-A	WRSB208_115-125	Fill_Geo-21, 901.1	T	46.5 g	439.4 g	392.9 g	01/14/2020 17:10	02/04/2020 17:10	TUNA CAN
160-36942-A-23-A	WRSB208_125-131.5	Fill_Geo-21, 901.1	T	46.1 g	413.2 g	367.1 g	01/14/2020 17:10	02/04/2020 17:10	TUNA CAN

Lab Sample ID	Client Sample ID	Method Chain	Basis	Tuna Can LCS 00009
MB 160-456756/1		Fill_Geo-21, 901.1		
LCS 160-456756/2		Fill_Geo-21, 901.1		# g
160-36942-A-21-A	WRSB208_105-115	Fill_Geo-21, 901.1	T	
160-36942-A-21-A DU	WRSB208_105-115	Fill_Geo-21, 901.1	T	
160-36942-A-22-A	WRSB208_115-125	Fill_Geo-21, 901.1	T	
160-36942-A-23-A	WRSB208_125-131.5	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.

Daily Checks

2/4/20

GV 5, 8, 9, 12, 14, 15, 16, 17

2/5/20

GV 9

Test America
St. Louis
Quality Control Check

Spectrum: 5_20200204001_QCAsLeft
Description: Quality control Check (QC Source 'A') Post Stabilization
Acquired: 2/4/2020 5:40:10 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	59.60	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	0.33	4.00	5.00	PASS
QA-662							
FWHM	1.36	0.00	0.00	1.37	3.06	3.16	PASS
ActivityDiff	596.80	-5.00	-4.00	-0.89	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5328.90	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.28	1333.01	1333.26	PASS
FWHM	1.90	0.00	0.00	1.77	4.10	4.20	PASS
ActivityDiff	1164.20	-5.00	-4.00	1.67	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 5_20200204002_BG
Description: Background Contamination Check
Acquired: 2/4/2020 6:15:09 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	1.43	1.55	1.60	PASS

Analyst: Caleb Quinn Reviewer: kody Saulters

Test America
St. Louis
Quality Control Check

Spectrum: 8_20200204003_QCAsLeft
Description: Quality control Check (QC Source 'D') Post Stabilization
Acquired: 2/4/2020 7:15:46 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	237.90	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.54	59.79	60.04	PASS
FWHM	1.10	0.00	0.00	1.30	2.20	2.30	PASS
ActivityDiff	650.60	-5.00	-4.00	2.21	4.00	5.00	PASS
QA-662							
FWHM	1.53	0.00	0.00	1.65	3.23	3.33	PASS
ActivityDiff	609.90	-5.00	-4.00	4.35	4.00	5.00	High OOT
QA-1332							
Channel	5330.00	5327.00	5328.00	5330.10	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.51	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	2.73	4.00	5.00	PASS

235, 10 qual

Analyst: Caleb Quinn Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 8_20200204004_BG
Description: Background Contamination Check
Acquired: 2/4/2020 7:36:58 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	1.57	1.68	1.74	PASS

Analyst: Caleb Quinn Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 9_20200204001_BG
Description: Background Contamination Check
Acquired: 2/4/2020 5:22:56 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	1.84	2.14	2.26	PASS

Analyst: kody Saulters Reviewer: Caleb Quinn

Test America
St. Louis
Quality Control Check

Spectrum: 9_20200204002_QCAsLeft
Description: Quality control Check (QC Source 'E') Post Stabilization
Acquired: 2/4/2020 6:39:08 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	238.00	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.61	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	0.08	4.00	5.00	PASS
QA-662							
FWHM	1.62	0.00	0.00	1.48	3.32	3.42	PASS
ActivityDiff	607.56	-5.00	-4.00	-0.17	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	1332.30	1333.01	1333.26	PASS
FWHM	2.12	0.00	0.00	1.91	4.32	4.42	PASS
ActivityDiff	1191.31	-5.00	-4.00	-0.14	4.00	5.00	PASS

Analyst: Caleb Quinn Reviewer: Caleb Quinn

Test America
St. Louis
Background Check

Spectrum: 9_20200205001_BG
Description: Background Contamination Check
Acquired: 2/5/2020 5:25:51 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	1.75	2.14	2.26	PASS

Analyst: kody Saulters Reviewer: Caleb Quinn

Test America
St. Louis
Quality Control Check

Spectrum: 9_20200205002_QCAsLeft
Description: Quality control Check (QC Source 'E') Post Stabilization
Acquired: 2/5/2020 6:40:50 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	237.80	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.55	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	-1.10	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	-0.69	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5329.00	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.18	1333.01	1333.26	PASS
FWHM	2.12	0.00	0.00	2.09	4.32	4.42	PASS
ActivityDiff	1191.31	-5.00	-4.00	-0.86	4.00	5.00	PASS

Analyst: Caleb Quinn Reviewer: Caleb Quinn

Test America
St. Louis
Background Check

Spectrum: 12_20200204001_BG
Description: Background Contamination Check
Acquired: 2/4/2020 5:26:03 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	2.01	2.05	2.09	PASS

Analyst: kody Saulters Reviewer: Caleb Quinn

Test America
St. Louis
Quality Control Check

Spectrum: 12_20200204002_QCAsLeft
Description: Quality control Check (QC Source 'H') Post Stabilization
Acquired: 2/4/2020 6:42:56 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	237.70	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.54	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	0.38	4.00	5.00	PASS
QA-662							
FWHM	1.48	0.00	0.00	1.46	3.18	3.28	PASS
ActivityDiff	659.00	-5.00	-4.00	-1.04	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	2.00	0.00	0.00	2.00	4.20	4.30	PASS
ActivityDiff	1274.00	-5.00	-4.00	0.39	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: Caleb Quinn

Test America
St. Louis
Quality Control Check

Spectrum: 14_20200204001_QCAsLeft
Description: Quality control Check (QC Source 'E') Post Stabilization
Acquired: 2/4/2020 5:48:06 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	238.10	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.68	59.79	60.04	PASS
FWHM	0.76	0.00	0.00	0.90	1.86	1.96	PASS
ActivityDiff	671.90	-5.00	-4.00	-2.78	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	-2.87	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	1332.49	1333.01	1333.26	PASS
FWHM	1.91	0.00	0.00	1.80	4.11	4.21	PASS
ActivityDiff	1224.59	-5.00	-4.00	-0.77	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 14_20200204002_BG
Description: Background Contamination Check
Acquired: 2/4/2020 6:18:03 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	1.83	1.90	1.94	PASS

Analyst: Caleb Quinn Reviewer: kody Saulters

Test America
St. Louis
Quality Control Check

Spectrum: 15_20200204001_QCAsLeft
Description: Quality control Check (QC Source 'F') Post Stabilization
Acquired: 2/4/2020 5:49:37 AM
Detector: Detector #15
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	0.95	0.00	0.00	1.05	2.05	2.15	PASS
ActivityDiff	670.56	-5.00	-4.00	0.24	4.00	5.00	PASS
QA-662							
FWHM	1.51	0.00	0.00	1.60	3.21	3.31	PASS
ActivityDiff	668.76	-5.00	-4.00	0.98	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5331.30	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.99	1333.01	1333.26	PASS
FWHM	1.99	0.00	0.00	1.91	4.19	4.29	PASS
ActivityDiff	1277.79	-5.00	-4.00	0.60	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 15_20200204002_BG
Description: Background Contamination Check
Acquired: 2/4/2020 6:19:06 AM
Detector: Detector #15

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	1.68	1.59	1.62	1.72	1.74	1.77	PASS

Analyst: Caleb Quinn Reviewer: kody Saulters

Test America
St. Louis
Quality Control Check

Spectrum: 16_20200204003_QCAsLeft
Description: Quality control Check (QC Source 'G') Post Stabilization
Acquired: 2/4/2020 7:31:33 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	1.03	2.06	2.16	PASS
ActivityDiff	602.10	-5.00	-4.00	2.53	4.00	5.00	PASS
QA-662							
FWHM	1.53	0.00	0.00	1.75	3.23	3.33	PASS
ActivityDiff	571.13	-5.00	-4.00	1.07	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5331.00	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.86	1333.01	1333.26	PASS
FWHM	2.09	0.00	0.00	2.62	4.29	4.39	PASS
ActivityDiff	1139.05	-5.00	-4.00	3.27	4.00	5.00	PASS

Analyst: Caleb Quinn Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 16_20200204004_BG
Description: Background Contamination Check
Acquired: 2/4/2020 7:52:58 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	2.64	2.80	2.86	PASS

Analyst: Caleb Quinn Reviewer: kody Saulters

Test America
St. Louis
Quality Control Check

Spectrum: 17_20200204001_QCAsLeft
Description: Quality control Check (QC Source 'H') Post Stabilization
Acquired: 2/4/2020 6:03:53 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	59.63	59.79	60.04	PASS
FWHM	0.77	0.00	0.00	1.18	1.87	1.97	PASS
ActivityDiff	691.00	-5.00	-4.00	2.80	4.00	5.00	PASS
QA-662							
FWHM	1.37	0.00	0.00	1.62	3.07	3.17	PASS
ActivityDiff	659.00	-5.00	-4.00	1.00	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	1332.43	1333.01	1333.26	PASS
FWHM	1.88	0.00	0.00	1.99	4.08	4.18	PASS
ActivityDiff	1274.00	-5.00	-4.00	-0.64	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 17_20200204003_BG
Description: Background Contamination Check
Acquired: 2/4/2020 6:56:44 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	2.40	2.42	2.46	PASS

Analyst: Caleb Quinn Reviewer: kody Saulters

Initial Calibrations

detectors - tuna can

GV 5, 8, 9, 12, 14, 15, 16, 17

Gamma Verification per Geometry

Detector: Ge5

Geometry: Tunacan

* previously validated

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: 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: 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: 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: Ge15

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	14410	96.5
Am-241	2037	418	0.3590	1163	1206.9	103.7
Cd-109	2881	591	0.0361	16363	16069	98.2
Co-57	1511	310	0.8560	362	356.06	98.4
Ce-139	2139	439	0.7990	549	538.81	98.2
Hg-203	4651	954	0.8146	1171	1202.4	102.7
Sn-113	3015	618	0.6400	966	974.62	100.9
Cs-137	1938	397	0.8510	467	465.43	99.7
Y-88	7264	1489	0.9370	1589	1573.7	99.0
Co-60	3580	734	0.9997	734	716.44	97.6
Co-60	3581	734	0.9999	734	726.55	98.9
Y-88	7690	1577	0.9920	1589	1633.2	102.8

Reviewed By: Jody Watson

Date: 3/22/2012

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

detectors - tuna can

GV 5, 8, 9, 12, 14, 15, 16, 17

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: 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: 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: 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: Ge 15 ✓
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	1151	98.9 ✓
Cs-137	1926	396	0.851	465	435.18 ✓	93.6 ✓
Co-60	3611	742	0.99974	742	687.16	92.6
Co-60	3612	742	0.999856	742	696.46 ✓	93.8 ✓

Reviewed By: Jody Watson

Date: 3/23/2012

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

Monthly Backgrounds

January (1/10-1/11, 1/24) bkgs

GV 5, 8, 9, 12, 14, 15, 16, 17

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:

(Page 1 of 7)

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:

(Page 1 of 5)

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: 15_20200124002_BGLong
Description: Background Long PBC Count
Acquired: 1/24/2020 1:35:33 PM
Detector: Detector #15
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	1.68	1.59	1.62	1.72	1.74	1.77	PASS

Analyst: Caleb Quinn Reviewer: kody Saulters

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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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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
02/04/20 05:19		CCV 160-459127/1		459127			
02/04/20 05:40		CCV 160-459127/2		459127			JFL
02/04/20 06:15		CCB 160-459127/3		459127			JFL
02/04/20 07:02	30	ZZZZZ		459127			
02/04/20 07:43	30	ZZZZZ		459127			
02/04/20 08:15	60	ZZZZZ		459127			
02/04/20 09:29	60	ZZZZZ		459127			
02/04/20 10:43	30	ZZZZZ		459127			
02/04/20 11:21	30	ZZZZZ		459127			
02/04/20 12:08	30	160-36942-13	WRSB208_35-45	459127	456720	901.1	JFL
02/04/20 12:49	30	160-36942-19	WRSB208_85-95	459127	456720	901.1	JFL
02/04/20 13:41	60	ZZZZZ		459127			
02/04/20 14:46	60	ZZZZZ		459127			

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
01/11/20 10:40		ICB 160-457661/1		457661			JLW
02/04/20 05:25		CCV 160-459128/1		459128			
02/04/20 05:47		CCV 160-459128/2		459128			
02/04/20 06:14		CCV 160-459128/3		459128			
02/04/20 06:35		CCV 160-459128/4		459128			
02/04/20 06:54		CCV 160-459128/5		459128			
02/04/20 07:15		CCV 160-459128/6		459128			KLS
02/04/20 07:36		CCB 160-459128/7		459128			KLS
02/04/20 08:17	30	ZZZZZ		459128			
02/04/20 09:03	30	ZZZZZ		459128			
02/04/20 10:00	30	ZZZZZ		459128			
02/04/20 10:42	30	ZZZZZ		459128			
02/04/20 11:24	30	160-36942-6	WRSB208_0-0.5	459128	456720	901.1	KLS
02/04/20 12:09	30	160-36942-14	WRSB208_45-55	459128	456720	901.1	KLS
02/04/20 12:50	30	160-36942-20	WRSB208_95-105	459128	456720	901.1	KLS
02/04/20 13:42	60	ZZZZZ		459128			
02/04/20 14:47	60	ZZZZZ		459128			

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
01/10/20 14:02		ICB 160-456551/1		456551			JLW
02/04/20 05:22		CCB 160-459118/1		459118			KLS
02/04/20 06:18		CCV 160-459118/2		459118			
02/04/20 06:39		CCV 160-459118/3		459118			KLS
02/04/20 06:59	30	ZZZZZ		459118			
02/04/20 07:39	30	ZZZZZ		459118			
02/04/20 08:11	30	ZZZZZ		459118			

Gamma Spectroscopy Run Log

Detector: GV9 (Continued)

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
02/04/20 08:59	30	ZZZZZ		459118			
02/04/20 09:54	30	ZZZZZ		459118			
02/04/20 10:37	30	ZZZZZ		459118			
02/04/20 11:23	30	160-36942-A-1-C DU		459118	456720	901.1	KLS
02/04/20 12:06	30	160-36942-11	WRSB208-FD_15-25	459118	456720	901.1	KLS
02/04/20 12:45	30	MB 160-456756/1-A		459118	456756	901.1	KLS
02/04/20 13:21	30	160-36942-21 DU	WRSB208_105-115 DU	459118	456756	901.1	KLS
02/04/20 13:55	30	ZZZZZ		459118			
02/04/20 15:01	30	ZZZZZ		459118			
02/04/20 15:36	30	ZZZZZ		459118			
02/04/20 16:15	30	ZZZZZ		459118			
02/04/20 16:57	30	ZZZZZ		459118			
02/05/20 05:25		CCB 160-459382/1		459382			KLS
02/05/20 06:20		CCV 160-459382/2		459382			
02/05/20 06:40		CCV 160-459382/3		459382			KLS
02/05/20 07:19	30	ZZZZZ		459382			
02/05/20 07:55	30	ZZZZZ		459382			
02/05/20 08:28	30	ZZZZZ		459382			
02/05/20 09:00	30	LCS 160-456720/2-A		459382	456720	901.1	KLS
02/05/20 09:32	30	ZZZZZ		459382			
02/05/20 10:05	30	ZZZZZ		459382			
02/05/20 10:38	30	ZZZZZ		459382			
02/05/20 11:13	30	ZZZZZ		459382			
02/05/20 11:45	30	ZZZZZ		459382			
02/05/20 12:22	30	ZZZZZ		459382			

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
04/24/18 09:26		ICV 160-364854/2		364854			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
02/04/20 05:26		CCB 160-459117/1		459117			JFL
02/04/20 06:22		CCV 160-459117/2		459117			
02/04/20 06:42		CCV 160-459117/3		459117			JFL
02/04/20 07:01	30	ZZZZZ		459117			
02/04/20 07:41	30	ZZZZZ		459117			
02/04/20 08:14	30	ZZZZZ		459117			
02/04/20 08:57		TCCLBA 160-459090/1-A		459117			
02/04/20 09:13		TCCLBB 160-459090/2-A		459117			
02/04/20 09:32		TCCLBC 160-459090/3-A		459117			
02/04/20 09:55	30	ZZZZZ		459117			
02/04/20 10:38	30	ZZZZZ		459117			
02/04/20 11:23	30	ZZZZZ		459117			
02/04/20 12:07	30	160-36942-12	WRSB208_25-35	459117	456720	901.1	JFL
02/04/20 12:46	30	LCS 160-456756/2-A		459117	456756	901.1	JFL

Gamma Spectroscopy Run Log

Detector: GV12 (Continued)

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
02/04/20 13:22	30	ZZZZZ		459117			
02/04/20 13:53	30	ZZZZZ		459117			
02/04/20 14:33		ZZZZZ		459117			
02/04/20 14:33		ZZZZZ		459117			
02/04/20 14:50		ZZZZZ		459117			
02/04/20 14:50		ZZZZZ		459117			
02/04/20 15:26		ZZZZZ		459117			
02/04/20 15:26		ZZZZZ		459117			
02/04/20 16:14	30	ZZZZZ		459117			
02/04/20 16:52		ZZZZZ		459117			
02/04/20 16:52		ZZZZZ		459117			
02/04/20 17:09		ZZZZZ		459117			
02/04/20 17:09		ZZZZZ		459117			

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
02/04/20 05:26		CCV 160-459110/1		459110			
02/04/20 05:48		CCV 160-459110/2		459110			JFL
02/04/20 06:18		CCB 160-459110/3		459110			JFL
02/04/20 07:04	30	ZZZZZ		459110			
02/04/20 07:46	30	ZZZZZ		459110			
02/04/20 08:20	30	ZZZZZ		459110			
02/04/20 08:57		TCCLBB 160-459090/2-A		459110			
02/04/20 09:18		TCCLBC 160-459090/3-A		459110			
02/04/20 09:32		TCCLBA 160-459090/1-A		459110			
02/04/20 09:55	30	ZZZZZ		459110			
02/04/20 10:38	30	MB 160-456720/1-A		459110	456720	901.1 ✓	JFL
02/04/20 11:26	30	160-36942-7	WRSB208_0.5-3	459110	456720	901.1 ✓	JFL
02/04/20 12:09	30	160-36942-15	WRSB208_55-65	459110	456720	901.1 ✓	JFL
02/04/20 12:47	30	160-36942-21	WRSB208_105-115	459110	456756	901.1 ✓	JFL
02/04/20 13:22	30	ZZZZZ		459110			
02/04/20 13:56	30	ZZZZZ		459110			
02/04/20 14:34		ZZZZZ		459110			
02/04/20 14:34		ZZZZZ		459110			
02/04/20 14:51		ZZZZZ		459110			
02/04/20 14:51		ZZZZZ		459110			
02/04/20 15:11		ZZZZZ		459110			
02/04/20 15:11		ZZZZZ		459110			
02/04/20 15:28		ZZZZZ		459110			
02/04/20 15:28		ZZZZZ		459110			
02/04/20 16:32		ZZZZZ		459110			
02/04/20 16:32		ZZZZZ		459110			
02/04/20 16:52		ZZZZZ		459110			
02/04/20 16:52		ZZZZZ		459110			
02/04/20 17:10		ZZZZZ		459110			
02/04/20 17:10		ZZZZZ		459110			

Gamma Spectroscopy Run Log

Detector: GV15

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
03/22/12 11:06		IC 160-12362/1		12362			JLW
03/23/12 06:10		ICV 160-12362/2		12362			JLW
01/24/20 13:35		ICB 160-458776/1		458776			JLW
02/04/20 05:26		CCV 160-459111/1		459111			
02/04/20 05:49		CCV 160-459111/2		459111			JFL
02/04/20 06:19		CCB 160-459111/3		459111			JFL
02/04/20 07:05	30	ZZZZZ		459111			
02/04/20 07:48	30	ZZZZZ		459111			
02/04/20 08:23	30	ZZZZZ		459111			
02/04/20 08:58		TCCLBC 160-459090/3-A		459111			
02/04/20 09:16		TCCLBA 160-459090/1-A		459111			
02/04/20 09:34		TCCLBB 160-459090/2-A		459111			
02/04/20 09:56	30	ZZZZZ		459111			
02/04/20 10:39	30	ZZZZZ		459111			
02/04/20 11:27	30	160-36942-8	WRSB208_3-6	459111	456720	901.1	JFL
02/04/20 12:10	30	160-36942-16	WRSB208_65-75	459111	456720	901.1	JFL
02/04/20 12:47	30	160-36942-22	WRSB208_115-125	459111	456756	901.1	JFL
02/04/20 13:24	30	ZZZZZ		459111			
02/04/20 13:57	30	ZZZZZ		459111			
02/04/20 14:35		ZZZZZ		459111			
02/04/20 14:35		ZZZZZ		459111			
02/04/20 14:53		ZZZZZ		459111			
02/04/20 14:53		ZZZZZ		459111			
02/04/20 15:12		ZZZZZ		459111			
02/04/20 15:12		ZZZZZ		459111			
02/04/20 15:32	30	ZZZZZ		459111			
02/04/20 16:34		ZZZZZ		459111			
02/04/20 16:34		ZZZZZ		459111			
02/04/20 16:53		ZZZZZ		459111			
02/04/20 16:53		ZZZZZ		459111			
02/04/20 17:12		ZZZZZ		459111			
02/04/20 17:12		ZZZZZ		459111			

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
02/04/20 05:30		CCV 160-459112/1		459112			
02/04/20 05:54		CCV 160-459112/2		459112			
02/04/20 06:21		CCV 160-459112/3		459112			
02/04/20 06:44		CCV 160-459112/4		459112			
02/04/20 07:07		CCV 160-459112/5		459112			
02/04/20 07:31		CCV 160-459112/6		459112			KLS
02/04/20 07:52		CCB 160-459112/7		459112			KLS
02/04/20 08:28	30	ZZZZZ		459112			
02/04/20 09:05	30	ZZZZZ		459112			
02/04/20 09:58	30	ZZZZZ		459112			
02/04/20 10:40	30	ZZZZZ		459112			

Gamma Spectroscopy Run Log

Detector: GV16 (Continued)

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
02/04/20 11:28	30	160-36942-9	WRSB208_6-15	459112	456720	901.1	KLS
02/04/20 12:11	30	160-36942-17	WRSB208-FD_65-75	459112	456720	901.1	KLS
02/04/20 12:48	30	160-36942-23	WRSB208_125-131.5	459112	456756	901.1	KLS
02/04/20 13:25	30	ZZZZZ		459112			
02/04/20 13:59	120	ZZZZZ		459112			
02/04/20 16:22	30	ZZZZZ		459112			

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
02/04/20 05:40		CCV 160-459113/1		459113			
02/04/20 06:03		CCV 160-459113/2		459113			KLS
02/04/20 06:24		CCB 160-459113/3		459113			
02/04/20 06:56		CCB 160-459113/4		459113			KLS
02/04/20 07:40	120	ZZZZZ		459113			
02/04/20 09:59	30	ZZZZZ		459113			
02/04/20 10:41	30	ZZZZZ		459113			
02/04/20 11:29	30	160-36942-10	WRSB208_15-25	459113	456720	901.1	KLS
02/04/20 12:13	30	160-36942-18	WRSB208_75-85	459113	456720	901.1	KLS
02/04/20 12:51	60	ZZZZZ		459113			
02/04/20 13:54	60	ZZZZZ		459113			
02/04/20 15:33	30	ZZZZZ		459113			
02/04/20 16:23	30	ZZZZZ		459113			

B. SDG 160-36942-2

ENVIRONMENTAL STANDARDS

INORGANIC ANALYSIS SUPPORT DOCUMENTATION

ESI project name:	ARCO Yerington	Reviewed by:	DC
Sample Collection Dates:	1/7/20, 1/8/20	Approved by:	
Job Number:	20115675.GW20	Completion Date:	
Project Manager:	KV		
Laboratory:	TestAmerica- St. Louis		

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

Deliverable:			Sample No.	Lab Control No.
	CLP (Full)	( )		
	Level IV (Full)	(X)	160-36942-2	
	Limited	( )		
	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				
	6020A					6020A					6020A				
Holding Times	X										X				
Blank Analysis Results	X										X				
Matrix Spike (Predigestion) Results	X					X					X				
Duplicate Analysis: (x) Field (x) Lab	X										X				
Quantitation of Results	X										X				
Detection Limit/Sensitivity															
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				
ICP Post-Digestion Spike	X										X				
GFAA Post Digestion Spikes															
GFAA Duplicate Injections															
ICP Multiple Exposures	X										X				
GFAA Standard Additions															
CRDL Standards	X										X				
Condition on Receipt	X										X				
Percent Solids															
Others: ICPMS internal standards	X										X				

Comments:

ENVIRONMENTAL STANDARDS

RADIOLOGICAL ANALYSIS SUPPORT DOCUMENTATION

ESI project name:	ARCO Yerington	Reviewed by:	DC
Sample Collection Dates:	1/7/20, 1/8/20	Approved by:	
Job Number:	20115675.GW20	Completion Date:	
Project Manager:	KV		
Laboratory:	TestAmerica- 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)	(X)	160-36942-1, 160-36942-2	
	Limited	( )		
	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				
	901.1					901.1					901.1				
Holding Times	X										X				
Blank Analysis Results	X										X				
Laboratory Control Standard (LCS)	X										X				
Tracer/Chemical Yield															
Duplicate Analysis: (X) Field (X) Lab	X										X				
Matrix Spike Results															
Quantitation of Results	X										X				
Detection Limit															
Efficiency/Energy Calibrations	X										X				
Initial Calibration Verifications	X										X				
Annual Calibration Verifications															
Continuing Calibration Checks	X										X				
Continuing Calibration Backgrounds	X										X				
Sample Preservation	X										X				
Condition on Receipt	X										X				
Others: Headspace	X										X				

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	STSB07_0.5-3 Analyte Concentration	Qual	RL	STSB07-FD_0.5-3 Analyte Concentration	Qual	RL	Difference	RPD	Notes
Thorium	mg/Kg	21		0.18	26		0.2	NA	21.3%	IN
Uranium	mg/Kg	7		0.09	10		0.099	NA	35.3%	IN
% solids	%	95		0.1	93.7		0.1	NA	1.4%	IN
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								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!
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								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								NA	#DIV/0!	#DIV/0!
								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" res

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]

160-36942-2

Samples: STSB07_0.5-3 and STSB07-FD_0.5-3

Analyte	Sample Act	Sample TPU	Duplicate Act	Duplicate TPU	DER 2-s
Ra-226	2.02	0.354	1.87	0.358	0.60
Ra-228	3.42	0.552	3.47	0.602	0.12

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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Level 4

Rep 234

Laboratory Job ID: 160-36942-2
Laboratory Sample Delivery Group: 160-36942-2
Client Project/Site: ACMS - Yerington OU-4b_OU-5_Soil

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

Attn: Kent Parrish

Authorized for release by:
2/10/2020 12:01:40 PM

Jayna Awalt, Project Manager II
(314)298-8566
jayna.awalt@testamericainc.com

LINKS

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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.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Sample Summary

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

Job ID: 160-36942-2
SDG: 160-36942-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
160-36942-1	STSB07_0-0.5	Solid	01/08/20 14:50	01/10/20 09:20	
160-36942-2	STSB07_0.5-3	Solid	01/08/20 14:56	01/10/20 09:20	
160-36942-3	STSB07-FD_0.5-3	Solid	01/08/20 15:00	01/10/20 09:20	
160-36942-4	STSB07_3-6	Solid	01/08/20 15:11	01/10/20 09:20	
160-36942-5	STSB07_6-15	Solid	01/08/20 15:17	01/10/20 09:20	

Job ID: 160-36942-2

Laboratory: Eurofins TestAmerica, St. Louis

Narrative

CASE NARRATIVE

Client: Wood E&I Solutions Inc

Project: ACMS - Yerington OU-4b_OU-5_Soil

Report Number: 160-36942-2

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.

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 01/10/2020; the samples arrived in good condition, properly preserved and on ice. The temperatures of the 6 coolers at receipt time were 1.0° C, 1.0° C, 1.0° C, 1.0° C, 1.0° C and 1.0° C.

METALS (ICPMS)

Samples STSB07_0-0.5 (160-36942-1), STSB07_0.5-3 (160-36942-2), STSB07-FD_0.5-3 (160-36942-3), STSB07_3-6 (160-36942-4) and STSB07_6-15 (160-36942-5) were analyzed for metals (ICPMS) in accordance with EPA SW-846 Methods 6020A. The samples were

Job ID: 160-36942-2 (Continued)

Laboratory: Eurofins TestAmerica, St. Louis (Continued)

prepared on 01/23/2020 and analyzed on 01/29/2020.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 160-457936 and analytical batch 160-458484 were outside control limits for Thorium and Uranium. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits. (160-36942-B-1-B MS) and (160-36942-B-1-C MSD)

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

PERCENT SOLIDS

Samples STSB07_0-0.5 (160-36942-1), STSB07_0.5-3 (160-36942-2), STSB07-FD_0.5-3 (160-36942-3), STSB07_3-6 (160-36942-4) and STSB07_6-15 (160-36942-5) were analyzed for percent solids in accordance with EPA Method 160.3 MOD. The samples were analyzed on 01/15/2020.

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 STSB07_0-0.5 (160-36942-1), STSB07_0.5-3 (160-36942-2), STSB07-FD_0.5-3 (160-36942-3), STSB07_3-6 (160-36942-4) and STSB07_6-15 (160-36942-5) were analyzed for Radium-226 by gamma spec (21 day ingrowth) in accordance with EPA 901.1. The samples were dried on 01/12/2020, prepared on 01/14/2020 and analyzed on 02/04/2020.

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
2/10/2020 12:01:40 PM

Atlantic Richfield Company
A BP affiliated company

Laboratory Management Program LaMP Chain of Custody Record

Page 1 of 1

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
	STSB07_0-0.5	01/08/20	1450	X			2	2			X	X	X		Report soil on dry weight basis.
	STSB07_0.5-3	01/08/20	1456	X			2	2			X	X	X		
	STSB07-FD_0.5-3	01/08/20	1500	X			2	2			X	X	X		
	STSB07_3-6	01/08/20	1511	X			2	2			X	X	X		
	STSB07_6-15	01/08/20	1517	X			2	2			X	X	X		

160-38942 Chain of Custody

JG 1/9/20

Sampler's Name: Bryce Johnson	Relinquished By / Affiliation	Date	Time	Accepted By / Affiliation	Date	Time
Sampler's Company: Wood	[signature] / Wood	1/9/20	1200	[signature] / TASTL	1-10-20	0920
Shipment Method: Fed Ex Ship Date: 1/9/20						
Shipment Tracking No: 7774 1259 9910 7774 1313 6770 7774 1313 1106 7774 1315 9750						

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: 160-36942-2
SDG Number: 160-36942-2

Login Number: 36942
List Number: 1
Creator: Press, Nicholas B

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.	True	
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.	N/A	
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.	True	
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
160-36942	1	STSB07_0-0.5	Solid	160-1861026	160-36942-A-1	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	1	STSB07_0-0.5	Solid	160-1861026	160-36942-A-1	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	1	STSB07_0-0.5	Solid	160-1861026	160-36942-A-1	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	1	STSB07_0-0.5	Solid	160-1861026	160-36942-A-1	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	1	STSB07_0-0.5	Solid	160-1861026	160-36942-A-1	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	1	STSB07_0-0.5	Solid	160-1861027	160-36942-B-1	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	1	STSB07_0-0.5	Solid	160-1861027	160-36942-B-1	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	1	STSB07_0-0.5	Solid	160-1861027	160-36942-B-1	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	1	STSB07_0-0.5	Solid	160-1861027	160-36942-B-1	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	1	STSB07_0-0.5	Solid	160-1861027	160-36942-B-1	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189726	01/13/20 07:42
160-36942	1	STSB07_0-0.5	Solid	160-1861027	160-36942-B-1	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	2	STSB07_0.5-3	Solid	160-1861028	160-36942-A-2	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	2	STSB07_0.5-3	Solid	160-1861028	160-36942-A-2	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	2	STSB07_0.5-3	Solid	160-1861028	160-36942-A-2	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	2	STSB07_0.5-3	Solid	160-1861028	160-36942-A-2	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	2	STSB07_0.5-3	Solid	160-1861028	160-36942-A-2	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	2	STSB07_0.5-3	Solid	160-1861029	160-36942-B-2	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	2	STSB07_0.5-3	Solid	160-1861029	160-36942-B-2	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	2	STSB07_0.5-3	Solid	160-1861029	160-36942-B-2	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	2	STSB07_0.5-3	Solid	160-1861029	160-36942-B-2	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	2	STSB07_0.5-3	Solid	160-1861029	160-36942-B-2	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189726	01/13/20 07:42
160-36942	2	STSB07_0.5-3	Solid	160-1861029	160-36942-B-2	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	3	STSB07-FD_0.5-3	Solid	160-1861030	160-36942-A-3	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	3	STSB07-FD_0.5-3	Solid	160-1861030	160-36942-A-3	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	3	STSB07-FD_0.5-3	Solid	160-1861030	160-36942-A-3	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	3	STSB07-FD_0.5-3	Solid	160-1861030	160-36942-A-3	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	3	STSB07-FD_0.5-3	Solid	160-1861030	160-36942-A-3	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	3	STSB07-FD_0.5-3	Solid	160-1861031	160-36942-B-3	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	3	STSB07-FD_0.5-3	Solid	160-1861031	160-36942-B-3	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	3	STSB07-FD_0.5-3	Solid	160-1861031	160-36942-B-3	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	3	STSB07-FD_0.5-3	Solid	160-1861031	160-36942-B-3	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	3	STSB07-FD_0.5-3	Solid	160-1861031	160-36942-B-3	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189726	01/13/20 07:42
160-36942	3	STSB07-FD_0.5-3	Solid	160-1861031	160-36942-B-3	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	4	STSB07_3-6	Solid	160-1861032	160-36942-A-4	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	4	STSB07_3-6	Solid	160-1861032	160-36942-A-4	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	4	STSB07_3-6	Solid	160-1861032	160-36942-A-4	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	4	STSB07_3-6	Solid	160-1861032	160-36942-A-4	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	4	STSB07_3-6	Solid	160-1861032	160-36942-A-4	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	4	STSB07_3-6	Solid	160-1861033	160-36942-B-4	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	4	STSB07_3-6	Solid	160-1861033	160-36942-B-4	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09

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
160-36942	4	STSB07_3-6	Solid	160-1861033	160-36942-B-4	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	4	STSB07_3-6	Solid	160-1861033	160-36942-B-4	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	5	STSB07_6-15	Solid	160-1861034	160-36942-A-5	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	5	STSB07_6-15	Solid	160-1861034	160-36942-A-5	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	5	STSB07_6-15	Solid	160-1861034	160-36942-A-5	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	5	STSB07_6-15	Solid	160-1861034	160-36942-A-5	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	5	STSB07_6-15	Solid	160-1861034	160-36942-A-5	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	5	STSB07_6-15	Solid	160-1861035	160-36942-B-5	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	5	STSB07_6-15	Solid	160-1861035	160-36942-B-5	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	5	STSB07_6-15	Solid	160-1861035	160-36942-B-5	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	5	STSB07_6-15	Solid	160-1861035	160-36942-B-5	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	5	STSB07_6-15	Solid	160-1861035	160-36942-B-5	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189726	01/13/20 07:42
160-36942	5	STSB07_6-15	Solid	160-1861035	160-36942-B-5	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	6	WRSB208_0-0.5	Solid	160-1861036	160-36942-A-6	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	6	WRSB208_0-0.5	Solid	160-1861036	160-36942-A-6	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	6	WRSB208_0-0.5	Solid	160-1861036	160-36942-A-6	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	6	WRSB208_0-0.5	Solid	160-1861036	160-36942-A-6	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	6	WRSB208_0-0.5	Solid	160-1861036	160-36942-A-6	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	6	WRSB208_0-0.5	Solid	160-1861037	160-36942-B-6	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	6	WRSB208_0-0.5	Solid	160-1861037	160-36942-B-6	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	6	WRSB208_0-0.5	Solid	160-1861037	160-36942-B-6	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	6	WRSB208_0-0.5	Solid	160-1861037	160-36942-B-6	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	6	WRSB208_0-0.5	Solid	160-1861037	160-36942-B-6	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189726	01/13/20 07:42
160-36942	6	WRSB208_0-0.5	Solid	160-1861037	160-36942-B-6	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	7	WRSB208_0.5-3	Solid	160-1861038	160-36942-A-7	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	7	WRSB208_0.5-3	Solid	160-1861038	160-36942-A-7	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	7	WRSB208_0.5-3	Solid	160-1861038	160-36942-A-7	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	7	WRSB208_0.5-3	Solid	160-1861038	160-36942-A-7	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	7	WRSB208_0.5-3	Solid	160-1861038	160-36942-A-7	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	7	WRSB208_0.5-3	Solid	160-1861039	160-36942-B-7	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	7	WRSB208_0.5-3	Solid	160-1861039	160-36942-B-7	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	7	WRSB208_0.5-3	Solid	160-1861039	160-36942-B-7	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	7	WRSB208_0.5-3	Solid	160-1861039	160-36942-B-7	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	7	WRSB208_0.5-3	Solid	160-1861039	160-36942-B-7	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189726	01/13/20 07:42
160-36942	7	WRSB208_0.5-3	Solid	160-1861039	160-36942-B-7	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	8	WRSB208_3-6	Solid	160-1861040	160-36942-A-8	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	8	WRSB208_3-6	Solid	160-1861040	160-36942-A-8	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	8	WRSB208_3-6	Solid	160-1861040	160-36942-A-8	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	8	WRSB208_3-6	Solid	160-1861040	160-36942-A-8	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	8	WRSB208_3-6	Solid	160-1861040	160-36942-A-8	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07

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
160-36942	8	WRSB208_3-6	Solid	160-1861041	160-36942-B-8	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	8	WRSB208_3-6	Solid	160-1861041	160-36942-B-8	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	8	WRSB208_3-6	Solid	160-1861041	160-36942-B-8	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	8	WRSB208_3-6	Solid	160-1861041	160-36942-B-8	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	9	WRSB208_6-15	Solid	160-1861042	160-36942-A-9	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	9	WRSB208_6-15	Solid	160-1861042	160-36942-A-9	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	9	WRSB208_6-15	Solid	160-1861042	160-36942-A-9	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	9	WRSB208_6-15	Solid	160-1861042	160-36942-A-9	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	9	WRSB208_6-15	Solid	160-1861042	160-36942-A-9	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	9	WRSB208_6-15	Solid	160-1861043	160-36942-B-9	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	9	WRSB208_6-15	Solid	160-1861043	160-36942-B-9	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	9	WRSB208_6-15	Solid	160-1861043	160-36942-B-9	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	9	WRSB208_6-15	Solid	160-1861043	160-36942-B-9	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	9	WRSB208_6-15	Solid	160-1861043	160-36942-B-9	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189726	01/13/20 07:42
160-36942	9	WRSB208_6-15	Solid	160-1861043	160-36942-B-9	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	10	WRSB208_15-25	Solid	160-1861044	160-36942-A-10	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	10	WRSB208_15-25	Solid	160-1861044	160-36942-A-10	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	10	WRSB208_15-25	Solid	160-1861044	160-36942-A-10	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	10	WRSB208_15-25	Solid	160-1861044	160-36942-A-10	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	10	WRSB208_15-25	Solid	160-1861044	160-36942-A-10	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	10	WRSB208_15-25	Solid	160-1861045	160-36942-B-10	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	10	WRSB208_15-25	Solid	160-1861045	160-36942-B-10	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	10	WRSB208_15-25	Solid	160-1861045	160-36942-B-10	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	10	WRSB208_15-25	Solid	160-1861045	160-36942-B-10	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	11	WRSB208-FD_15-25	Solid	160-1861046	160-36942-A-11	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	11	WRSB208-FD_15-25	Solid	160-1861046	160-36942-A-11	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	11	WRSB208-FD_15-25	Solid	160-1861046	160-36942-A-11	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	11	WRSB208-FD_15-25	Solid	160-1861046	160-36942-A-11	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	11	WRSB208-FD_15-25	Solid	160-1861046	160-36942-A-11	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	11	WRSB208-FD_15-25	Solid	160-1861047	160-36942-B-11	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	11	WRSB208-FD_15-25	Solid	160-1861047	160-36942-B-11	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	11	WRSB208-FD_15-25	Solid	160-1861047	160-36942-B-11	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	11	WRSB208-FD_15-25	Solid	160-1861047	160-36942-B-11	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	11	WRSB208-FD_15-25	Solid	160-1861047	160-36942-B-11	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189726	01/13/20 07:42
160-36942	11	WRSB208-FD_15-25	Solid	160-1861047	160-36942-B-11	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	12	WRSB208_25-35	Solid	160-1861048	160-36942-A-12	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	12	WRSB208_25-35	Solid	160-1861048	160-36942-A-12	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	12	WRSB208_25-35	Solid	160-1861048	160-36942-A-12	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	12	WRSB208_25-35	Solid	160-1861048	160-36942-A-12	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	12	WRSB208_25-35	Solid	160-1861048	160-36942-A-12	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07

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
160-36942	12	WRSB208_25-35	Solid	160-1861049	160-36942-B-12	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	12	WRSB208_25-35	Solid	160-1861049	160-36942-B-12	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	12	WRSB208_25-35	Solid	160-1861049	160-36942-B-12	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	12	WRSB208_25-35	Solid	160-1861049	160-36942-B-12	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	13	WRSB208_35-45	Solid	160-1861050	160-36942-A-13	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	13	WRSB208_35-45	Solid	160-1861050	160-36942-A-13	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	13	WRSB208_35-45	Solid	160-1861050	160-36942-A-13	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	13	WRSB208_35-45	Solid	160-1861050	160-36942-A-13	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	13	WRSB208_35-45	Solid	160-1861050	160-36942-A-13	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	13	WRSB208_35-45	Solid	160-1861051	160-36942-B-13	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	13	WRSB208_35-45	Solid	160-1861051	160-36942-B-13	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	13	WRSB208_35-45	Solid	160-1861051	160-36942-B-13	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	13	WRSB208_35-45	Solid	160-1861051	160-36942-B-13	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	13	WRSB208_35-45	Solid	160-1861051	160-36942-B-13	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189726	01/13/20 07:42
160-36942	13	WRSB208_35-45	Solid	160-1861051	160-36942-B-13	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	14	WRSB208_45-55	Solid	160-1861052	160-36942-A-14	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	14	WRSB208_45-55	Solid	160-1861052	160-36942-A-14	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	14	WRSB208_45-55	Solid	160-1861052	160-36942-A-14	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	14	WRSB208_45-55	Solid	160-1861052	160-36942-A-14	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	14	WRSB208_45-55	Solid	160-1861052	160-36942-A-14	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	14	WRSB208_45-55	Solid	160-1861053	160-36942-B-14	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	14	WRSB208_45-55	Solid	160-1861053	160-36942-B-14	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	14	WRSB208_45-55	Solid	160-1861053	160-36942-B-14	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	14	WRSB208_45-55	Solid	160-1861053	160-36942-B-14	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	14	WRSB208_45-55	Solid	160-1861053	160-36942-B-14	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189726	01/13/20 07:42
160-36942	14	WRSB208_45-55	Solid	160-1861053	160-36942-B-14	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	15	WRSB208_55-65	Solid	160-1861054	160-36942-A-15	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	15	WRSB208_55-65	Solid	160-1861054	160-36942-A-15	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	15	WRSB208_55-65	Solid	160-1861054	160-36942-A-15	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	15	WRSB208_55-65	Solid	160-1861054	160-36942-A-15	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	15	WRSB208_55-65	Solid	160-1861054	160-36942-A-15	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	15	WRSB208_55-65	Solid	160-1861055	160-36942-B-15	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	15	WRSB208_55-65	Solid	160-1861055	160-36942-B-15	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	15	WRSB208_55-65	Solid	160-1861055	160-36942-B-15	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	15	WRSB208_55-65	Solid	160-1861055	160-36942-B-15	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	15	WRSB208_55-65	Solid	160-1861055	160-36942-B-15	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189726	01/13/20 07:42
160-36942	15	WRSB208_55-65	Solid	160-1861055	160-36942-B-15	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	16	WRSB208_65-75	Solid	160-1861056	160-36942-A-16	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	16	WRSB208_65-75	Solid	160-1861056	160-36942-A-16	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	16	WRSB208_65-75	Solid	160-1861056	160-36942-A-16	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28

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
160-36942	16	WRSB208_65-75	Solid	160-1861056	160-36942-A-16	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	16	WRSB208_65-75	Solid	160-1861056	160-36942-A-16	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	16	WRSB208_65-75	Solid	160-1861057	160-36942-B-16	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	16	WRSB208_65-75	Solid	160-1861057	160-36942-B-16	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	16	WRSB208_65-75	Solid	160-1861057	160-36942-B-16	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	16	WRSB208_65-75	Solid	160-1861057	160-36942-B-16	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	17	WRSB208-FD_65-75	Solid	160-1861058	160-36942-A-17	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	17	WRSB208-FD_65-75	Solid	160-1861058	160-36942-A-17	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	17	WRSB208-FD_65-75	Solid	160-1861058	160-36942-A-17	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	17	WRSB208-FD_65-75	Solid	160-1861058	160-36942-A-17	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	17	WRSB208-FD_65-75	Solid	160-1861058	160-36942-A-17	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	17	WRSB208-FD_65-75	Solid	160-1861059	160-36942-B-17	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	17	WRSB208-FD_65-75	Solid	160-1861059	160-36942-B-17	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	17	WRSB208-FD_65-75	Solid	160-1861059	160-36942-B-17	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	17	WRSB208-FD_65-75	Solid	160-1861059	160-36942-B-17	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	17	WRSB208-FD_65-75	Solid	160-1861059	160-36942-B-17	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189726	01/13/20 07:42
160-36942	17	WRSB208-FD_65-75	Solid	160-1861059	160-36942-B-17	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	18	WRSB208_75-85	Solid	160-1861060	160-36942-A-18	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	18	WRSB208_75-85	Solid	160-1861060	160-36942-A-18	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	18	WRSB208_75-85	Solid	160-1861060	160-36942-A-18	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	18	WRSB208_75-85	Solid	160-1861060	160-36942-A-18	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	18	WRSB208_75-85	Solid	160-1861060	160-36942-A-18	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	18	WRSB208_75-85	Solid	160-1861061	160-36942-B-18	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	18	WRSB208_75-85	Solid	160-1861061	160-36942-B-18	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	18	WRSB208_75-85	Solid	160-1861061	160-36942-B-18	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	18	WRSB208_75-85	Solid	160-1861061	160-36942-B-18	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	18	WRSB208_75-85	Solid	160-1861061	160-36942-B-18	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	19	WRSB208_85-95	Solid	160-1861062	160-36942-A-19	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	19	WRSB208_85-95	Solid	160-1861062	160-36942-A-19	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	19	WRSB208_85-95	Solid	160-1861062	160-36942-A-19	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	19	WRSB208_85-95	Solid	160-1861062	160-36942-A-19	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	19	WRSB208_85-95	Solid	160-1861063	160-36942-B-19	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	19	WRSB208_85-95	Solid	160-1861063	160-36942-B-19	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	19	WRSB208_85-95	Solid	160-1861063	160-36942-B-19	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	19	WRSB208_85-95	Solid	160-1861063	160-36942-B-19	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	20	WRSB208_95-105	Solid	160-1861064	160-36942-A-20	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	20	WRSB208_95-105	Solid	160-1861064	160-36942-A-20	Plastic Bag - 500g	Rad Cart	Cates, Samuel E	I	160-189727	01/13/20 07:42
160-36942	20	WRSB208_95-105	Solid	160-1861064	160-36942-A-20	Plastic Bag - 500g	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	20	WRSB208_95-105	Solid	160-1861064	160-36942-A-20	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	20	WRSB208_95-105	Solid	160-1861064	160-36942-A-20	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07

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
160-36942	20	WRSB208_95-105	Solid	160-1861065	160-36942-B-20	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	20	WRSB208_95-105	Solid	160-1861065	160-36942-B-20	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	20	WRSB208_95-105	Solid	160-1861065	160-36942-B-20	Clear Glass 4oz Wide -	RAD	Domalewski, Ryan	I	160-189850	01/15/20 07:18
160-36942	20	WRSB208_95-105	Solid	160-1861065	160-36942-B-20	Clear Glass 4oz Wide -	1-60	Domalewski, Ryan	I	160-189858	01/15/20 09:31
160-36942	20	WRSB208_95-105	Solid	160-1861065	160-36942-B-20	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189722	01/13/20 06:28
160-36942	21	WRSB208_105-115	Solid	160-1861066	160-36942-A-21	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	21	WRSB208_105-115	Solid	160-1861066	160-36942-A-21	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	21	WRSB208_105-115	Solid	160-1861066	160-36942-A-21	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	21	WRSB208_105-115	Solid	160-1861067	160-36942-B-21	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	21	WRSB208_105-115	Solid	160-1861067	160-36942-B-21	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	21	WRSB208_105-115	Solid	160-1861067	160-36942-B-21	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189735	01/13/20 09:57
160-36942	21	WRSB208_105-115	Solid	160-1861067	160-36942-B-21	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189730	01/13/20 09:00
160-36942	22	WRSB208_115-125	Solid	160-1861068	160-36942-A-22	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	22	WRSB208_115-125	Solid	160-1861068	160-36942-A-22	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	22	WRSB208_115-125	Solid	160-1861068	160-36942-A-22	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	22	WRSB208_115-125	Solid	160-1861069	160-36942-B-22	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	22	WRSB208_115-125	Solid	160-1861069	160-36942-B-22	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	22	WRSB208_115-125	Solid	160-1861069	160-36942-B-22	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189735	01/13/20 09:57
160-36942	22	WRSB208_115-125	Solid	160-1861069	160-36942-B-22	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189730	01/13/20 09:00
160-36942	23	WRSB208_125-131.5	Solid	160-1861070	160-36942-A-23	Plastic Bag - 500g	Rad Soil Storage 36	Harris, Lorin C	I	160-190464	01/25/20 16:36
160-36942	23	WRSB208_125-131.5	Solid	160-1861070	160-36942-A-23	Plastic Bag - 500g	Rad Cart	Geer, Matthew L	I	160-189721	01/12/20 18:59
160-36942	23	WRSB208_125-131.5	Solid	160-1861070	160-36942-A-23	Plastic Bag - 500g	Pre-Prep	Park, Cassandra L	I	160-189719	01/12/20 18:07
160-36942	23	WRSB208_125-131.5	Solid	160-1861071	160-36942-B-23	Clear Glass 4oz Wide -	Walk-In Cooler 3	Mazariegos, Leonel	I	160-190414	01/23/20 16:36
160-36942	23	WRSB208_125-131.5	Solid	160-1861071	160-36942-B-23	Clear Glass 4oz Wide -	METALS	Mazariegos, Leonel	I	160-190412	01/23/20 16:09
160-36942	23	WRSB208_125-131.5	Solid	160-1861071	160-36942-B-23	Clear Glass 4oz Wide -	1-60	Cates, Samuel E	I	160-189735	01/13/20 09:57
160-36942	23	WRSB208_125-131.5	Solid	160-1861071	160-36942-B-23	Clear Glass 4oz Wide -	Pre-Prep	Cates, Samuel E	I	160-189730	01/13/20 09:00

Qualifiers

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.

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: 160-36942-2
SDG: 160-36942-2

Client Sample ID: STSB07_0-0.5

Lab Sample ID: 160-36942-1
Date Collected: 01/08/20 14:50
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 94.0

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	83	F1	0.20	0.088	mg/Kg	☼	01/23/20 16:12	01/29/20 02:57	2
Uranium	62	F1	0.098	0.039	mg/Kg	☼	01/23/20 16:12	01/29/20 02:57	2

J, M-

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	1.42		0.214	0.260	1.00	0.226	pCi/g	01/14/20 09:54	02/04/20 10:40	1
Radium-228	4.55		0.396	0.611	1.00	0.315	pCi/g	01/14/20 09:54	02/04/20 10:40	1

Client Sample ID: STSB07_0.5-3

Lab Sample ID: 160-36942-2
Date Collected: 01/08/20 14:56
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 95.0

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	21		0.18	0.083	mg/Kg	☼	01/23/20 16:12	01/29/20 03:44	2
Uranium	7.0		0.092	0.037	mg/Kg	☼	01/23/20 16:12	01/29/20 03:44	2

J, M-

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	2.02		0.285	0.354	1.00	0.211	pCi/g	01/14/20 09:54	02/04/20 10:41	1
Radium-228	3.42		0.428	0.552	1.00	0.209	pCi/g	01/14/20 09:54	02/04/20 10:41	1

Client Sample ID: STSB07-FD_0.5-3

Lab Sample ID: 160-36942-3
Date Collected: 01/08/20 15:00
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 93.7

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	26		0.20	0.089	mg/Kg	☼	01/23/20 16:12	01/29/20 03:51	2
Uranium	10		0.099	0.039	mg/Kg	☼	01/23/20 16:12	01/29/20 03:51	2

J, M-

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	1.87		0.300	0.358	1.00	0.220	pCi/g	01/14/20 09:54	02/04/20 10:42	1
Radium-228	3.47		0.487	0.602	1.00	0.333	pCi/g	01/14/20 09:54	02/04/20 10:42	1

Client Sample ID: STSB07_3-6

Lab Sample ID: 160-36942-4
Date Collected: 01/08/20 15:11
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 95.3

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	10		0.19	0.084	mg/Kg	☼	01/23/20 16:12	01/29/20 03:58	2
Uranium	3.8		0.093	0.037	mg/Kg	☼	01/23/20 16:12	01/29/20 03:58	2

J, M-

Client Sample Results

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

Job ID: 160-36942-2
SDG: 160-36942-2

Client Sample ID: STSB07_3-6

Lab Sample ID: 160-36942-4
Date Collected: 01/08/20 15:11
Matrix: Solid
Date Received: 01/10/20 09:20
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	1.21		0.249	0.279	1.00	0.199	pCi/g	01/14/20 09:54	02/04/20 10:43	1
Radium-228	1.45		0.392	0.419	1.00	0.257	pCi/g	01/14/20 09:54	02/04/20 10:43	1

Client Sample ID: STSB07_6-15

Lab Sample ID: 160-36942-5
Date Collected: 01/08/20 15:17
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 92.1

Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	6.9		0.20	0.090	mg/Kg	☼	01/23/20 16:12	01/29/20 04:04	2
Uranium	5.5		0.10	0.040	mg/Kg	☼	01/23/20 16:12	01/29/20 04:04	2

J, M-

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	1.29		0.233	0.267	1.00	0.163	pCi/g	01/14/20 09:54	02/04/20 11:23	1
Radium-228	1.88		0.293	0.349	1.00	0.122	pCi/g	01/14/20 09:54	02/04/20 11:23	1

QC Sample Results

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

Job ID: 160-36942-2
SDG: 160-36942-2

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 160-457936/1-A
Matrix: Solid
Analysis Batch: 458484

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 457936

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thorium	ND		0.19	0.088	mg/Kg		01/23/20 16:12	01/29/20 02:37	2
Uranium	ND		0.097	0.039	mg/Kg		01/23/20 16:12	01/29/20 02:37	2

Clear

Lab Sample ID: LCS 160-457936/2-A
Matrix: Solid
Analysis Batch: 458484

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 457936

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Thorium	87.2	82.4		mg/Kg		94	80 - 120

Lab Sample ID: LCSSRM 160-457936/3-A
Matrix: Solid
Analysis Batch: 458484

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 457936

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Uranium	70.9	57.9		mg/Kg		81.6	62.6 - 110.0

80-120%

Lab Sample ID: 160-36942-1 MS
Matrix: Solid
Analysis Batch: 458484

Client Sample ID: STSB07_0-0.5
Prep Type: Total/NA
Prep Batch: 457936

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Thorium	83	F1	91.6	134	F1	mg/Kg	☼	55	75 - 125
Uranium	62	F1	91.6	120	F1	mg/Kg	☼	64	75 - 125

J, A-:1-5

Lab Sample ID: 160-36942-1 MSD
Matrix: Solid
Analysis Batch: 458484

Client Sample ID: STSB07_0-0.5
Prep Type: Total/NA
Prep Batch: 457936

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Thorium	83	F1	95.9	148	F1	mg/Kg	☼	68	75 - 125	10	30
Uranium	62	F1	95.9	135		mg/Kg	☼	76	75 - 125	11	30

35%

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

Lab Sample ID: MB 160-456720/1-A
Matrix: Solid
Analysis Batch: 459110

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 456720

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.1255	U	0.119	0.119	1.00	0.360	pCi/g	01/14/20 09:54	02/04/20 10:38	1
Radium-228	0.08826	U	0.0789	0.0795	1.00	0.129	pCi/g	01/14/20 09:54	02/04/20 10:38	1

Clear

QC Sample Results

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

Job ID: 160-36942-2
SDG: 160-36942-2

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

Lab Sample ID: LCS 160-456720/2-A
Matrix: Solid
Analysis Batch: 459382

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 456720

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Americium-241	96.6	97.24		10.2		0.973	pCi/g	101	75 - 125
Cesium-137	27.3	26.61		2.83		0.175	pCi/g	98	75 - 125
Cobalt-60	10.6	10.26		1.07		0.0623	pCi/g	97	75 - 125

Lab Sample ID: 160-36942-1 DU
Matrix: Solid
Analysis Batch: 459118

Client Sample ID: STSB07_0-0.5
Prep Type: Total/NA
Prep Batch: 456720

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	DER	DER Limit
Radium-226	1.42		1.731		0.300	1.00	0.176	pCi/g	1.56	2
Radium-228	4.55		4.622		0.598	1.00	0.174	pCi/g	0.16	2

QC Association Summary

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

Job ID: 160-36942-2
SDG: 160-36942-2

Metals

Prep Batch: 457936

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-1	STSB07_0-0.5	Total/NA	Solid	3050B	
160-36942-2	STSB07_0.5-3	Total/NA	Solid	3050B	
160-36942-3	STSB07-FD_0.5-3	Total/NA	Solid	3050B	
160-36942-4	STSB07_3-6	Total/NA	Solid	3050B	
160-36942-5	STSB07_6-15	Total/NA	Solid	3050B	
MB 160-457936/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 160-457936/2-A	Lab Control Sample	Total/NA	Solid	3050B	
LCSSRM 160-457936/3-A	Lab Control Sample	Total/NA	Solid	3050B	
160-36942-1 MS	STSB07_0-0.5	Total/NA	Solid	3050B	
160-36942-1 MSD	STSB07_0-0.5	Total/NA	Solid	3050B	

Analysis Batch: 458484

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-1	STSB07_0-0.5	Total/NA	Solid	6020A	457936
160-36942-2	STSB07_0.5-3	Total/NA	Solid	6020A	457936
160-36942-3	STSB07-FD_0.5-3	Total/NA	Solid	6020A	457936
160-36942-4	STSB07_3-6	Total/NA	Solid	6020A	457936
160-36942-5	STSB07_6-15	Total/NA	Solid	6020A	457936
MB 160-457936/1-A	Method Blank	Total/NA	Solid	6020A	457936
LCS 160-457936/2-A	Lab Control Sample	Total/NA	Solid	6020A	457936
LCSSRM 160-457936/3-A	Lab Control Sample	Total/NA	Solid	6020A	457936
160-36942-1 MS	STSB07_0-0.5	Total/NA	Solid	6020A	457936
160-36942-1 MSD	STSB07_0-0.5	Total/NA	Solid	6020A	457936

General Chemistry

Analysis Batch: 456781

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-1	STSB07_0-0.5	Total/NA	Solid	Moisture	
160-36942-2	STSB07_0.5-3	Total/NA	Solid	Moisture	
160-36942-3	STSB07-FD_0.5-3	Total/NA	Solid	Moisture	
160-36942-4	STSB07_3-6	Total/NA	Solid	Moisture	
160-36942-5	STSB07_6-15	Total/NA	Solid	Moisture	
160-36942-1 DU	STSB07_0-0.5	Total/NA	Solid	Moisture	

Rad

Leach Batch: 456564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-1	STSB07_0-0.5	Total/NA	Solid	Dry and Grind	
160-36942-2	STSB07_0.5-3	Total/NA	Solid	Dry and Grind	
160-36942-3	STSB07-FD_0.5-3	Total/NA	Solid	Dry and Grind	
160-36942-4	STSB07_3-6	Total/NA	Solid	Dry and Grind	
160-36942-5	STSB07_6-15	Total/NA	Solid	Dry and Grind	
160-36942-1 DU	STSB07_0-0.5	Total/NA	Solid	Dry and Grind	

Prep Batch: 456720

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-1	STSB07_0-0.5	Total/NA	Solid	Fill_Geo-21	456564
160-36942-2	STSB07_0.5-3	Total/NA	Solid	Fill_Geo-21	456564
160-36942-3	STSB07-FD_0.5-3	Total/NA	Solid	Fill_Geo-21	456564
160-36942-4	STSB07_3-6	Total/NA	Solid	Fill_Geo-21	456564

Rad (Continued)

Prep Batch: 456720 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
160-36942-5	STSB07_6-15	Total/NA	Solid	Fill_Geo-21	456564
MB 160-456720/1-A	Method Blank	Total/NA	Solid	Fill_Geo-21	
LCS 160-456720/2-A	Lab Control Sample	Total/NA	Solid	Fill_Geo-21	
160-36942-1 DU	STSB07_0-0.5	Total/NA	Solid	Fill_Geo-21	456564

Lab Chronicle

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

Job ID: 160-36942-2
SDG: 160-36942-2

Client Sample ID: STSB07_0-0.5 — Lab Sample ID: 160-36942-1

Date Collected: 01/08/20 14:50 — **Matrix: Solid**
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459112	02/04/20 10:40	KLS	TAL SL

Client Sample ID: STSB07_0-0.5 — Lab Sample ID: 160-36942-1

Date Collected: 01/08/20 14:50 — **Matrix: Solid**
Date Received: 01/10/20 09:20 — **Percent Solids: 94.0**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 02:57	LKP	TAL SL

Client Sample ID: STSB07_0.5-3 — Lab Sample ID: 160-36942-2

Date Collected: 01/08/20 14:56 — **Matrix: Solid**
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459113	02/04/20 10:41	KLS	TAL SL

Client Sample ID: STSB07_0.5-3 — Lab Sample ID: 160-36942-2

Date Collected: 01/08/20 14:56 — **Matrix: Solid**
Date Received: 01/10/20 09:20 — **Percent Solids: 95.0**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 03:44	LKP	TAL SL

Client Sample ID: STSB07-FD_0.5-3 — Lab Sample ID: 160-36942-3

Date Collected: 01/08/20 15:00 — **Matrix: Solid**
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459128	02/04/20 10:42	KLS	TAL SL

Lab Chronicle

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

Job ID: 160-36942-2
SDG: 160-36942-2

Client Sample ID: STSB07-FD_0.5-3

Lab Sample ID: 160-36942-3
Date Collected: 01/08/20 15:00
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 93.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 03:51	LKP	TAL SL

Client Sample ID: STSB07_3-6

Lab Sample ID: 160-36942-4
Date Collected: 01/08/20 15:11
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459127	02/04/20 10:43	JFL	TAL SL

Client Sample ID: STSB07_3-6

Lab Sample ID: 160-36942-4
Date Collected: 01/08/20 15:11
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 95.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 03:58	LKP	TAL SL

Client Sample ID: STSB07_6-15

Lab Sample ID: 160-36942-5
Date Collected: 01/08/20 15:17
Matrix: Solid
Date Received: 01/10/20 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	456781	01/15/20 08:32	RJD	TAL SL
Total/NA	Leach	Dry and Grind			456564	01/12/20 18:08	CLP	TAL SL
Total/NA	Prep	Fill_Geo-21			456720	01/14/20 09:54	LTC	TAL SL
Total/NA	Analysis	901.1		1	459117	02/04/20 11:23	JFL	TAL SL

Client Sample ID: STSB07_6-15

Lab Sample ID: 160-36942-5
Date Collected: 01/08/20 15:17
Matrix: Solid
Date Received: 01/10/20 09:20
Percent Solids: 92.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			457936	01/23/20 16:12	LAM	TAL SL
Total/NA	Analysis	6020A		2	458484	01/29/20 04:04	LKP	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: 160-36942-2
SDG: 160-36942-2

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
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: 160-36942-2
SDG: 160-36942-2

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

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36942-2

SDG No.: 160-36942-2

Batch Number: 457936 Batch Start Date: 01/23/20 16:12 Batch Analyst: Mazariegos, Leonel A

Batch Method: 3050B Batch End Date: 01/27/20 14:06

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	MPREP1-A 00004	MPREP1-B 00004	MPREP2 00022	PR_LCSSRM 00024
MB 160-457936/1		3050B, 6020A		0.5134 g	50 mL				
LCS 160-457936/2		3050B, 6020A		0.5731 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
LCSSRM 160-457936/3		3050B, 6020A		0.5415 g	50 mL				0.5415 g
160-36942-B-1	STSB07_0-0.5	3050B, 6020A	T	0.5414 g	50 mL				
160-36942-B-1 MS	STSB07_0-0.5	3050B, 6020A	T	0.5802 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
160-36942-B-1 MSD	STSB07_0-0.5	3050B, 6020A	T	0.5545 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
160-36942-B-2	STSB07_0.5-3	3050B, 6020A	T	0.5689 g	50 mL				
160-36942-B-3	STSB07-FD_0.5-3	3050B, 6020A	T	0.5411 g	50 mL				
160-36942-B-4	STSB07_3-6	3050B, 6020A	T	0.5645 g	50 mL				
160-36942-B-5	STSB07_6-15	3050B, 6020A	T	0.5420 g	50 mL				

Batch Notes	
Balance ID	27150420
Blank Soil Lot Number	25438819
Temperature - Corrected - End	B5: 91.8 Degrees C
Temperature - Corrected - Start	C4: 92.1 Degrees C
Digestion End Time	01/27/2020 13:39
Digestion Start Time	01/27/2020 10:53
Digestion Unit ID	HOTBLOCK 1
Digestion Tube/Cup ID	344749-4653
Hydrogen Peroxide ID	1852964
Hydrochloric Acid ID	1854875
Nitric Acid ID	1854883, 1863531
Pipette/Syringe/Dispenser ID	MET-12
Analyst ID - Spike Analyst	LAM
Sufficient Volume for Batch QC	YES
Thermometer ID	160322347

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.: 160-36942-2

SDG No.: 160-36942-2

Batch Number: 457936 Batch Start Date: 01/23/20 16:12 Batch Analyst: Mazariegos, Leonel A

Batch Method: 3050B Batch End Date: 01/27/20 14:06

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.: 160-36942-2

SDG No.: 160-36942-2

Batch Number: 456781 Batch Start Date: 01/15/20 08:32 Batch Analyst: Domalewski, Ryan J

Batch Method: Moisture Batch End Date: 01/16/20 06:52

Lab Sample ID	Client Sample ID	Method Chain	Basis	DishWeight	SampleMassWet	SampleMassDry			
160-36942-B-1	STSB07_0-0.5	Moisture	T	1.1560 g	11.8572 g	11.2182 g			
160-36942-B-1 DU	STSB07_0-0.5	Moisture	T	1.0664 g	11.2347 g	10.6998 g			
160-36942-B-2	STSB07_0.5-3	Moisture	T	1.0579 g	11.7966 g	11.2643 g			
160-36942-B-3	STSB07-FD_0.5-3	Moisture	T	1.0555 g	11.4886 g	10.8305 g			
160-36942-B-4	STSB07_3-6	Moisture	T	1.0585 g	11.1807 g	10.7046 g			
160-36942-B-5	STSB07_6-15	Moisture	T	1.0761 g	11.7096 g	10.8681 g			

Batch Notes	
Balance ID	1119252511
Date samples were placed in the oven	01/15/2020
Oven Temp In	103 Degrees C
Time samples were place in the oven	09:21
Date samples were removed from oven	01/16/2020
Oven Temp Out	101 Degrees C
Time Samples were removed from oven	06:20
Oven ID	OC
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.: 160-36942-2

SDG No.: 160-36942-2

Batch Number: 456720 Batch Start Date: 01/14/20 09:54 Batch Analyst: Curtright, Logan T

Batch Method: Fill_Geo-21 Batch End Date: 01/14/20 11:25

Lab Sample ID	Client Sample ID	Method Chain	Basis	TareWeight	GrossWeight	InitialAmount	IngDecDate1	IngDecDate3	Geometry
MB 160-456720/1		Fill_Geo-21, 901.1				291.18 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
LCS 160-456720/2		Fill_Geo-21, 901.1				341.9 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-1-A	STSB07_0-0.5	Fill_Geo-21, 901.1	T	46.2 g	438.1 g	391.9 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-1-A DU	STSB07_0-0.5	Fill_Geo-21, 901.1	T	46.2 g	438.1 g	391.9 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-2-A	STSB07_0.5-3	Fill_Geo-21, 901.1	T	46.6 g	410.4 g	363.8 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-3-A	STSB07-FD_0.5-3	Fill_Geo-21, 901.1	T	46.3 g	400.3 g	354 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-4-A	STSB07_3-6	Fill_Geo-21, 901.1	T	46.5 g	390.0 g	343.5 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-5-A	STSB07_6-15	Fill_Geo-21, 901.1	T	46.0 g	353.5 g	307.5 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can

Lab Sample ID	Client Sample ID	Method Chain	Basis	Tuna Can LCS 00009					
MB 160-456720/1		Fill_Geo-21, 901.1							
LCS 160-456720/2		Fill_Geo-21, 901.1		# g					
160-36942-A-1-A	STSB07_0-0.5	Fill_Geo-21, 901.1	T						
160-36942-A-1-A DU	STSB07_0-0.5	Fill_Geo-21, 901.1	T						
160-36942-A-2-A	STSB07_0.5-3	Fill_Geo-21, 901.1	T						
160-36942-A-3-A	STSB07-FD_0.5-3	Fill_Geo-21, 901.1	T						
160-36942-A-4-A	STSB07_3-6	Fill_Geo-21, 901.1	T						
160-36942-A-5-A	STSB07_6-15	Fill_Geo-21, 901.1	T						

Batch Notes	
Balance ID	121432711
SOP Number	ST-RC-0025

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.: 160-36942-2

SDG No.: 160-36942-2

Batch Number: 456720 Batch Start Date: 01/14/20 09:54 Batch Analyst: Curtright, Logan T

Batch Method: Fill_Geo-21 Batch End Date: 01/14/20 11:25

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

COVER PAGE
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job Number: 160-36942-2

SDG No.: 160-36942-2

Project: ACMS - Yerington OU-4b_OU-5_Soil

Client Sample ID	Lab Sample ID
STSB07_0-0.5	160-36942-1
STSB07_0.5-3	160-36942-2
STSB07-FD_0.5-3	160-36942-3
STSB07_3-6	160-36942-4
STSB07_6-15	160-36942-5

Comments:

2A-IN
CALIBRATION VERIFICATIONS
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-2

SDG No.: 160-36942-2

ICV Source: MS A ICV_01103 Concentration Units: ug/L

CCV Source: MS A CAL1 LLC_00424

70-130%

	ICV 160-458484/7 01/29/2020 00:01				CCVL 160-458484/24 01/29/2020 01:57				CCVL 160-458484/37 01/29/2020 03:24			
Analyte	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Thorium	98.1		100	98	1.82	J	2.00	91	2.12		2.00	106
Uranium	98.7		100	99	0.904	J	1.00	90	0.955	J	1.00	96

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.: 160-36942-2

SDG No.: 160-36942-2

ICV Source: MS A ICV_01103 Concentration Units: ug/L

CCV Source: MS A CAL1 LLC_00424

	CCVL 160-458484/50 01/29/2020 04:51											
Analyte	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Thorium	1.87	J	2.00	94								
Uranium	0.921	J	1.00	92								

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.: 160-36942-2

SDG No.: 160-36942-2

ICV Source: MS A ICV_01103 Concentration Units: ug/L

CCV Source: MS A CAL2 CCV_00382

90-110%

	ICV 160-458484/7 01/29/2020 00:01				CCV 160-458484/25 01/29/2020 02:03				CCV 160-458484/38 01/29/2020 03:31			
Analyte	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Thorium	98.1		100	98	98.7		100	99	98.9		100	99
Uranium	98.7		100	99	99.8		100	100	99.2		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.: 160-36942-2

SDG No.: 160-36942-2

ICV Source: MS A ICV_01103 Concentration Units: ug/L

CCV Source: MS A CAL2 CCV_00382

	CCV 160-458484/51 01/29/2020 04:58											
Analyte	Found	C	True	%R	Found	C	True	%R	Found	C	True	%R
Thorium	97.9		100	98								
Uranium	97.1		100	97								

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.: 160-36942-2

SDG No.: 160-36942-2

Method: 6020A Instrument ID: ICPMS7700

Lab Sample ID: CRI 160-458484/9 Concentration Units: ug/L

CRQL Check Standard Source: MS A CAL1 LLC_00424

Analyte	CRQL Check Standard				
	True	Found	Qualifiers	%R(1)	Limits
Thorium	2.00	1.87	J	94	70-130
Uranium	1.00	0.901	J	90	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.: 160-36942-2

SDG No.: 160-36942-2

Concentration Units: ug/L

		ICB 160-458484/8 01/29/2020 00:08		CCB 160-458484/26 01/29/2020 02:10		CCB 160-458484/39 01/29/2020 03:37		CCB 160-458484/52 01/29/2020 05:05	
Analyte	RL	Found	C	Found	C	Found	C	Found	C
Thorium	2.0	ND		ND		ND		ND	
Uranium	1.0	ND		ND		ND		ND	
		clear		clear		clear		clear	

Italicized analytes were not requested for this sequence.

3-IN
METHOD BLANK
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-2

SDG No.: 160-36942-2

Concentration Units: mg/Kg Lab Sample ID: MB 160-457936/1-A ✓

Instrument Code: ICPMS7700 Batch No.: 458484

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

✓

clear

FORM III-IN

4A-IN
INTERFERENCE CHECK STANDARD
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-2

SDG No.: 160-36942-2

Lab Sample ID: ICSA 160-458484/10 Instrument ID: ICPMS7700

Lab File ID: 079ICSA.D ICS Source: MS A ICSA_00333

Concentration Units: ug/L

Analyte	True Solution A	Found Solution A	Percent Recovery
Thorium		-0.0070	<|2xMDL|, acceptable
Uranium		-0.0200	
Aluminum	*100000*	*102896* ✓	*103* ✓

80-120%.

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.: 160-36942-2

SDG No.: 160-36942-2

Lab Sample ID: ICSAB 160-458484/11 Instrument ID: ICPMS7700

Lab File ID: 080ICSB.D ICS Source: MS A ICSAB_00345

Concentration Units: ug/L

Analyte	True Solution AB	Found Solution AB	Percent Recovery
Thorium	50.0	51.9	104
Uranium	50.0	51.6	103

80-120%

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: STSB07_0-0.5 MS

Lab ID: 160-36942-1 MS

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36942-2

SDG No.: 160-36942-2

Matrix: Solid

Concentration Units: mg/Kg

% Solids: 94.0

Analyte	SSR C	Sample Result (SR) C	Spike Added (SA)	%R	Control Limit %R	Q	Method
Thorium	134	83	91.6	55	75-125	F1	6020A
Uranium	120	62	91.6	64	75-125	F1	6020A

SSR = Spiked Sample Result

J,M-:1-5

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: STSB07_0-0.5 MSD

Lab ID: 160-36942-1 MSD

Lab Name: Eurofins TestAmerica, St. Louis

Job No.: 160-36942-2

SDG No.: 160-36942-2

Matrix: Solid

Concentration Units: mg/Kg

% Solids: 94.0

35%

Analyte	(SDR) C	Spike Added (SA)	%R	Control Limit %R	RPD	RPD Limit	Q	Method
Thorium	148	95.9	68	75-125	10	30	F1	6020A
Uranium	135	95.9	76	75-125	11	30		6020A

SDR = Sample Duplicate Result

J, M-:1-5

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

LINEAR RANGE CHECK STANDARD
METALS -

Lab ID: LRC 160-458484/2

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-2

Sample Matrix: Solid LCS Source: MS LDR 2_00191

Solid(ug/L)

Analyte	True	Found	C	%R	Limits		Q	Method
Thorium	2000	1990		100	90	110		6020A
Uranium	2000	2080		104	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 160-457936/2-A

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-2

Sample Matrix: Solid LCS Source: MPREP1-A_00004

Solid(mg/Kg)

Analyte	True	Found	C	%R	Limits		Q	Method
Thorium	87.2	82.4		94	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 160-457936/3-A

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-2

Sample Matrix: Solid LCS Source: PR_LCSSRM_00024

Analyte	Solid(mg/Kg) 80-120%							
	True	Found	C	%R	Limits		Q	Method
Uranium	70.9	57.9		81.6	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: 160-36942-1

SDG No: 160-36942-2

Lab Name: Eurofins TestAmerica, St. Louis Job No: 160-36942-2

Matrix: Solid Concentration Units: mg/Kg

Analyte	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Difference ±10%	Q	Method
Thorium	83		80.5		3.4		6020A
Uranium	62		60.5		1.8		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: 160-36942-2

SDG Number: 160-36942-2

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

FORM IX - IN

9-IN
CALIBRATION BLANK DETECTION LIMITS
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job Number: 160-36942-2

SDG Number: 160-36942-2

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: 160-36942-2

SDG No.: 160-36942-2

Instrument ID: ICPMS7700 Date: 08/05/2019 16:42

Analyte	Integ. Time (Sec.)	Concentration (ug/L)	Method
Thorium		2000	6020A
Uranium		2000	6020A

FORM XI - IN

12-IN
PREPARATION LOG
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-2

SDG No.: 160-36942-2

Prep Method: 3050B

Lab Sample ID	Preparation Date	Prep Batch	Initial Weight (g)	Initial Volume	Final Volume (mL)
MB 160-457936/1-A	01/23/2020 16:12	457936	0.5134		50
LCS 160-457936/2-A	01/23/2020 16:12	457936	0.5731		50
LCSSRM 160-457936/3-A	01/23/2020 16:12	457936	0.5415		50
160-36942-1	01/23/2020 16:12	457936	0.5414		50
160-36942-1 MS	01/23/2020 16:12	457936	0.5802		50
160-36942-1 MSD	01/23/2020 16:12	457936	0.5545		50
160-36942-2	01/23/2020 16:12	457936	0.5689		50
160-36942-3	01/23/2020 16:12	457936	0.5411		50
160-36942-4	01/23/2020 16:12	457936	0.5645		50
160-36942-5	01/23/2020 16:12	457936	0.5420		50

FORM XII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-2

SDG No.: 160-36942-2

Instrument ID: ICPMS7700 Analysis Method: 6020A

Start Date: 01/28/2020 16:49 End Date: 01/29/2020 06:26

Lab Sample Id	D/F	Type	Time	Th	U	Analytes
LRC 160-458484/1			16:49			
LRC 160-458484/2	1		16:56	X	X	
ICIS 160-458484/3			23:34	X	X	
IC 160-458484/4	1		23:41	X	X	
IC 160-458484/5	1		23:48	X	X	
IC 160-458484/6	1		23:54	X	X	
ICV 160-458484/7	1		00:01	X	X	
ICB 160-458484/8	1		00:08	X	X	
CRI 160-458484/9	1		00:15	X	X	
ICSA 160-458484/10	1		00:22	X	X	
ICSAB 160-458484/11	1		00:29	X	X	
CCV 160-458484/12			00:36			
CCB 160-458484/13			00:43			
ZZZZZZ			00:49			
ZZZZZZ			00:56			
ZZZZZZ			01:03			
ZZZZZZ			01:09			
ZZZZZZ			01:16			
ZZZZZZ			01:23			
ZZZZZZ			01:30			
ZZZZZZ			01:36			
ZZZZZZ			01:43			
ZZZZZZ			01:50			
CCVL 160-458484/24	1		01:57	X	X	
CCV 160-458484/25	1		02:03	X	X	
CCB 160-458484/26	1		02:10	X	X	
ZZZZZZ			02:17			
ZZZZZZ			02:24			
ZZZZZZ			02:30			
MB 160-457936/1-A	2	T	02:37	X	X	
LCS 160-457936/2-A	2	T	02:44	X		
LCSSRM 160-457936/3-A	10	T	02:50		X	
160-36942-1	2	T	02:57	X	X	
160-36942-1 SD	10	T	03:04	X	X	
160-36942-1 MS	2	T	03:11	X	X	
160-36942-1 MSD	2	T	03:17	X	X	
CCVL 160-458484/37	1		03:24	X	X	
CCV 160-458484/38	1		03:31	X	X	
CCB 160-458484/39	1		03:37	X	X	
160-36942-2	2	T	03:44	X	X	
160-36942-3	2	T	03:51	X	X	
160-36942-4	2	T	03:58	X	X	

FORM XIII-IN

13-IN
ANALYSIS RUN LOG
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-2

SDG No.: 160-36942-2

Instrument ID: ICPMS7700 Analysis Method: 6020A

Start Date: 01/28/2020 16:49 End Date: 01/29/2020 06:26

Lab Sample Id	D/F	Type	Time	Th	U	Analytes
160-36942-5	2	T	04:04	X	X	
ZZZZZZ			04:11			
ZZZZZZ			04:18			
ZZZZZZ			04:25			
ZZZZZZ			04:31			
ZZZZZZ			04:38			
ZZZZZZ			04:45			
CCVL 160-458484/50	1		04:51	X	X	
CCV 160-458484/51	1		04:58	X	X	
CCB 160-458484/52	1		05:05	X	X	
ZZZZZZ			05:12			
ZZZZZZ			05:18			
ZZZZZZ			05:25			
ZZZZZZ			05:32			
ZZZZZZ			05:39			
ZZZZZZ			05:45			
ZZZZZZ			05:52			
ZZZZZZ			05:59			
ZZZZZZ			06:05			
CCVL 160-458484/62			06:12			
CCV 160-458484/63			06:19			
CCB 160-458484/64			06:26			

Prep Types:
T = Total/NA

FORM XIII-IN

Ir/3 associated w/ reported analytes

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-2

SDG No.: 160-36942-2

ICP-MS Instrument ID: ICPMS7700 Start Date: 01/28/2020 End Date: 01/29/2020

Internal Standards %RI For: 60-125%

Lab Sample ID	Time	Element In	Q	Element Ho/2	Q	Element Ho/3	Q	Element Ir/2	Q	Element Ir/3	Q
LRC 160-458484/2	16:56	89		97		94		90		90	
IC 160-458484/4	23:41	104		101		103		98		102	
IC 160-458484/5	23:48	98		98		100		96		98	
IC 160-458484/6	23:54	99		99		100		96		99	
ICV 160-458484/7	00:01	100		99		100		99		100	
ICB 160-458484/8	00:08	100		98		100		98		99	
CRI 160-458484/9	00:15	100		98		101		98		100	
ICSA 160-458484/10	00:22	92		98		94		87		89	
ICSAB 160-458484/11	00:29	93		100		97		89		90	
CCVL 160-458484/24	01:57	101		98		102		97		101	
CCV 160-458484/25	02:03	98		96		101		96		99	
CCB 160-458484/26	02:10	99		98		100		97		99	
MB 160-457936/1-A	02:37	102		99		104		100		102	
LCS 160-457936/2-A	02:44	98		97		101		92		98	
LCSSRM 160-457936/3-A	02:50	98		96		101		94		98	
160-36942-1	02:57	97		95		99		90		95	
160-36942-1 SD	03:04	103		100		103		97		101	
160-36942-1 MS	03:11	93		96		97		89		92	
160-36942-1 MSD	03:17	98		96		103		88		97	
CCVL 160-458484/37	03:24	101		98		101		97		100	
CCV 160-458484/38	03:31	101		98		102		98		100	
CCB 160-458484/39	03:37	103		97		101		95		101	
160-36942-2	03:44	99		96		101		91		96	
160-36942-3	03:51	101		98		104		92		98	
160-36942-4	03:58	101		98		103		92		98	
160-36942-5	04:04	105		97		107		93		102	
CCVL 160-458484/50	04:51	107		101		104		98		102	
CCV 160-458484/51	04:58	105		99		104		96		102	
CCB 160-458484/52	05:05	105		96		103		94		101	

FORM XV - IN

* no anal, 1-13 evaluated only

15-IN
ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY
METALS

Lab Name: Eurofins TestAmerica, St. Louis Job No.: 160-36942-2

SDG No.: 160-36942-2

ICP-MS Instrument ID: ICPMS7700 Start Date: 01/28/2020 End Date: 01/29/2020

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 160-458484/2	16:56			110		95		107		94	
IC 160-458484/4	23:41	101		102		102		103		103	
IC 160-458484/5	23:48	97		98		99		106		102	
IC 160-458484/6	23:54	95		98		99		107		103	
ICV 160-458484/7	00:01	97		98		100		108		101	
ICB 160-458484/8	00:08	99		98		99		100		100	
CRI 160-458484/9	00:15	100		99		101		102		102	
ICSA 160-458484/10	00:22	94		108		100		104		97	
ICSAB 160-458484/11	00:29	95		113		102		112		99	
CCVL 160-458484/24	01:57	94		94		99		99		101	
CCV 160-458484/25	02:03	91		90		96		98		102	
CCB 160-458484/26	02:10	93		92		97		95		99	
MB 160-457936/1-A	02:37	94		95		100		100		103	
LCS 160-457936/2-A	02:44	90		92		96		96		100	
LCSSRM 160-457936/3-A	02:50	83		94		101		94		99	
160-36942-1	02:57	90						95		101	
160-36942-1 SD	03:04	97		118		122		102		104	
160-36942-1 MS	03:11	88						97		99	
160-36942-1 MSD	03:17	90						99		103	
CCVL 160-458484/37	03:24	94		96		100		100		103	
CCV 160-458484/38	03:31	92		95		100		106		105	
CCB 160-458484/39	03:37	95		96		100		99		102	
160-36942-2	03:44	92		116		124		102		105	
160-36942-3	03:51	94		123		131		104		107	
160-36942-4	03:58	94		116		124		103		107	
160-36942-5	04:04	96		105		117		103		110	
CCVL 160-458484/50	04:51	99		104		107		108		110	
CCV 160-458484/51	04:58	96		101		107		111		112	
CCB 160-458484/52	05:05	97		97		105		101		107	

FORM XV - IN

METALS BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36942-2

SDG No.: 160-36942-2

Batch Number: 457936 Batch Start Date: 01/23/20 16:12 Batch Analyst: Mazariegos, Leonel A

Batch Method: 3050B Batch End Date: 01/27/20 14:06

Lab Sample ID	Client Sample ID	Method Chain	Basis	InitialAmount	FinalAmount	MPREP1-A 00004	MPREP1-B 00004	MPREP2 00022	PR_LCSSRM 00024
MB 160-457936/1		3050B, 6020A		0.5134 g	50 mL				
LCS 160-457936/2		3050B, 6020A		0.5731 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
LCSSRM 160-457936/3		3050B, 6020A		0.5415 g	50 mL				0.5415 g
160-36942-B-1	STSB07_0-0.5	3050B, 6020A	T	0.5414 g	50 mL				
160-36942-B-1 MS	STSB07_0-0.5	3050B, 6020A	T	0.5802 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
160-36942-B-1 MSD	STSB07_0-0.5	3050B, 6020A	T	0.5545 g	50 mL	0.25 mL	0.25 mL	0.25 mL	
160-36942-B-2	STSB07_0.5-3	3050B, 6020A	T	0.5689 g	50 mL				
160-36942-B-3	STSB07-FD_0.5-3	3050B, 6020A	T	0.5411 g	50 mL				
160-36942-B-4	STSB07_3-6	3050B, 6020A	T	0.5645 g	50 mL				
160-36942-B-5	STSB07_6-15	3050B, 6020A	T	0.5420 g	50 mL				

Batch Notes	
Balance ID	27150420
Blank Soil Lot Number	25438819
Temperature - Corrected - End	B5: 91.8 Degrees C
Temperature - Corrected - Start	C4: 92.1 Degrees C
Digestion End Time	01/27/2020 13:39
Digestion Start Time	01/27/2020 10:53
Digestion Unit ID	HOTBLOCK 1
Digestion Tube/Cup ID	344749-4653
Hydrogen Peroxide ID	1852964
Hydrochloric Acid ID	1854875
Nitric Acid ID	1854883, 1863531
Pipette/Syringe/Dispenser ID	MET-12
Analyst ID - Spike Analyst	LAM
Sufficient Volume for Batch QC	YES
Thermometer ID	160322347

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.: 160-36942-2

SDG No.: 160-36942-2

Batch Number: 457936 Batch Start Date: 01/23/20 16:12 Batch Analyst: Mazariegos, Leonel A

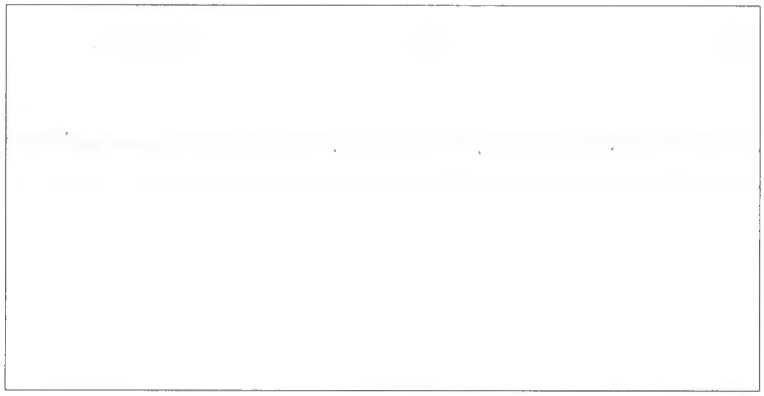
Batch Method: 3050B Batch End Date: 01/27/20 14:06

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.

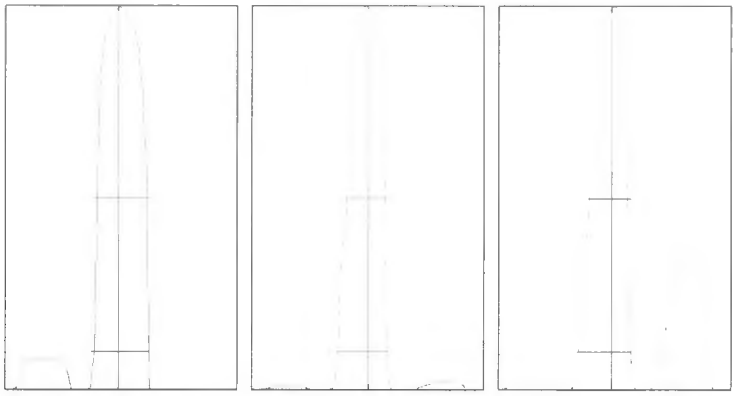
Tune Report

Tune File : autotune.u
Comment :



Integration Time:	0.1000 sec	
Sampling Period:	0.3100 sec	
n:	200	
Oxide:	156/140	0.459%
Doubly Charged:	70/140	1.380%

m/z	Range	Count	Mean	RSD%	Background
7	50,000	31581.0	32056.3	2.54	2.40
89	100,000	92459.0	89393.8	2.39	3.50
205	100,000	53400.0	53056.3	2.51	7.80



m/z:	7	89	205
Height:	32,230	89,719	52,439
Axis:	7.00	89.05	205.00
W-50%:	0.70	0.55	0.55
W-10%:	0.7500	0.6500	0.700

Integration Time: 0.1000 sec
Acquisition Time: 22.7600 sec

Y axis : Linear

Tune Report

Tune File : autotune.u
Comment :

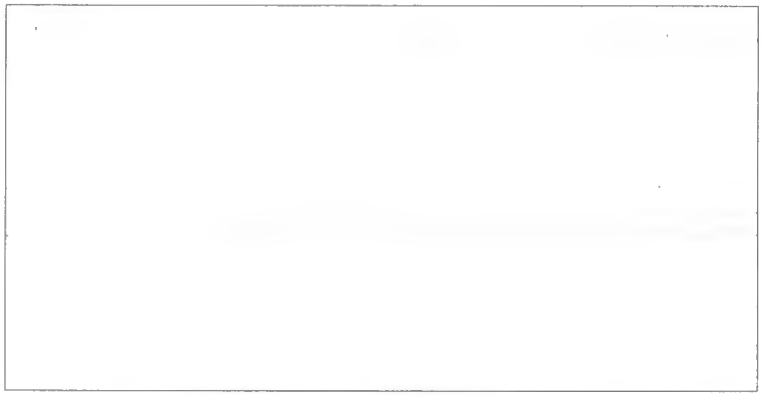
Tuning Parameters

===Plasma Condition===			===Ion Lenses===			===Q-Pole Parameters===		
RF Power	:	1550 W	Extract 1	:	0 V	AMU Gain	:	119
RF Matching	:	1.5 V	Extract 2	:	-150 V	AMU Offset	:	127
Smpl Depth	:	8 mm	Omega Bias	:	-75 V	Axis Gain	:	0.9981
Torch-H	:	0.1 mm	Omega Lens	:	7 V	Axis Offset	:	0.09
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	:	1935 V
Nebulizer Pump	:	0.1 rps	OctP RF	:	190 V	Pulse HV	:	1226 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	:	--- %

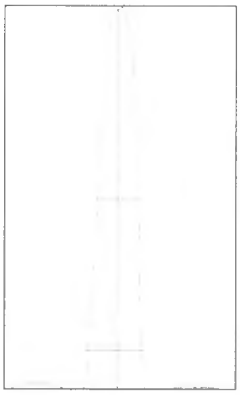
Tune Report

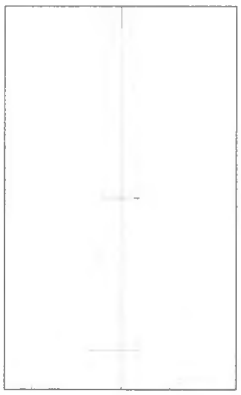
Tune File : he.u
Comment :

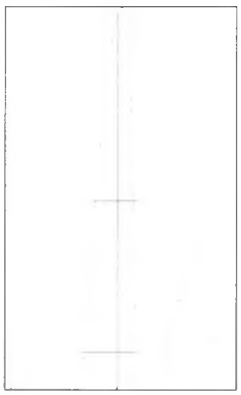


Integration Time:	0.1000 sec	
Sampling Period:	0.6200 sec	
n:	200	
Oxide:	156/140	0.226%
Doubly Charged:	70/140	1.403%

m/z	Range	Count	Mean	RSD%	Background
59	50,000	20071.0	20541.1	2.38	0.10
89	50,000	23055.0	22690.6	2.63	0.40
140	100,000	53091.0	54164.9	2.22	0.70
205	50,000	44884.0	44942.3	2.54	0.40
156/140	1	0.251%	0.202%	12.74	
70/140	2	1.402%	1.411%	6.30	







m/z:	59	89	205
Height:	20,421	22,973	44,193
Axis:	59.00	89.05	205.00
W-50%:	0.60	0.50	0.55
W-10%:	0.7500	0.6500	0.700

Integration Time: 0.1000 sec
Acquisition Time: 22.5600 sec

Y axis : Linear

Page: 1

Generated : Jan 28, 2020 13:26:47
Printed : Jan 28, 2020 13:26:49

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	:	119
RF Matching	:	1.5 V	Extract 2	:	-120 V	AMU Offset	:	127
Smpl Depth	:	8 mm	Omega Bias	:	-80 V	Axis Gain	:	0.9981
Torch-H	:	0.1 mm	Omega Lens	:	8.5 V	Axis Offset	:	0.09
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	:	1935 V
Nebulizer Pump	:	0.1 rps	OctP RF	:	190 V	Pulse HV	:	1226 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: 28 Jan 2020 03:34:07 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	1.90	5.00	
59 Co	0.42	5.00	
115 In	2.56	5.00	
205 Tl	1.16	5.00	

Ion Ratio

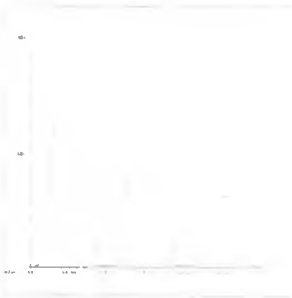
Element	Actual	Required	Flag

Maximum Bkg. Count(CPS)

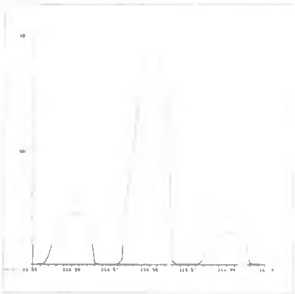
Element	Actual	Required	Flag

C:\ICPMH\1\DATA\012820B1.B\QCTUNE00.D

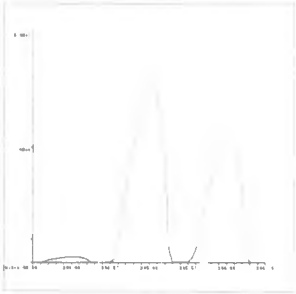
6 Li
Mass Calib.
Actual: 6.05
Required: 5.90-6.10
Flag:
Peak Width
Actual: 0.65
Required: 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
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: 0.65
Required: 0.90
Flag:

QC Tune Result:Pass

C:\ICPMH\1\DATA\012820B1.B\QCTUNE00.D

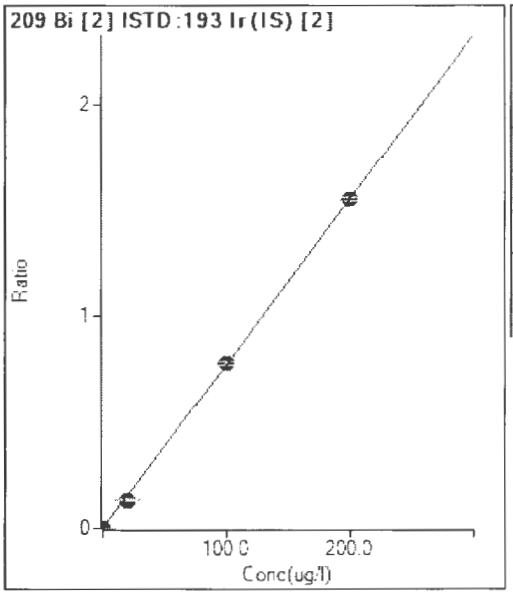
Replicated Data: Tune #1

Mass	Count (CPS)				
6	4636732.00	4332847.00	4536465.00	4546010.00	4566056.00
7	271108.09	257103.41	264202.50	262576.69	263308.09
8	60.00	44.50	50.00	50.00	47.00
58	1942686.00	1931489.00	1918688.00	1912692.00	1913024.00
59	1766600.00	1755368.00	1755290.00	1746315.00	1753116.00
60	802204.00	801281.00	796212.19	792536.13	785518.13
95	814925.13	820602.88	825557.69	811491.81	824634.31
111	853256.19	858761.00	858970.31	854641.81	864770.69
114	1968950.00	1995877.00	1999232.00	1990260.00	2016993.00
115	8910393.00	8335734.00	8838560.00	8734736.00	8819276.00
116	1222487.00	1217293.00	1224876.00	1223368.00	1218431.00
118	1134857.00	1126035.00	1128169.00	1131393.00	1139222.00
204	55802.08	57750.50	58678.49	57740.11	59344.74
205	1700620.00	1709443.00	1708784.00	1738533.00	1737115.00
206	1180617.00	1193513.00	1201121.00	1213143.00	1227069.00
207	1048696.00	1064789.00	1076981.00	1076463.00	1078809.00
208	2548315.00	2561861.00	2580409.00	2577172.00	2611684.00

Calibration for 004CALS.D

Batch Folder:	C:¥ICPMH¥1¥DATA¥012820B1.B¥
Analysis File:	012820B1.batch.xml
DA Date-Time:	1/28/2020 4:11:44 PM
Calibration Title:	
Calibration Method:	External Calibration
VIS Interpolation Fit:	
Tune Step:	#1 he.u
	#2 nogas.u

Level	Standard Data File	Sample Name	Acq. Date-Time
1	003CALB.D	ICIS 1865845	1/28/2020 3:49:06 PM
2	004CALS.D	IC 1866890	1/28/2020 3:55:50 PM
3	005CALS.D	IC 1866891	1/28/2020 4:02:33 PM
4	006CALS.D	IC 1866892	1/28/2020 4:09:15 PM
5			
6			
7			



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	7686.62	0.0011	P	3.5
2	☐	20.000	17.174	924315.77	0.1344	P	3.5
3	☐	100.000	100.967	5346583.70	0.7849	A	2.0
4	☐	200.000	199.799	10565244.84	1.5521	A	1.1
5	☐						
6	☐						
7	☐						

y = 0.0078 * x + 0.0011

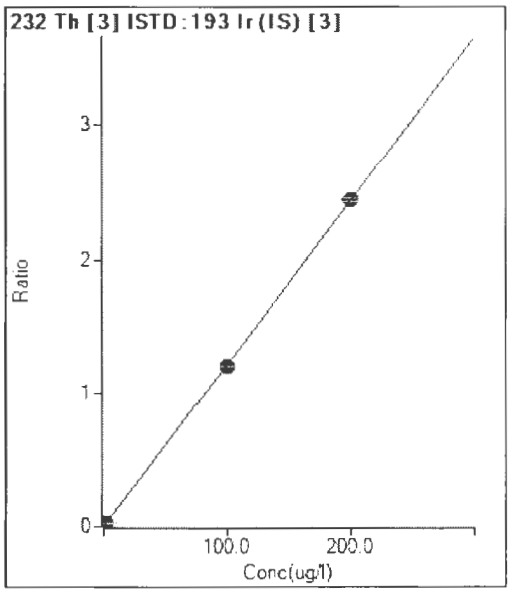
R = 0.9999

DL = 0.01502

BEC = 0.1419

Weight: None

Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	4211.86	0.0005	P	5.7
2	☐	2.000	1.729	176104.40	0.0216	P	2.0
3	☐	100.000	99.026	9679301.32	1.2071	A	0.4
4	☐	200.000	200.490	19745191.37	2.4433	A	1.2
5	☐						
6	☐						
7	☐						

y = 0.0122 * x + 5.1233E-004 ✓

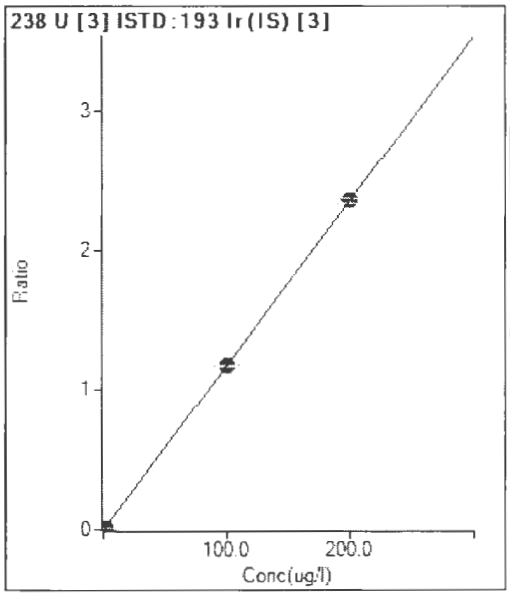
R = 1.0000 ✓

DL = 0.007132

BEC = 0.04205

Weight: None

Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2584.78	0.0003	P	2.2
2	☐	1.000	0.851	84484.43	0.0104	P	1.8
3	☐	100.000	99.349	9396771.11	1.1718	A	0.2
4	☐	200.000	200.326	19091287.35	2.3625	A	1.7
5	☐						
6	☐						
7	☐						

y = 0.0118 * x + 3.1431E-004 ✓

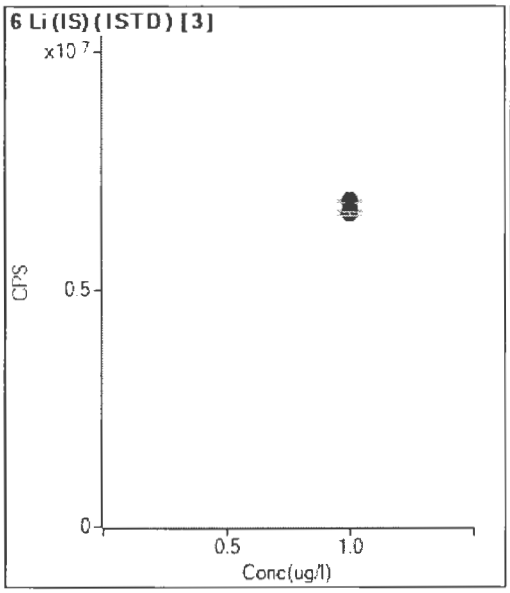
R = 1.0000 ✓

DL = 0.001757

BEC = 0.02665

Weight: None

Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		6886604.03		A	0.3
2	☐	1.000		6829465.66		A	0.3
3	☐	1.000		6663107.61		A	0.5
4	☐	1.000		6592374.07		A	1.2
5	☐	1.000					
6	☐	1.000					
7	☐	1.000					

Environmental Standards Inc.
Calibration Verification Form

Effective Date:11/23/2015
Revision #: 1

SDG	160-36942-1	ICAL Date	~~12/28/2019~~ 1/28/2020
Instrument	ICPMS7700	1st Std. File ID	4:11 PM
Analyte:	232 Th		

Dependent Variable
- ○ Amount
- ◉ Response

Response for Int. Stc. Cal
- ◉ Area Cpd*Amt IS/Area IS
- ○ Area Cpd/Area IS

Regression Type
- ◉ Unweighted
- ○ Weighted 1/x
- ○ Weighted 1/x^2
- ○ Weighted 1/y
- ○ Weighted 1/y^2

Enter Calibration Data						Curve Refit	
Amount	Response	ISTD Amt	ISTD Resp	Response	CF	Refit Conc.	Recovery
0.00	0.0005			0.00	#DIV/0!	1.1234	#DIV/0!
1.73	0.0216			0.02	0.01	20.5649	1189.41%
99.03	1.2071			1.21	0.01	99.9414	100.92%
200.49	2.4433			2.44	0.01	0.0448	0.02%
						RSE	#DIV/0!

	Constant	1ST Degree Coefficient	2ND Degree Coefficient	3RD Degree Coefficient	r^2	r	Select Model
Unweighted Linear	5.2491E-04	1.2184E-02	#N/A	#N/A	1.00000	1.00000	◉
Unweighted Linear Force 0	#N/A	1.2187E-02	#N/A	#N/A	1.00000	1.00000	○
Unweighted Quad	5.1589E-04	1.2185E-02	-4.4847E-09	#N/A	1.00000	1.00000	○
Unweighted Quad Force 0	#N/A	1.2193E-02	-3.2382E-08	#N/A	1.00000	1.00000	○
Unweighted Cubic	5.0000E-04	1.2204E-02	-2.9018E-07	9.5140E-10	1.00000	1.00000	○
Unweighted Cubic Force 0	#N/A	1.2501E-02	-4.6780E-06	1.5517E-08	1.00000	1.00000	○

CF Mean CF: #DIV/0! RSD: #DIV/0! ○

	Constant	1st Degree		
Curve Coefficients Reported by Laboratory:				

Sample ID	Sample Response	ISTD Amt	ISTD Response	Dilution	Reported Result	Calculated Result	% Difference

Environmental Standards Inc.
Calibration Verification Form

Effective Date:11/23/2015
Revision #: 1

SDG	160-36942-1	ICAL Date	~~12/28/2019~~ 1/28/2020
Instrument	ICPMS7700	1st Std. File ID	4:11 PM
Analyte:	238 U		

Dependent Variable
- ○ Amount
- ◉ Response

Response for Int. Stc. Cal
- ◉ Area Cpd*Amt IS/Area IS
- ○ Area Cpd/Area IS

Regression Type
- ◉ Unweighted
- ○ Weighted 1/x
- ○ Weighted 1/x^2
- ○ Weighted 1/y
- ○ Weighted 1/y^2

Enter Calibration Data						Curve Refit	
Amount	Response	ISTD Amt	ISTD Resp	Response	CF	Refit Conc.	Recovery
0.00	0.0003			0.00	#DIV/0!	1.1234	#DIV/0!
0.85	0.0104			0.01	0.01	20.5649	2416.55%
99.35	1.1718			1.17	0.01	99.9414	100.60%
200.33	2.3625			2.36	0.01	0.0448	0.02%
						RSE	#DIV/0!

	Constant	1ST Degree Coefficient	2ND Degree Coefficient	3RD Degree Coefficient	r^2	r	Select Model
Unweighted Linear	3.2929E-04	1.1792E-02	#N/A	#N/A	1.00000	1.00000	◉
Unweighted Linear Force 0	#N/A	1.1794E-02	#N/A	#N/A	1.00000	1.00000	○
Unweighted Quad	3.3260E-04	1.1791E-02	1.7244E-09	#N/A	1.00000	1.00000	○
Unweighted Quad Force 0	#N/A	1.1796E-02	-1.5608E-08	#N/A	1.00000	1.00000	○
Unweighted Cubic	3.0000E-04	1.1869E-02	-1.1688E-06	3.9007E-09	1.00000	1.00000	○
Unweighted Cubic Force 0	#N/A	1.2226E-02	-6.4920E-06	2.1614E-08	1.00000	1.00000	○

CF Mean CF: #DIV/0! RSD: #DIV/0! ○

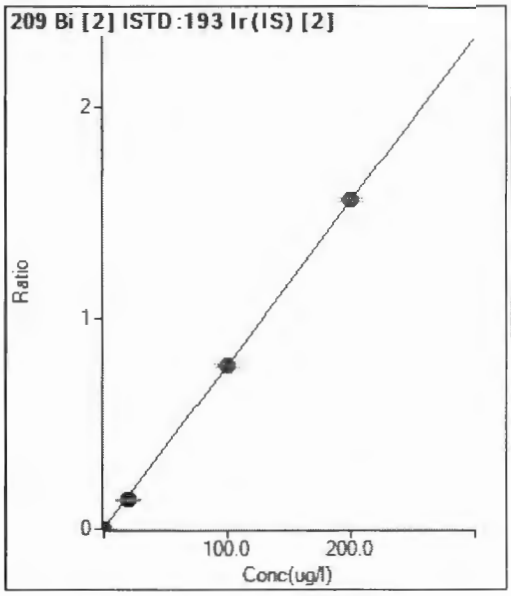
	Constant	1st Degree		
Curve Coefficients Reported by Laboratory:				

Sample ID	Sample Response	ISTD Amt	ISTD Response	Dilution	Reported Result	Calculated Result	% Difference

Calibration for 073CALS.D

Batch Folder: C:¥ICPMH¥1¥DATA¥012820B1.B¥
Analysis File: 012820B1.batch.xml
DA Date-Time: 1/28/2020 11:57:29 PM
Calibration Title:
Calibration Method: External Calibration
VIS Interpolation Fit:
Tune Step: #1 he.u
#2 nogas.u

Level	Standard Data File	Sample Name	Acq. Date-Time
1	072CALB.D	ICIS 1865845	1/28/2020 11:34:44 PM
2	073CALS.D	IC 1866890	1/28/2020 11:41:29 PM
3	074CALS.D	IC 1866891	1/28/2020 11:48:12 PM
4	075CALS.D	IC 1866892	1/28/2020 11:54:53 PM
5			
6			
7			



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	9746.73	0.0013	P	4.4
2	☐	20.000	17.537	990574.47	0.1379	P	6.7
3	☐	100.000	99.601	5511855.68	0.7769	A	2.3
4	☐	200.000	200.446	11073139.56	1.5621	A	1.0
5	☐						
6	☐						
7	☐						

y = 0.0078 * x + 0.0013

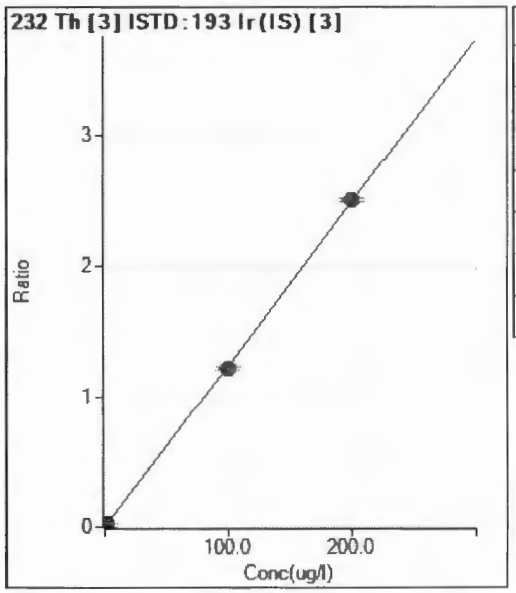
R = 0.9999

DL = 0.02222

BEC = 0.1694

Weight: None

Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	4248.54	0.0005	P	2.6
2	☐	2.000	1.718	187625.60	0.0219	P	3.4
3	☐	100.000	97.849	10115923.11	1.2184	A	2.4
4	☐	200.000	201.078	20877259.00	2.5033	A	0.9
5	☐						
6	☐						
7	☐						

y = 0.0124 * x + 5.0275E-004

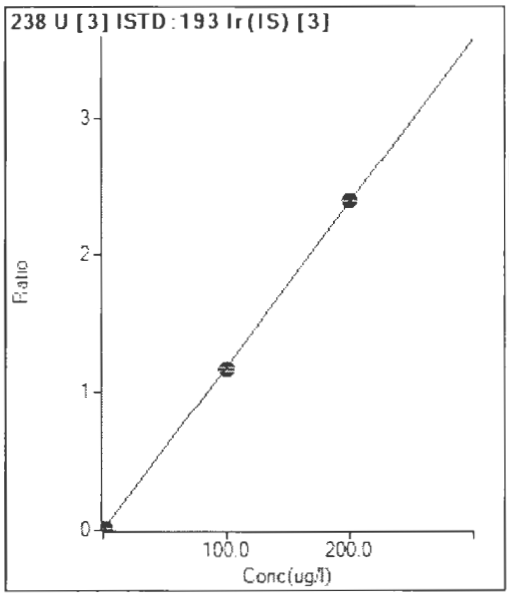
R = 0.9999

DL = 0.003123

BEC = 0.04039

Weight: None

Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	0.000	0.000	2871.50	0.0003	P	3.6
2	☐	1.000	0.872	92024.17	0.0107	P	3.5
3	☐	100.000	98.161	9714149.51	1.1701	A	2.5
4	☐	200.000	200.920	19970397.90	2.3946	A	0.1
5	☐						
6	☐						
7	☐						

y = 0.0119 * x + 3.3977E-004

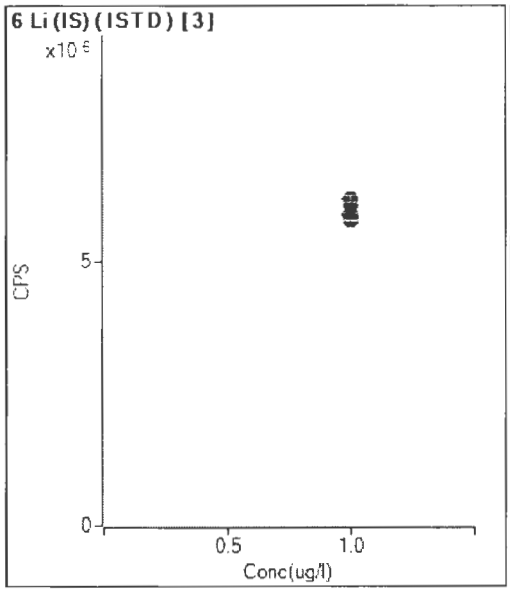
R = 0.9993

DL = 0.003092

BEC = 0.02851

Weight: None

Min Conc: <None>



	Rjct	Conc.	Calc Conc.	CPS	Ratio	Det.	RSD
1	☐	1.000		6074309.55		A	0.4
2	☐	1.000		6146941.97		A	2.2
3	☐	1.000		5869539.87		A	1.2
4	☐	1.000		5757070.42		A	0.4
5	☐	1.000					
6	☐	1.000					
7	☐	1.000					

Environmental Standards Inc.
Calibration Verification Form

Effective Date:11/23/2015
Revision #: 1

SDG	160-36942-1	ICAL Date	~~12/28/2019~~ 1/29/2020
Instrument	ICPMS7700	1st Std. File ID	11:57 PM
Analyte:	238 U		

Dependent Variable
- ○ Amount
- ◉ Response

Response for Int. Stc. Cal
- ◉ Area Cpd * Amt IS/Area IS
- ○ Area Cpd/Area IS

Regression Type
- ◉ Unweighted
- ○ Weighted 1/x
- ○ Weighted 1/x^2
- ○ Weighted 1/y
- ○ Weighted 1/y^2

Enter Calibration Data						Curve Refit	
Amount	Response	ISTD Amt	ISTD Resp	Response	CF	Refit Conc.	Recovery
0.00	0.0003			0.00	#DIV/0!	1.1234	#DIV/0!
0.87	0.0107			0.01	0.01	20.5649	2358.36%
98.16	1.1701			1.17	0.01	99.9414	101.81%
200.92	2.3946			2.39	0.01	0.0448	0.02%
						RSE	#DIV/0!

	Constant	1ST Degree Coefficient	2ND Degree Coefficient	3RD Degree Coefficient	r^2	r	Select Model
Unweighted Linear	3.1259E-04	1.1917E-02	#N/A	#N/A	1.00000	1.00000	◉
Unweighted Linear Force 0	#N/A	1.1919E-02	#N/A	#N/A	1.00000	1.00000	○
Unweighted Quad	3.0392E-04	1.1918E-02	-4.4141E-09	#N/A	1.00000	1.00000	○
Unweighted Quad Force 0	#N/A	1.1922E-02	-2.0398E-08	#N/A	1.00000	1.00000	○
Unweighted Cubic	3.0000E-04	1.1927E-02	-1.4292E-07	4.6248E-10	1.00000	1.00000	○
Unweighted Cubic Force 0	#N/A	1.2275E-02	-5.3753E-06	1.7906E-08	1.00000	1.00000	○

CF Mean CF: #DIV/0! RSD: #DIV/0! ○

Curve Coefficients Reported by Laboratory:	Constant	1st Degree		

Sample ID	Sample Response	ISTD Amt	ISTD Response	Dilution	Reported Result	Calculated Result	% Difference

Environmental Standards Inc.
Calibration Verification Form

Effective Date:11/23/2015
Revision #: 1

SDG	160-36942-1	ICAL Date	~~12/28/2019~~ 1/28/2020
Instrument	ICPMS7700	1st Std. File ID	11:57 PM
Analyte:	232 Th		

Dependent Variable
- ○ Amount
- ◉ Response

Response for Int. Stc. Cal
- ◉ Area Cpd*Amt IS/Area IS
- ○ Area Cpd/Area IS

Regression Type
- ◉ Unweighted
- ○ Weighted 1/x
- ○ Weighted 1/x^2
- ○ Weighted 1/y
- ○ Weighted 1/y^2

Enter Calibration Data						Curve Refit	
Amount	Response	ISTD Amt	ISTD Resp	Response	CF	Refit Conc.	Recovery
0.00	0.0005			0.00	#DIV/0!	1.1234	#DIV/0!
1.72	0.0219			0.02	0.01	20.5649	1197.02%
97.85	1.2184			1.22	0.01	99.9414	102.14%
201.08	2.5033			2.50	0.01	0.0448	0.02%
						RSE	#DIV/0!

	Constant	1ST Degree Coefficient	2ND Degree Coefficient	3RD Degree Coefficient	r^2	r	Select Model
Unweighted Linear	5.0397E-04	1.2447E-02	#N/A	#N/A	1.00000	1.00000	◉
Unweighted Linear Force 0	#N/A	1.2450E-02	#N/A	#N/A	1.00000	1.00000	○
Unweighted Quad	5.0840E-04	1.2446E-02	2.1577E-09	#N/A	1.00000	1.00000	○
Unweighted Quad Force 0	#N/A	1.2455E-02	-2.5532E-08	#N/A	1.00000	1.00000	○
Unweighted Cubic	5.0000E-04	1.2457E-02	-1.5086E-07	5.1057E-10	1.00000	1.00000	○
Unweighted Cubic Force 0	#N/A	1.2755E-02	-4.5980E-06	1.5303E-08	1.00000	1.00000	○

CF Mean CF: #DIV/0! RSD: #DIV/0! ○

Curve Coefficients Reported by Laboratory:	Constant	1st Degree		

Sample ID	Sample Response	ISTD Amt	ISTD Response	Dilution	Reported Result	Calculated Result	% Difference

012820B1-1

une Ste	Mass	Name	R	a	b (blank)	DL	BEC	Units
3	7	Li	0.999991	0.005926	0.056623382	0.030144	9.554912	ug/l
3	9	Be	0.999995	0.001803	4.90453E-05	0.021083	0.027208	ug/l
3	11	B	0.999654	0.00135	0.001080297	0.120186	0.800058	ug/l
2	23	Na	0.999994	0.009169	0.147994641	0.715671	16.14083	ug/l
2	24	Mg	0.999999	0.004841	0.017495831	0.277643	3.614373	ug/l
2	27	Al	0.999907	0.001999	0.011200747	1.12987	5.602363	ug/l
2	31	P	0.999999	0.000134	0.000810677	2.921856	6.03533	ug/l
2	39	K	0.999946	0.004736	0.207365493	0.880409	43.78184	ug/l
3	44	Ca	0.999951	0.000468	0.018055023	1.59164	38.59749	ug/l
3	47	Ti	1	0.001354	0.00037311	0.013165	0.275577	ug/l
2	51	V	0.999915	0.051944	0.011659546	0.044586	0.224464	ug/l
2	52	Cr	0.999919	0.064731	0.008688279	0.003474	0.134222	ug/l
2	55	Mn	0.99972	0.018509	0.005440431	0.070248	0.29393	ug/l
2	57	Fe	0.999962	0.000645	0.005607532	1.694816	8.694414	ug/l
2	59	Co	0.99991	0.045897	0.002498068	0.010144	0.054428	ug/l
2	60	Ni	0.999949	0.011237	0.000882742	0.025266	0.078559	ug/l
2	63	Cu	0.999797	0.032441	0.031911701	0.064669	0.983674	ug/l
2	66	Zn	0.999912	0.005745	0.003388148	0.178216	0.589743	ug/l
2	75	As	0.999725	0.003885	0.000669254	0.074981	0.172248	ug/l
2	78	Se	0.999988	0.000294	0.000215423	0.11935	0.732409	ug/l
3	88	Sr	0.999991	0.032375	0.002790889	0.007691	0.086204	ug/l
2	89	Y	0.999792	0.05232	0.001120403	0.00767	0.021415	ug/l
2	90	Zr	0.999898	0.040454	0.001637136	0.014733	0.04047	ug/l
2	93	Nb	0.999587	0.079523	0.006879686	0.022999	0.086512	ug/l
3	95	Mo	0.999488	0.006323	0.001084701	0.024734	0.171552	ug/l
2	101	Ru	0.999755	0.022738	0.000520796	0.016161	0.022904	ug/l
2	103	Rh	0.999877	0.136287	0.003259076	0.004481	0.023913	ug/l
2	105	Pd	0.999894	0.024691	0.000326324	0.011709	0.013216	ug/l
3	107	Ag	0.999755	0.002661	4.14026E-05	0.00305	0.015556	ug/l
3	111	Cd	0.999611	0.000543	2.38409E-05	0.007829	0.043936	ug/l
3	118	Sn	0.999972	0.001559	0.000596607	0.011107	0.382574	ug/l
3	121	Sb	0.999972	0.001993	0.000110727	0.01181	0.055567	ug/l
2	125	Te	0.999995	2.52E-05	1.45802E-06	0.078611	0.057784	ug/l
2	133	Cs	0.999991	0.00205	3.35929E-05	0.001929	0.016388	ug/l
3	137	Ba	0.998591	0.000675	0.000120799	0.061002	0.17909	ug/l
2	139	La	0.999995	0.004487	7.25443E-05	0.006526	0.016169	ug/l
2	140	Ce	0.999981	0.005086	0.00012402	0.00533	0.024385	ug/l
2	141	Pr	0.999974	0.005378	7.03403E-05	0.003126	0.013079	ug/l
2	146	Nd	0.998783	0.000975	1.62057E-05	0.007652	0.016615	ug/l
3	147	Sm	0.999987	0.001049	2.72199E-05	0.002516	0.025939	ug/l
2	178	Hf	0.999954	0.002122	4.78588E-05	0.003683	0.022553	ug/l
2	181	Ta	0.999908	0.008395	0.001036597	0.004494	0.123478	ug/l
2	182	W	0.999988	0.002067	0.00028933	0.032027	0.139997	ug/l
3	185	Re	0.99998	0.004555	4.51067E-05	0.003963	0.009902	ug/l
2	195	Pt	1	0.001994	3.74346E-05	0.007264	0.01877	ug/l
3	197	Au	0.999996	0.00352	0.000142552	0.005029	0.040503	ug/l
3	205	Tl	0.998611	0.007272	0.000309381	0.013044	0.042544	ug/l
3	206	(Pb)	0.999997	0.002554	0.000707717	0.024147	0.27709	ug/l
3	207	(Pb)	0.999992	0.002251	0.0006217	0.040538	0.276176	ug/l
3	208	Pb	0.999998	0.010253	0.002741153	0.025426	0.267343	ug/l
2	209	Bi	0.999865	0.007763	0.001101811	0.015018	0.141937	ug/l
3	232	Th	0.999982	0.012184	0.000512334	0.007132	0.042045	ug/l
3	238	U	0.999992	0.011792	0.000314309	0.001757	0.026655	ug/l
3	6	Li (IS)						ug/l
2	45	Sc (IS)						ug/l
3	45	Sc (IS)						ug/l
2	72	Ge (IS)						ug/l
3	72	Ge (IS)						ug/l
3	115	In (IS)						ug/l
2	165	Ho (IS)						ug/l
3	165	Ho (IS)						ug/l
2	193	Ir (IS)						ug/l
3	193	Ir (IS)						ug/l

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Metals Y Intercept

Analyst: LKP
Instrument: 7700
Calibration File: 012820B1
Matrix: Water
Units: PPB

Date: 1/29/2020

Element	MDL	3XMDL	Y-Intercept	Pass/Fail
LI	2.00	6.00	0.0566234	PASS
BE	0.20	0.60	4.905E-05	PASS
B	45.00	135.00	0.0010803	PASS
NA	20.00	60.00	0.1479946	PASS
MG	20.00	60.00	0.0174958	PASS
AL	20.00	60.00	0.0112007	PASS
P	45.00	135.00	0.0008107	PASS
K	45.00	135.00	0.2073655	PASS
CA	45.00	135.00	0.018055	PASS
TI	2.00	6.00	0.0003731	PASS
V	4.00	12.00	0.0116595	PASS
CR	4.00	12.00	0.0086883	PASS
MN	0.90	2.70	0.0054404	PASS
FE	20.00	60.00	0.0056075	PASS
CO	0.90	2.70	0.0024981	PASS
NI	2.00	6.00	0.0008827	PASS
CU	0.40	1.20	0.0319117	PASS
ZN	7.50	22.50	0.0033881	PASS
AS	4.00	12.00	0.0006693	PASS
SE	2.00	6.00	0.0002154	PASS
SR	2.00	6.00	0.0027909	PASS
Y	2.00	6.00	0.0011204	PASS
ZR	2.00	6.00	0.0016371	PASS
NB	10.00	30.00	0.0068797	PASS
MO	2.00	6.00	0.0010847	PASS
RU	4.00	12.00	0.0005208	PASS
RH	4.00	12.00	0.0032591	PASS
PD	0.20	0.60	0.0003263	PASS
AG	0.90	2.70	4.14E-05	PASS
CD	0.20	0.60	2.384E-05	PASS
SN	1.20	3.60	0.0005966	PASS
SB	2.00	6.00	0.0001107	PASS
TE	7.50	22.50	1.458E-06	PASS
CS	0.20	0.60	3.359E-05	PASS
BA	0.90	2.70	0.0001208	PASS
LA	0.90	2.70	7.254E-05	PASS
CE	4.00	12.00	0.000124	PASS
PR	0.90	2.70	7.034E-05	PASS
ND	0.90	2.70	1.621E-05	PASS
SM	4.00	12.00	2.722E-05	PASS
HF	4.00	12.00	4.786E-05	PASS
TA	4.00	12.00	0.0010366	PASS
W	2.00	6.00	0.0002893	PASS
RE	0.40	1.20	4.511E-05	PASS
PT	0.40	1.20	3.743E-05	PASS
AU	5.00	15.00	0.0001426	PASS
TL	0.90	2.70	0.0003094	PASS
(PB 206)	1.00	3.00	0.0007077	PASS
(PB 207)	1.00	3.00	0.0006217	PASS
PB	1.00	3.00	0.0027412	PASS
BI	7.50	22.50	0.0011018	PASS
TH	0.90	2.70	0.0005123	PASS
U	0.40	1.20	0.0003143	PASS

Analyst:
Instrument: 7700
Calibration File: 012820B1
Matrix: Soil
Units: PPB

Element	MDL	3XMDL	Y-Intercept	Pass/Fail
LI	4.00	12.00	0.056623	PASS
BE	0.40	1.20	0.000049	PASS
B	45.00	135.00	0.001080	PASS
NA	75.00	225.00	0.147995	PASS
MG	25.00	75.00	0.017496	PASS
AL	20.00	60.00	0.011201	PASS
P	200.00	600.00	0.000811	PASS
K	40.00	120.00	0.207365	PASS
CA	100.00	300.00	0.018055	PASS
TI	2.40	7.20	0.000373	PASS
V	4.00	12.00	0.011660	PASS
CR	4.50	13.50	0.008688	PASS
MN	2.00	6.00	0.005440	PASS
FE	20.00	60.00	0.005608	PASS
CO	0.75	2.25	0.002498	PASS
NI	2.00	6.00	0.000883	PASS
CU	4.00	12.00	0.031912	PASS
ZN	20.00	60.00	0.003388	PASS
AS	4.00	12.00	0.000669	PASS
SE	3.20	9.60	0.000215	PASS
SR	2.40	7.20	0.002791	PASS
Y	4.00	12.00	0.001120	PASS
ZR	4.00	12.00	0.001637	PASS
NB	12.00	36.00	0.006880	PASS
MO	2.00	6.00	0.001085	PASS
RU	4.00	12.00	0.000521	PASS
RH	4.00	12.00	0.003259	PASS
PD	0.40	1.20	0.000326	PASS
AG	0.75	2.25	0.000041	PASS
CD	0.24	0.72	0.000024	PASS
SN	0.90	2.70	0.000597	PASS
SB	2.00	6.00	0.000111	PASS
TE	4.00	12.00	0.000001	PASS
CS	2.00	6.00	0.000034	PASS
BA	5.00	15.00	0.000121	PASS
LA	0.75	2.25	0.000073	PASS
CE	4.00	12.00	0.000124	PASS
PR	0.75	2.25	0.000070	PASS
ND	0.75	2.25	0.000016	PASS
SM	4.00	12.00	0.000027	PASS
HF	4.00	12.00	0.000048	PASS
TA	4.00	12.00	0.001037	PASS
W	10.00	30.00	0.000289	PASS
RE	4.00	12.00	0.000045	PASS
PT	0.40	1.20	0.000037	PASS
AU	2.00	6.00	0.000143	PASS
TL	2.00	6.00	0.000309	PASS
(PB 206)	1.25	3.75	0.000708	PASS
(PB 207)	1.25	3.75	0.000622	PASS
PB	1.25	3.75	0.002741	PASS
BI	7.50	22.50	0.001102	PASS
TH	0.90	2.70	0.000512	PASS
U	0.40	1.20	0.000314	PASS

012820B1-2

une Ste	Mass	Name	R	a	b (blank)	DL	BEC	Units
3	7	Li	0.999907	0.006035	0.058210582	0.263522	9.645747	ug/l
3	9	Be	0.99995	0.001871	4.22502E-05	0.004137	0.022576	ug/l
3	11	B	0.999455	0.001406	0.003997772	0.165121	2.842884	ug/l
2	23	Na	0.999988	0.008947	0.151250893	1.190661	16.90585	ug/l
2	24	Mg	0.999969	0.004723	0.018648778	0.396039	3.948146	ug/l
2	27	Al	0.999914	0.00194	0.01198265	0.39553	6.178001	ug/l
2	31	P	0.999993	0.000127	0.000836319	1.079854	6.561617	ug/l
2	39	K	0.999987	0.004632	0.206074787	1.966307	44.48847	ug/l
3	44	Ca	1	0.000479	0.014677828	0.61286	30.64981	ug/l
3	47	Ti	0.999964	0.001383	0.000371452	0.010118	0.268621	ug/l
2	51	V	0.99997	0.052349	0.0140203	0.028269	0.267825	ug/l
2	52	Cr	0.999997	0.064971	0.008572246	0.026755	0.13194	ug/l
2	55	Mn	0.999822	0.017496	0.00546321	0.049434	0.312263	ug/l
2	57	Fe	0.999899	0.000612	0.005802726	1.794693	9.489118	ug/l
2	59	Co	0.999925	0.04369	0.002549578	0.01322	0.058356	ug/l
2	60	Ni	0.999933	0.01078	0.000978223	0.02055	0.090746	ug/l
2	63	Cu	0.999987	0.030934	0.010246626	0.049878	0.331244	ug/l
2	66	Zn	0.99995	0.005666	0.003568482	0.076826	0.629809	ug/l
2	75	As	0.999718	0.003845	0.000583221	0.13271	0.151664	ug/l
2	78	Se	0.999975	0.000285	0.000221758	0.447731	0.778127	ug/l
3	88	Sr	0.999997	0.032911	0.002572632	0.008884	0.078169	ug/l
2	89	Y	0.999895	0.051389	0.001096308	0.011308	0.021333	ug/l
2	90	Zr	0.999949	0.04	0.001979653	0.009262	0.049491	ug/l
2	93	Nb	0.999633	0.079205	0.016013133	0.042389	0.202173	ug/l
3	95	Mo	0.99956	0.006375	0.000692057	0.016392	0.108552	ug/l
2	101	Ru	0.999808	0.022895	0.000485102	0.008058	0.021188	ug/l
2	103	Rh	0.99993	0.136846	0.003350641	0.002367	0.024485	ug/l
2	105	Pd	0.999981	0.025377	0.000125622	0.000722	0.00495	ug/l
3	107	Ag	0.999678	0.002675	4.99059E-05	0.003191	0.018657	ug/l
3	111	Cd	0.999578	0.000553	1.56713E-05	0.008243	0.028319	ug/l
3	118	Sn	0.999981	0.001601	0.000480984	0.041837	0.300387	ug/l
3	121	Sb	0.999985	0.002059	0.000113096	0.00768	0.054926	ug/l
2	125	Te	0.999997	2.47E-05	1.12583E-06	0.020932	0.045672	ug/l
2	133	Cs	0.999986	0.001965	3.04033E-05	0.006209	0.015471	ug/l
3	137	Ba	0.998865	0.000686	0.000129353	0.029026	0.188461	ug/l
2	139	La	0.999997	0.004392	0.000149189	0.007885	0.033968	ug/l
2	140	Ce	0.999991	0.005032	0.000135269	0.005434	0.026882	ug/l
2	141	Pr	1	0.005264	7.34042E-05	0.004893	0.013944	ug/l
2	146	Nd	0.999204	0.000962	1.87406E-05	0.006756	0.019481	ug/l
3	147	Sm	0.999989	0.001061	2.97917E-05	0.006539	0.028066	ug/l
2	178	Hf	0.999951	0.002131	5.08097E-05	0.002089	0.023842	ug/l
2	181	Ta	0.999923	0.008623	0.001343486	0.016423	0.155803	ug/l
2	182	W	0.999987	0.002121	0.000483733	0.035963	0.228089	ug/l
3	185	Re	0.999983	0.004563	5.50997E-05	0.002605	0.012075	ug/l
2	195	Pt	1	0.002059	3.9705E-05	0.003494	0.019287	ug/l
3	197	Au	0.999975	0.003508	0.000223274	0.000517	0.063645	ug/l
3	205	Tl	0.998877	0.007333	0.000263762	0.002011	0.03597	ug/l
3	206	(Pb)	0.999966	0.002589	0.000547048	0.019548	0.211275	ug/l
3	207	(Pb)	0.999956	0.002296	0.000531905	0.00687	0.231643	ug/l
3	208	Pb	0.999938	0.010429	0.002225416	0.002531	0.213388	ug/l
2	209	Bi	0.999931	0.007787	0.001319247	0.022222	0.169424	ug/l
3	232	Th	0.999908	0.012447	0.000502752	0.003123	0.040392	ug/l
3	238	U	0.999932	0.011916	0.00033977	0.003092	0.028513	ug/l
3	6	Li (IS)						ug/l
2	45	Sc (IS)						ug/l
3	45	Sc (IS)						ug/l
2	72	Ge (IS)						ug/l
3	72	Ge (IS)						ug/l
3	115	In (IS)						ug/l
2	165	Ho (IS)						ug/l
3	165	Ho (IS)						ug/l
2	193	Ir (IS)						ug/l
3	193	Ir (IS)						ug/l

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Metals Y Intercept

Analyst: LKP
Instrument: 7700
Calibration File: 012820B1
Matrix: Water
Units: PPB

Date: 1/29/2020

Element	MDL	3XMDL	Y-Intercept	Pass/Fail
LI	2.00	6.00	0.0582106	PASS
BE	0.20	0.60	4.225E-05	PASS
B	45.00	135.00	0.0039978	PASS
NA	20.00	60.00	0.1512509	PASS
MG	20.00	60.00	0.0186488	PASS
AL	20.00	60.00	0.0119826	PASS
P	45.00	135.00	0.0008363	PASS
K	45.00	135.00	0.2060748	PASS
CA	45.00	135.00	0.0146778	PASS
TI	2.00	6.00	0.0003715	PASS
V	4.00	12.00	0.0140203	PASS
CR	4.00	12.00	0.0085722	PASS
MN	0.90	2.70	0.0054632	PASS
FE	20.00	60.00	0.0058027	PASS
CO	0.90	2.70	0.0025496	PASS
NI	2.00	6.00	0.0009782	PASS
CU	0.40	1.20	0.0102466	PASS
ZN	7.50	22.50	0.0035685	PASS
AS	4.00	12.00	0.0005832	PASS
SE	2.00	6.00	0.0002218	PASS
SR	2.00	6.00	0.0025726	PASS
Y	2.00	6.00	0.0010963	PASS
ZR	2.00	6.00	0.0019797	PASS
NB	10.00	30.00	0.0160131	PASS
MO	2.00	6.00	0.0006921	PASS
RU	4.00	12.00	0.0004851	PASS
RH	4.00	12.00	0.0033506	PASS
PD	0.20	0.60	0.0001256	PASS
AG	0.90	2.70	4.991E-05	PASS
CD	0.20	0.60	1.567E-05	PASS
SN	1.20	3.60	0.000481	PASS
SB	2.00	6.00	0.0001131	PASS
TE	7.50	22.50	1.126E-06	PASS
CS	0.20	0.60	3.04E-05	PASS
BA	0.90	2.70	0.0001294	PASS
LA	0.90	2.70	0.0001492	PASS
CE	4.00	12.00	0.0001353	PASS
PR	0.90	2.70	7.34E-05	PASS
ND	0.90	2.70	1.874E-05	PASS
SM	4.00	12.00	2.979E-05	PASS
HF	4.00	12.00	5.081E-05	PASS
TA	4.00	12.00	0.0013435	PASS
W	2.00	6.00	0.0004837	PASS
RE	0.40	1.20	5.51E-05	PASS
PT	0.40	1.20	3.971E-05	PASS
AU	5.00	15.00	0.0002233	PASS
TL	0.90	2.70	0.0002638	PASS
(PB 206)	1.00	3.00	0.000547	PASS
(PB 207)	1.00	3.00	0.0005319	PASS
PB	1.00	3.00	0.0022254	PASS
BI	7.50	22.50	0.0013192	PASS
TH	0.90	2.70	0.0005028	PASS
U	0.40	1.20	0.0003398	PASS

Analyst:
Instrument: 7700
Calibration File: 012820B1
Matrix: Soil
Units: PPB

Element	MDL	3XMDL	Y-Intercept	Pass/Fail
LI	4.00	12.00	0.058211	PASS
BE	0.40	1.20	0.000042	PASS
B	45.00	135.00	0.003998	PASS
NA	75.00	225.00	0.151251	PASS
MG	25.00	75.00	0.018649	PASS
AL	20.00	60.00	0.011983	PASS
P	200.00	600.00	0.000836	PASS
K	40.00	120.00	0.206075	PASS
CA	100.00	300.00	0.014678	PASS
TI	2.40	7.20	0.000371	PASS
V	4.00	12.00	0.014020	PASS
CR	4.50	13.50	0.008572	PASS
MN	2.00	6.00	0.005463	PASS
FE	20.00	60.00	0.005803	PASS
CO	0.75	2.25	0.002550	PASS
NI	2.00	6.00	0.000978	PASS
CU	4.00	12.00	0.010247	PASS
ZN	20.00	60.00	0.003568	PASS
AS	4.00	12.00	0.000583	PASS
SE	3.20	9.60	0.000222	PASS
SR	2.40	7.20	0.002573	PASS
Y	4.00	12.00	0.001096	PASS
ZR	4.00	12.00	0.001980	PASS
NB	12.00	36.00	0.016013	PASS
MO	2.00	6.00	0.000692	PASS
RU	4.00	12.00	0.001485	PASS
RH	4.00	12.00	0.003351	PASS
PD	0.40	1.20	0.000126	PASS
AG	0.75	2.25	0.000050	PASS
CD	0.24	0.72	0.000016	PASS
SN	0.90	2.70	0.000481	PASS
SB	2.00	6.00	0.000113	PASS
TE	4.00	12.00	0.000001	PASS
CS	2.00	6.00	0.000030	PASS
BA	5.00	15.00	0.000129	PASS
LA	0.75	2.25	0.000149	PASS
CE	4.00	12.00	0.000135	PASS
PR	0.75	2.25	0.000073	PASS
ND	0.75	2.25	0.000019	PASS
SM	4.00	12.00	0.000030	PASS
HF	4.00	12.00	0.000051	PASS
TA	4.00	12.00	0.001343	PASS
W	10.00	30.00	0.000484	PASS
RE	4.00	12.00	0.000055	PASS
PT	0.40	1.20	0.000040	PASS
AU	2.00	6.00	0.000223	PASS
TL	2.00	6.00	0.000264	PASS
(PB 206)	1.25	3.75	0.000547	PASS
(PB 207)	1.25	3.75	0.000532	PASS
PB	1.25	3.75	0.002225	PASS
BI	7.50	22.50	0.001319	PASS
TH	0.90	2.70	0.000503	PASS
U	0.40	1.20	0.000340	PASS

	Method	Type	Vial	Sample	Comment	Dil/Lvl	ISTD Conc
1		Keyword		Start of TUNE			
2		Keyword		TN_6020.U			
3		Keyword		1307			
4		Keyword		End of TUNE			
5		Keyword		Start of SMPL			
6	C:\ICPMH\1\METHODS\MET_2014.m	6-Blank	1	RINSE (405483)		1.000	Level 1
7	C:\ICPMH\1\METHODS\MET_2014.m	CalBlk	4	ICIS 1865845		Level 1	Level 1
8	C:\ICPMH\1\METHODS\MET_2014.m	CalStd	1101	IC 1866890		Level 2	Level 1
9	C:\ICPMH\1\METHODS\MET_2014.m	CalStd	1102	IC 1866891		Level 3	Level 1
10	C:\ICPMH\1\METHODS\MET_2014.m	CalStd	1103	IC 1866892		Level 4	Level 1
11	C:\ICPMH\1\METHODS\MET_2014.m	ICV	1104	ICV 1868480		1.000	Level 1
12	C:\ICPMH\1\METHODS\MET_2014.m	ICB	4	ICB 1865845		1.000	Level 1
13	C:\ICPMH\1\METHODS\MET_2014.m	CRI	1101	CRI 1866890		1.000	Level 1
14	C:\ICPMH\1\METHODS\MET_2014.m	ICSA	1105	ICSA 1867438		1.000	Level 1
15	C:\ICPMH\1\METHODS\MET_2014.m	ICSAB	1106	ICSAB 1867439		1.000	Level 1
16	C:\ICPMH\1\METHODS\MET_2014.m	Sample	1301	LRC 1867429		1.000	Level 1
17	C:\ICPMH\1\METHODS\MET_2014.m	Sample	1302	LRC 1867437		1.000	Level 1
18	C:\ICPMH\1\METHODS\MET_2014.m	CCV	1102	CCV 1866891		1.000	Level 1
19	C:\ICPMH\1\METHODS\MET_2014.m	CCB	4	CCB 1865845		1.000	Level 1
20	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2101	MB 160-458034/1-A	458034	2.000	Level 1
21	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2102	LCS 160-458034/2-A		2.000	Level 1
22	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2103	440-255674-A-4-G		2.000	Level 1
23	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2104	440-255674-A-19-E		2.000	Level 1
24	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2105	440-256528-A-17-J		2.000	Level 1
25	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2106	440-256946-A-4-E		2.000	Level 1
26	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2107	440-256946-A-4-E SD		10.00	Level 1
27	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2108	440-256946-A-4-F MS - Tn		2.000	Level 1
28	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2109	440-256946-A-4-G MSD		2.000	Level 1
29	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2110	440-256946-A-6-E		2.000	Level 1
30	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2111	440-256946-A-19-E		2.000	Level 1
31	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2112	440-257335-A-9-G		2.000	Level 1
32	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2201	440-257335-A-23-G		2.000	Level 1
33	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2202	440-257859-A-18-E		2.000	Level 1

LKP 012820 File:012820B1 Tune:1146742 IS:1841875 P1A2341970 Rnse:1865843

	Method	Type	Vial	Sample	Comment	Dil/Lvl	ISTD Conc
34	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2203	440-257859-A-32-E		2.000	Level 1
35	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2204	440-257867-A-7-E		2.000	Level 1
36	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2205	440-257867-A-18-E		2.000	Level 1
37	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2206	440-257867-A-20-E -Th		2.000	Level 1
38	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2207	440-257867-A-32-E		2.000	Level 1
39	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2208	440-257867-A-43-E		2.000	Level 1
40	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2209	440-257867-A-56-E		2.000	Level 1
41	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2210	LB 160-456985/1-B	458020	5.000	Level 1
42	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2211	LCS 160-458020/2-A		5.000	Level 1
43	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2212	160-36954-A-1-B		5.000	Level 1
44	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2301	160-36954-A-2-B		5.000	Level 1
45	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2302	160-36954-A-2-B SD		25.00	Level 1
46	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2303	160-36954-A-2-C MS		5.000	Level 1
47	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2304	160-36954-A-2-D MSD -U,Zr		5.000	Level 1
48	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2305	160-36954-A-2-B PDS		5.000	Level 1
49	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2306	160-36954-A-3-B		5.000	Level 1
50	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2307	160-36954-A-4-B		5.000	Level 1
51	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2308	MB 160-458194/1-A	458194	2.000	Level 1
52	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2309	LCS 160-458194/2-A		2.000	Level 1
53	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2310	LCSSRM 160-458194/3-A		10.00	Level 1
54	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2311	280-132527-A-1-E		2.000	Level 1
55	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2312	280-132527-A-1-E SD		10.00	Level 1
56	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2401	280-132527-A-1-F MS -Th,U		2.000	Level 1
57	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2402	280-132527-A-1-G MSD		2.000	Level 1
58	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2403	280-132528-A-1-E		20.00	Level 1
59	C:\ICPMH\1\METHODS\MET_2014.m	Sample	2404	280-132529-A-1-E		2.000	Level 1
60	C:\ICPMH\1\METHODS\MET_2014.m	CRI	1101	CCVL 1866890		1.000	Level 1
61	C:\ICPMH\1\METHODS\MET_2014.m	CCV	1102	CCV 1866891		1.000	Level 1
62	C:\ICPMH\1\METHODS\MET_2014.m	CCB	4	CCB 1865845		1.000	Level 1
63	C:\ICPMH\1\METHODS\MET_2014.m	6-Blank	1	RINSE (1158484)		1.000	Level 1
64	C:\ICPMH\1\METHODS\MET_2014.m	CalBlk	4	ICIS 1865845		Level 1	Level 1
65	C:\ICPMH\1\METHODS\MET_2014.m	CalStd	1101	IC 1866890		Level 2	Level 1
66	C:\ICPMH\1\METHODS\MET_2014.m	CalStd	1102	IC 1866891		Level 3	Level 1

	Method	Type	Vial	Sample	Comment	Dil/Lvl	ISTD Conc
67	C:\ICPMH\1\METHODS\MET_2014.m	CalStd	1103	IC 1866892		Level 4	Level 1
68	C:\ICPMH\1\METHODS\MET_2014.m	ICV	1104	ICV 1868480		1.000	Level 1
69	C:\ICPMH\1\METHODS\MET_2014.m	ICB	4	ICB 1865845		1.000	Level 1
70	C:\ICPMH\1\METHODS\MET_2014.m	CRI	1101	CRI 1866890		1.000	Level 1
71	C:\ICPMH\1\METHODS\MET_2014.m	ICSA	1105	ICSA 1867438		1.000	Level 1
72	C:\ICPMH\1\METHODS\MET_2014.m	ICSAB	1106	ICSAB 1867439		1.000	Level 1
73	C:\ICPMH\1\METHODS\MET_2014.m	CCV	1102	CCV 1866891		1.000	Level 1
74	C:\ICPMH\1\METHODS\MET_2014.m	CCB	4	CCB 1865845		1.000	Level 1
75	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3101	MB 160-456652/1-A -All	456652	2.000	Level 1
76	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3102	LCS 160-456652/2-A		2.000	Level 1
77	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3103	160-36906-A-4-D		2.000	Level 1
78	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3104	160-36906-A-4-D SD		10.00	Level 1
79	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3105	160-36906-A-4-E MS -All but Mo, Sb, Sn		2.000	Level 1
80	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3106	160-36906-A-4-F MSD		2.000	Level 1
81	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3107	160-36906-A-4-D PDS		2.000	Level 1
82	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3108	160-36906-A-5-B		2.000	Level 1
83	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3109	160-36906-A-6-B		2.000	Level 1
84	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3110	160-36906-A-7-B		2.000	Level 1
85	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3111	160-36919-A-10-B -All		2.000	Level 1
86	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3112	160-36919-A-11-B		2.000	Level 1
87	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3201	160-36919-A-17-B		2.000	Level 1
88	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3202	MB 160-457936/1-A	457936	2.000	Level 1
89	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3203	LCS 160-457936/2-A		2.000	Level 1
90	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3204	LCSSRM 160-457936/3-A		10.00	Level 1
91	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3205	160-36942-B-1-A		2.000	Level 1
92	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3206	160-36942-B-1-A SD		10.00	Level 1
93	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3207	160-36942-B-1-B MS		2.000	Level 1
94	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3208	160-36942-B-1-C MSD -Th, Li		2.000	Level 1
95	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3209	160-36942-B-2-A		2.000	Level 1
96	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3210	160-36942-B-3-A		2.000	Level 1
97	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3211	160-36942-B-4-A		2.000	Level 1
98	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3212	160-36942-B-5-A		2.000	Level 1
99	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3301	160-36942-B-6-A		2.000	Level 1

	Method	Type	Vial	Sample	Comment	Dil/Lvl	ISTD Conc
100	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3302	160-36942-B-7-A		2.000	Level 1
101	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3303	160-36942-B-8-A		2.000	Level 1
102	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3304	160-36942-B-9-A		2.000	Level 1
103	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3305	160-36942-B-10-A		2.000	Level 1
104	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3306	160-36942-B-11-A		2.000	Level 1
105	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3307	160-36942-B-12-A		2.000	Level 1
106	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3308	160-36942-B-13-A		2.000	Level 1
107	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3309	160-36942-B-14-A		2.000	Level 1
108	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3310	160-36942-B-15-A -Th,U		2.000	Level 1
109	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3311	160-36942-B-16-A		2.000	Level 1
110	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3312	160-36942-B-17-A		2.000	Level 1
111	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3401	160-36942-B-18-A		2.000	Level 1
112	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3402	160-36942-B-19-A		2.000	Level 1
113	C:\ICPMH\1\METHODS\MET_2014.m	Sample	3403	160-36942-B-20-A		2.000	Level 1
114		Keyword		End of SMPL			
115		Keyword		Start of CCV			
116	C:\ICPMH\1\METHODS\MET_2014.m	CRI	1101	CCVL 1866890		1.000	Level 1
117	C:\ICPMH\1\METHODS\MET_2014.m	CCV	1102	CCV 1866891		1.000	Level 1
118	C:\ICPMH\1\METHODS\MET_2014.m	CCB	4	CCB 1865845		1.000	Level 1
119		Keyword		End of CCV			
120		Keyword		Start of TERM			
121		Keyword					
122		Keyword		End of TERM			
123		Keyword		End of Sequence			
124		Keyword		Start of CALIB			
125		Keyword		End of CALIB			
126		Keyword		Start of BLANK			
127		Keyword		End of BLANK			
128		Keyword		Start of ERRTERM			
129		Keyword		End of ERRTERM			

Sample Name	160-36942-B-1-A
Data File Name	102SMPL.D
DataPath	C:\ICPMH\1\DATA\012820B1.B
Acq Date Time	2020-01-29T02:57:34-06:00
Type	Sample
VialNumber	3205
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	072CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	25.14630	50.29260	ug/l	1000	Li	
Be	9	6	3	2.71978	5.43956	ug/l	1000	Be	
B	11	6	3	16.07474	32.14949	ug/l	2000	B	
Na	23	45	2	1022.83019	2045.66038	ug/l	50000	Na	
Mg	24	45	2	12603.83278	25207.66555	ug/l	50000	Mg	
Al	27	45	2	20988.30057	41976.60114	ug/l	100000	Al	
P	31	45	2	9820.37266	19640.74532	ug/l	100000	P	
K	39	45	2	4078.62081	8157.24162	ug/l	100000	K	
Ca	44	45	3	11182.78129	22365.56258	ug/l	100000	Ca	
Ti	47	45	3	1228.18657	2456.37314	ug/l	2000	Ti	
V	51	45	2	68.04746	136.09492	ug/l	2000	V	
Cr	52	45	2	104.39707	208.79414	ug/l	2000	Cr	
Mn	55	72	2	240.83858	481.67717	ug/l	5000	Mn	
Fe	57	72	2	124258.35785	248516.71569	ug/l	100000	Fe	FAILED
Co	59	72	2	13.42998	26.85996	ug/l	2000	Co	
Ni	60	72	2	30.56015	61.12030	ug/l	2000	Ni	
Cu	63	72	2	4368.18255	8736.36510	ug/l	2000	Cu	FAILED
Zn	66	72	2	53.98246	107.96492	ug/l	5000	Zn	
As	75	72	2	119.20275	238.40549	ug/l	2000	As	
Se	78	72	2	23.58034	47.16068	ug/l	1000	Se	
Sr	88	72	3	581.94812	1163.89625	ug/l	2000	Sr	
Y	89	72	2	14.05817	28.11634	ug/l	200	Y	
Zr	90	72	2	126.75505	253.51011	ug/l	2000	Zr	
Nb	93	72	2	0.99895	1.99789	ug/l	100	Nb	
Mo	95	72	3	98.83153	197.66307	ug/l	1000	Mo	
Ru	101	72	2	-0.01599	-0.03198	ug/l	200	Ru	
Rh	103	72	2	-0.01084	-0.02167	ug/l	200	Rh	
Pd	105	72	2	0.03471	0.06942	ug/l	20	Pd	
Ag	107	115	3	0.69925	1.39850	ug/l	400	Ag	
Cd	111	115	3	0.20444	0.40887	ug/l	2000	Cd	
Sn	118	115	3	992.57581	1985.15162	ug/l	2000	Sn	
Sb	121	115	3	4.26446	8.52892	ug/l	1000	Sb	
Te	125	165	2	3.55515	7.11029	ug/l	200	Te	
Cs	133	165	2	2.66887	5.33774	ug/l	2000	Cs	
Ba	137	165	3	223.19006	446.38012	ug/l	5000	Ba	
La	139	165	2	24.30753	48.61505	ug/l	200	La	
Ce	140	165	2	63.15817	126.31633	ug/l	200	Ce	
Pr	141	165	2	8.29700	16.59401	ug/l	200	Pr	
Nd	146	165	2	39.51437	79.02874	ug/l	200	Nd	
Sm	147	165	3	9.43513	18.87025	ug/l	2000	Sm	
Hf	178	165	2	3.43480	6.86960	ug/l	200	Hf	
Ta	181	165	2	-0.00527	-0.01054	ug/l	200	Ta	
W	182	165	2	19.54670	39.09339	ug/l	2000	W	
Re	185	193	3	0.04069	0.08137	ug/l	200	Re	
Pt	195	193	2	0.01768	0.03537	ug/l	200	Pt	
Au	197	193	3	0.03110	0.06211	ug/l	2000	Au	
Tl	205	193	3	0.48742	0.97483	ug/l	400	Tl	
Pb	208	193	3	72.28445	144.56889	ug/l	5000	Pb	
Bi	209	193	2	2.75262	5.50525	ug/l	2000	Bi	
Th	232	193	3	424.78340	849.56679	ug/l	2000	Th	
U	238	193	3	314.23960	628.47919	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5493367	0.34	6074310	90.4	80	120	Li (IS)	
Sc (IS)	45	2	325036	0.83	180614	180.0	80	120	Sc (IS)	FAILED
Sc (IS)	45	3	6357296	0.68	3261875	194.9	80	120	Sc (IS)	FAILED
Ge (IS)	72	2	362782	2.06	380448	95.4	80	120	Ge (IS)	
Ge (IS)	72	3	2350180	0.18	2329877	100.9	80	120	Ge (IS)	
In (IS)	115	3	14125850	0.76	14581735	96.9	80	120	In (IS)	
Ho (IS)	165	2	10269116	2.74	10848635	94.7	80	120	Ho (IS)	
Ho (IS)	165	3	16491453	0.78	16597373	99.4	80	120	Ho (IS)	
Ir (IS)	193	2	6615853	1.74	7388306	89.5	80	120	Ir (IS)	
Ir (IS)	193	3	8006933	0.53	8451056	94.7	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Name	160-36942-B-1-A SD
Data File Name	103SMPL.D
DataPath	C:\ICPMH\1\DATA\012820B1.B
Acq Date Time	2020-01-29T03:04:18-06:00
Type	Sample
VialNumber	3206
Dilution	10
Comment	
Operator	LP 7700
ISTDRefDataFileName	072CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	5.07228	50.72280	ug/l	1000	Li	
Be	9	6	3	0.54290	5.42897	ug/l	1000	Be	
B	11	6	3	3.70889	37.08890	ug/l	2000	B	
Na	23	45	2	328.30944	3283.09439	ug/l	50000	Na	
Mg	24	45	2	4173.86961	41738.69606	ug/l	50000	Mg	
Al	27	45	2	6897.61357	68976.13568	ug/l	100000	Al	
P	31	45	2	3302.81614	33028.16138	ug/l	100000	P	
K	39	45	2	1372.79976	13727.99760	ug/l	100000	K	
Ca	44	45	3	3778.25329	37782.53285	ug/l	100000	Ca	
Ti	47	45	3	416.76657	4167.66570	ug/l	2000	Ti	
V	51	45	2	21.53867	215.38669	ug/l	2000	V	
Cr	52	45	2	33.39722	333.97218	ug/l	2000	Cr	
Mn	55	72	2	46.82439	468.24389	ug/l	5000	Mn	
Fe	57	72	2	25436.87374	254368.73737	ug/l	100000	Fe	
Co	59	72	2	2.72635	27.26348	ug/l	2000	Co	
Ni	60	72	2	6.41453	64.14529	ug/l	2000	Ni	
Cu	63	72	2	920.33841	9203.38409	ug/l	2000	Cu	
Zn	66	72	2	12.19673	121.96727	ug/l	5000	Zn	
As	75	72	2	24.33748	243.37478	ug/l	2000	As	
Se	78	72	2	5.24739	52.47392	ug/l	1000	Se	
Sr	88	72	3	119.68912	1196.89125	ug/l	2000	Sr	
Y	89	72	2	2.77623	27.76235	ug/l	200	Y	
Zr	90	72	2	22.66049	226.60492	ug/l	2000	Zr	
Nb	93	72	2	0.08222	0.82217	ug/l	100	Nb	
Mo	95	72	3	19.11513	191.15126	ug/l	1000	Mo	
Ru	101	72	2	-0.01533	-0.15326	ug/l	200	Ru	
Rh	103	72	2	-0.01402	-0.14017	ug/l	200	Rh	
Pd	105	72	2	0.00540	0.05402	ug/l	20	Pd	
Ag	107	115	3	0.13561	1.35615	ug/l	400	Ag	
Cd	111	115	3	0.02518	0.25180	ug/l	2000	Cd	
Sn	118	115	3	198.66361	1986.63613	ug/l	2000	Sn	
Sb	121	115	3	0.82350	8.23498	ug/l	1000	Sb	
Te	125	165	2	0.73579	7.35788	ug/l	200	Te	
Cs	133	165	2	0.53827	5.38269	ug/l	2000	Cs	
Ba	137	165	3	43.07792	430.77923	ug/l	5000	Ba	
La	139	165	2	4.91436	49.14356	ug/l	200	La	
Ce	140	165	2	11.79548	117.95484	ug/l	200	Ce	
Pr	141	165	2	1.66028	16.60276	ug/l	200	Pr	
Nd	146	165	2	7.88414	78.84136	ug/l	200	Nd	
Sm	147	165	3	1.91730	19.17298	ug/l	2000	Sm	
Hf	178	165	2	0.63660	6.36595	ug/l	200	Hf	
Ta	181	165	2	-0.02883	-0.28827	ug/l	200	Ta	
W	182	165	2	3.82526	38.25264	ug/l	2000	W	
Re	185	193	3	-0.00038	-0.00377	ug/l	200	Re	
Pt	195	193	2	0.00154	0.01540	ug/l	200	Pt	
Au	197	193	3	-0.03781	-0.37815	ug/l	2000	Au	
Tl	205	193	3	0.12447	1.24465	ug/l	400	Tl	
Pb	208	193	3	13.43934	134.39338	ug/l	5000	Pb	
Bi	209	193	2	0.51901	5.19010	ug/l	2000	Bi	
Th	232	193	3	82.04946	820.49464	ug/l	2000	Th	
U	238	193	3	61.73966	617.39658	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5871003	0.77	6074310	96.7	80	120	Li (IS)	
Sc (IS)	45	2	212213	0.17	180614	117.5	80	120	Sc (IS)	
Sc (IS)	45	3	3980719	2.24	3261875	122.0	80	120	Sc (IS)	FAILED
Ge (IS)	72	2	389543	0.81	380448	102.4	80	120	Ge (IS)	
Ge (IS)	72	3	2425096	1.30	2329877	104.1	80	120	Ge (IS)	
In (IS)	115	3	15066353	1.26	14581735	103.3	80	120	In (IS)	
Ho (IS)	165	2	10890731	0.91	10848635	100.4	80	120	Ho (IS)	
Ho (IS)	165	3	17104097	1.86	16597373	103.1	80	120	Ho (IS)	
Ir (IS)	193	2	7154220	1.35	7388306	96.8	80	120	Ir (IS)	
Ir (IS)	193	3	8550766	1.46	8451056	101.2	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Name	160-36942-B-1-B MS
Data File Name	104SMPL.D
DataPath	C:\ICPMH\1\DATA\012820B1.B
Acq Date Time	2020-01-29T03:11:01-06:00
Type	Sample
VialNumber	3207
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	072CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	67.21943	134.43885	ug/l	1000	Li	
Be	9	6	3	47.52699	95.05398	ug/l	1000	Be	
B	11	6	3	94.07308	188.14617	ug/l	2000	B	
Na	23	45	2	3938.67005	7877.34009	ug/l	50000	Na	
Mg	24	45	2	24268.40929	48536.81859	ug/l	50000	Mg	
Al	27	45	2	27686.85078	55373.70156	ug/l	100000	Al	
P	31	45	2	6397.75627	12795.51254	ug/l	100000	P	
K	39	45	2	6998.67284	13997.34568	ug/l	100000	K	
Ca	44	45	3	11381.94770	22763.89540	ug/l	100000	Ca	
Ti	47	45	3	1880.02450	3760.04901	ug/l	2000	Ti	
V	51	45	2	359.39248	718.78496	ug/l	2000	V	
Cr	52	45	2	368.10988	736.21975	ug/l	2000	Cr	
Mn	55	72	2	670.47351	1340.94703	ug/l	5000	Mn	
Fe	57	72	2	72016.74571	144033.49142	ug/l	100000	Fe	
Co	59	72	2	484.07498	968.14995	ug/l	2000	Co	
Ni	60	72	2	528.57352	1057.14703	ug/l	2000	Ni	
Cu	63	72	2	2620.93249	5241.86499	ug/l	2000	Cu	FAILED
Zn	66	72	2	499.87382	999.74763	ug/l	5000	Zn	
As	75	72	2	529.80151	1059.60303	ug/l	2000	As	
Se	78	72	2	242.84856	485.69713	ug/l	1000	Se	
Sr	88	72	3	865.47014	1730.94029	ug/l	2000	Sr	
Y	89	72	2	9.75094	19.50187	ug/l	200	Y	
Zr	90	72	2	538.95688	1077.91376	ug/l	2000	Zr	
Nb	93	72	2	1.26621	2.53243	ug/l	100	Nb	
Mo	95	72	3	285.71420	571.42839	ug/l	1000	Mo	
Ru	101	72	2	-0.01135	-0.02270	ug/l	200	Ru	
Rh	103	72	2	0.00930	0.01860	ug/l	200	Rh	
Pd	105	72	2	0.03567	0.07133	ug/l	20	Pd	
Ag	107	115	3	92.69050	185.38100	ug/l	400	Ag	
Cd	111	115	3	477.62057	955.24114	ug/l	2000	Cd	
Sn	118	115	3	947.07107	1894.14214	ug/l	2000	Sn	
Sb	121	115	3	193.94403	387.88805	ug/l	1000	Sb	
Te	125	165	2	1.76852	3.53704	ug/l	200	Te	
Cs	133	165	2	1.89777	3.79553	ug/l	2000	Cs	
Ba	137	165	3	607.42819	1214.85638	ug/l	5000	Ba	
La	139	165	2	21.81939	43.63879	ug/l	200	La	
Ce	140	165	2	51.24531	102.49063	ug/l	200	Ce	
Pr	141	165	2	6.33029	12.66057	ug/l	200	Pr	
Nd	146	165	2	28.31265	56.62530	ug/l	200	Nd	
Sm	147	165	3	487.14367	974.28735	ug/l	2000	Sm	
Hf	178	165	2	1.97165	3.94330	ug/l	200	Hf	
Ta	181	165	2	0.08614	0.17228	ug/l	200	Ta	
W	182	165	2	410.45691	820.91381	ug/l	2000	W	
Re	185	193	3	0.01981	0.03963	ug/l	200	Re	
Pt	195	193	2	0.01331	0.02662	ug/l	200	Pt	
Au	197	193	3	-0.02694	-0.05389	ug/l	2000	Au	
Tl	205	193	3	98.16872	196.33743	ug/l	400	Tl	
Pb	208	193	3	516.25074	1032.50149	ug/l	5000	Pb	
Bi	209	193	2	457.83577	915.67153	ug/l	2000	Bi	
Th	232	193	3	730.09144	1460.18287	ug/l	2000	Th	
U	238	193	3	655.82277	1311.64554	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5366793	2.71	6074310	88.4	80	120	Li (IS)	
Sc (IS)	45	2	257137	1.59	180614	142.4	80	120	Sc (IS)	FAILED
Sc (IS)	45	3	4797810	1.65	3261875	147.1	80	120	Sc (IS)	FAILED
Ge (IS)	72	2	368858	2.04	380448	97.0	80	120	Ge (IS)	
Ge (IS)	72	3	2312532	2.04	2329877	99.3	80	120	Ge (IS)	
In (IS)	115	3	13611808	3.50	14581735	93.3	80	120	In (IS)	
Ho (IS)	165	2	10374604	2.05	10848635	95.6	80	120	Ho (IS)	
Ho (IS)	165	3	16122544	3.33	16597373	97.1	80	120	Ho (IS)	
Ir (IS)	193	2	6550912	2.87	7388306	88.7	80	120	Ir (IS)	
Ir (IS)	193	3	7780878	2.63	8451056	92.1	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Name	160-36942-B-1-C MSD
Data File Name	105SMPL.D
DataPath	C:\ICPMH\1\DATA\012820B1.B
Acq Date Time	2020-01-29T03:17:45-06:00
Type	Sample
VialNumber	3208
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	072CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	81.19977	162.39955	ug/l	1000	Li	
Be	9	6	3	46.76029	93.52057	ug/l	1000	Be	
B	11	6	3	96.37416	192.74832	ug/l	2000	B	
Na	23	45	2	3508.93854	7017.87708	ug/l	50000	Na	
Mg	24	45	2	21318.08153	42636.16305	ug/l	50000	Mg	
Al	27	45	2	33540.96751	67081.93502	ug/l	100000	Al	
P	31	45	2	8739.50170	17479.00339	ug/l	100000	P	
K	39	45	2	6927.29776	13854.59552	ug/l	100000	K	
Ca	44	45	3	14871.39795	29742.79591	ug/l	100000	Ca	
Ti	47	45	3	1937.92315	3875.84630	ug/l	2000	Ti	
V	51	45	2	324.01242	648.02484	ug/l	2000	V	
Cr	52	45	2	334.76515	669.53031	ug/l	2000	Cr	
Mn	55	72	2	853.85023	1707.70047	ug/l	5000	Mn	
Fe	57	72	2	121722.58366	243445.16731	ug/l	100000	Fe	FAILED
Co	59	72	2	473.63454	947.26907	ug/l	2000	Co	
Ni	60	72	2	525.42694	1050.85387	ug/l	2000	Ni	
Cu	63	72	2	4184.38318	8368.76635	ug/l	2000	Cu	FAILED
Zn	66	72	2	523.82945	1047.65890	ug/l	5000	Zn	
As	75	72	2	551.50800	1103.01601	ug/l	2000	As	
Se	78	72	2	242.66255	485.32511	ug/l	1000	Se	
Sr	88	72	3	910.93352	1821.86703	ug/l	2000	Sr	
Y	89	72	2	19.18080	38.36160	ug/l	200	Y	
Zr	90	72	2	569.03471	1138.06942	ug/l	2000	Zr	
Nb	93	72	2	1.88765	3.77530	ug/l	100	Nb	
Mo	95	72	3	303.01446	606.02892	ug/l	1000	Mo	
Ru	101	72	2	-0.01357	-0.02714	ug/l	200	Ru	
Rh	103	72	2	0.01022	0.02043	ug/l	200	Rh	
Pd	105	72	2	0.05249	0.10498	ug/l	20	Pd	
Ag	107	115	3	87.24334	174.48668	ug/l	400	Ag	
Cd	111	115	3	447.49498	894.98996	ug/l	2000	Cd	
Sn	118	115	3	1209.32931	2418.65862	ug/l	2000	Sn	
Sb	121	115	3	137.20295	274.40590	ug/l	1000	Sb	
Te	125	165	2	2.83256	5.66513	ug/l	200	Te	
Cs	133	165	2	3.50448	7.00896	ug/l	2000	Cs	
Ba	137	165	3	667.28150	1334.56300	ug/l	5000	Ba	
La	139	165	2	34.78706	69.57413	ug/l	200	La	
Ce	140	165	2	78.59748	157.19497	ug/l	200	Ce	
Pr	141	165	2	9.93599	19.87199	ug/l	200	Pr	
Nd	146	165	2	45.29502	90.59003	ug/l	200	Nd	
Sm	147	165	3	459.77981	919.55963	ug/l	2000	Sm	
Hf	178	165	2	3.23537	6.47073	ug/l	200	Hf	
Ta	181	165	2	0.07226	0.14452	ug/l	200	Ta	
W	182	165	2	392.16099	784.32198	ug/l	2000	W	
Re	185	193	3	0.04001	0.08001	ug/l	200	Re	
Pt	195	193	2	0.01882	0.03763	ug/l	200	Pt	
Au	197	193	3	0.02330	0.04660	ug/l	2000	Au	
Tl	205	193	3	92.26232	184.52464	ug/l	400	Tl	
Pb	208	193	3	504.12622	1008.25244	ug/l	5000	Pb	
Bi	209	193	2	455.70282	911.40565	ug/l	2000	Bi	
Th	232	193	3	774.03323	1548.06646	ug/l	2000	Th	
U	238	193	3	702.20964	1404.41928	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5491297	0.35	6074310	90.4	80	120	Li (IS)	
Sc (IS)	45	2	322526	1.11	180614	178.6	80	120	Sc (IS)	FAILED
Sc (IS)	45	3	6168552	0.29	3261875	189.1	80	120	Sc (IS)	FAILED
Ge (IS)	72	2	375818	0.42	380448	98.8	80	120	Ge (IS)	
Ge (IS)	72	3	2404694	1.04	2329877	103.2	80	120	Ge (IS)	
In (IS)	115	3	14237168	0.58	14581735	97.6	80	120	In (IS)	
Ho (IS)	165	2	10382052	0.62	10848635	95.7	80	120	Ho (IS)	
Ho (IS)	165	3	17041043	0.21	16597373	102.7	80	120	Ho (IS)	
Ir (IS)	193	2	6516169	0.96	7388306	88.2	80	120	Ir (IS)	
Ir (IS)	193	3	8188909	0.43	8451056	96.9	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Name	160-36942-B-2-A
Data File Name	109SMPL.D
DataPath	C:\ICPMH\1\DATA\012820B1.B
Acq Date Time	2020-01-29T03:44:40-06:00
Type	Sample
VialNumber	3209
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	072CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	11.58904	23.17807	ug/l	1000	Li	
Be	9	6	3	0.72927	1.45854	ug/l	1000	Be	
B	11	6	3	4.75311	9.50621	ug/l	2000	B	
Na	23	45	2	494.22149	988.44298	ug/l	50000	Na	
Mg	24	45	2	23809.61014	47619.22028	ug/l	50000	Mg	
Al	27	45	2	25066.08795	50132.17590	ug/l	100000	Al	
P	31	45	2	4978.55553	9957.11105	ug/l	100000	P	
K	39	45	2	7329.99834	14659.99668	ug/l	100000	K	
Ca	44	45	3	17985.97297	35971.94594	ug/l	100000	Ca	
Ti	47	45	3	1785.01232	3570.02464	ug/l	2000	Ti	
V	51	45	2	86.02759	172.05518	ug/l	2000	V	
Cr	52	45	2	43.03804	86.07608	ug/l	2000	Cr	
Mn	55	72	2	224.49905	448.99810	ug/l	5000	Mn	
Fe	57	72	2	71228.27690	142456.55380	ug/l	100000	Fe	
Co	59	72	2	13.30187	26.60374	ug/l	2000	Co	
Ni	60	72	2	35.18760	70.37521	ug/l	2000	Ni	
Cu	63	72	2	1676.30733	3352.61467	ug/l	2000	Cu	
Zn	66	72	2	77.88359	155.76718	ug/l	5000	Zn	
As	75	72	2	26.37354	52.74708	ug/l	2000	As	
Se	78	72	2	9.75762	19.51524	ug/l	1000	Se	
Sr	88	72	3	262.11035	524.22069	ug/l	2000	Sr	
Y	89	72	2	13.61485	27.22970	ug/l	200	Y	
Zr	90	72	2	25.45568	50.91136	ug/l	2000	Zr	
Nb	93	72	2	0.84179	1.68359	ug/l	100	Nb	
Mo	95	72	3	21.76739	43.53478	ug/l	1000	Mo	
Ru	101	72	2	-0.01568	-0.03137	ug/l	200	Ru	
Rh	103	72	2	-0.01162	-0.02324	ug/l	200	Rh	
Pd	105	72	2	0.02336	0.04673	ug/l	20	Pd	
Ag	107	115	3	0.57408	1.14815	ug/l	400	Ag	
Cd	111	115	3	0.03232	0.06463	ug/l	2000	Cd	
Sn	118	115	3	112.59737	225.19475	ug/l	2000	Sn	
Sb	121	115	3	1.21765	2.43530	ug/l	1000	Sb	
Te	125	165	2	0.80140	1.60280	ug/l	200	Te	
Cs	133	165	2	3.19346	6.38693	ug/l	2000	Cs	
Ba	137	165	3	217.46479	434.92958	ug/l	5000	Ba	
La	139	165	2	22.53546	45.07093	ug/l	200	La	
Ce	140	165	2	55.83304	111.66608	ug/l	200	Ce	
Pr	141	165	2	7.04100	14.08201	ug/l	200	Pr	
Nd	146	165	2	30.40762	60.81525	ug/l	200	Nd	
Sm	147	165	3	6.32812	12.65625	ug/l	2000	Sm	
Hf	178	165	2	1.05465	2.10929	ug/l	200	Hf	
Ta	181	165	2	0.05873	0.11747	ug/l	200	Ta	
W	182	165	2	4.00629	8.01259	ug/l	2000	W	
Re	185	193	3	0.00345	0.00690	ug/l	200	Re	
Pt	195	193	2	0.00546	0.01092	ug/l	200	Pt	
Au	197	193	3	0.05272	0.10543	ug/l	2000	Au	
Tl	205	193	3	0.38022	0.76043	ug/l	400	Tl	
Pb	208	193	3	11.66730	23.33459	ug/l	5000	Pb	
Bi	209	193	2	1.80669	3.61338	ug/l	2000	Bi	
Th	232	193	3	113.72445	227.44891	ug/l	2000	Th	
U	238	193	3	37.77888	75.55777	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5600463	0.74	6074310	92.2	80	120	Li (IS)	
Sc (IS)	45	2	209426	0.87	180614	116.0	80	120	Sc (IS)	
Sc (IS)	45	3	4032422	0.33	3261875	123.6	80	120	Sc (IS)	FAILED
Ge (IS)	72	2	388187	0.40	380448	102.0	80	120	Ge (IS)	
Ge (IS)	72	3	2447775	0.46	2329877	105.1	80	120	Ge (IS)	
In (IS)	115	3	14474388	1.07	14581735	99.3	80	120	In (IS)	
Ho (IS)	165	2	10378516	0.23	10848635	95.7	80	120	Ho (IS)	
Ho (IS)	165	3	16809606	0.48	16597373	101.3	80	120	Ho (IS)	
Ir (IS)	193	2	6741736	0.75	7388306	91.2	80	120	Ir (IS)	
Ir (IS)	193	3	8128675	1.12	8451056	96.2	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Report

Sample Name	160-36942-B-3-A
Data File Name	110SMPL.D
DataPath	C:\ICPMH\1\DATA\012820B1.B
Acq Date Time	2020-01-29T03:51:23-06:00
Type	Sample
VialNumber	3210
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	072CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	11.62371	23.24743	ug/l	1000	Li	
Be	9	6	3	0.84634	1.69269	ug/l	1000	Be	
B	11	6	3	4.69370	9.38741	ug/l	2000	B	
Na	23	45	2	494.53667	989.07334	ug/l	50000	Na	
Mg	24	45	2	21703.07604	43406.15208	ug/l	50000	Mg	
Al	27	45	2	24264.00354	48528.00708	ug/l	100000	Al	
P	31	45	2	5460.74354	10921.48708	ug/l	100000	P	
K	39	45	2	6446.64516	12893.29032	ug/l	100000	K	
Ca	44	45	3	17277.24235	34554.48471	ug/l	100000	Ca	
Ti	47	45	3	1690.75952	3381.51904	ug/l	2000	Ti	
V	51	45	2	79.45446	158.90892	ug/l	2000	V	
Cr	52	45	2	42.62294	85.24588	ug/l	2000	Cr	
Mn	55	72	2	220.64269	441.28538	ug/l	5000	Mn	
Fe	57	72	2	71838.76834	143677.53669	ug/l	100000	Fe	
Co	59	72	2	13.00636	26.01273	ug/l	2000	Co	
Ni	60	72	2	33.02489	66.04978	ug/l	2000	Ni	
Cu	63	72	2	2298.13221	4596.26442	ug/l	2000	Cu	FAILED
Zn	66	72	2	57.56052	115.12103	ug/l	5000	Zn	
As	75	72	2	32.45050	64.90100	ug/l	2000	As	
Se	78	72	2	11.57767	23.15533	ug/l	1000	Se	
Sr	88	72	3	240.65032	481.30063	ug/l	2000	Sr	
Y	89	72	2	14.14824	28.29648	ug/l	200	Y	
Zr	90	72	2	31.94691	63.89381	ug/l	2000	Zr	
Nb	93	72	2	0.76016	1.52033	ug/l	100	Nb	
Mo	95	72	3	29.37025	58.74049	ug/l	1000	Mo	
Ru	101	72	2	-0.01344	-0.02687	ug/l	200	Ru	
Rh	103	72	2	-0.01281	-0.02563	ug/l	200	Rh	
Pd	105	72	2	0.02070	0.04140	ug/l	20	Pd	
Ag	107	115	3	0.75741	1.51483	ug/l	400	Ag	
Cd	111	115	3	0.04310	0.08620	ug/l	2000	Cd	
Sn	118	115	3	161.82219	323.64437	ug/l	2000	Sn	
Sb	121	115	3	1.25734	2.51469	ug/l	1000	Sb	
Te	125	165	2	1.13397	2.26794	ug/l	200	Te	
Cs	133	165	2	3.16273	6.32545	ug/l	2000	Cs	
Ba	137	165	3	219.76068	439.52135	ug/l	5000	Ba	
La	139	165	2	21.11528	42.23056	ug/l	200	La	
Ce	140	165	2	53.08075	106.16150	ug/l	200	Ce	
Pr	141	165	2	6.75550	13.51100	ug/l	200	Pr	
Nd	146	165	2	29.92065	59.84130	ug/l	200	Nd	
Sm	147	165	3	6.44665	12.89329	ug/l	2000	Sm	
Hf	178	165	2	1.13953	2.27907	ug/l	200	Hf	
Ta	181	165	2	0.06896	0.13793	ug/l	200	Ta	
W	182	165	2	4.85081	9.70162	ug/l	2000	W	
Re	185	193	3	0.00302	0.00605	ug/l	200	Re	
Pt	195	193	2	0.00857	0.01714	ug/l	200	Pt	
Au	197	193	3	0.01477	0.02953	ug/l	2000	Au	
Tl	205	193	3	0.33935	0.67870	ug/l	400	Tl	
Pb	208	193	3	16.81006	33.62012	ug/l	5000	Pb	
Bi	209	193	2	2.54217	5.08434	ug/l	2000	Bi	
Th	232	193	3	132.75449	265.50898	ug/l	2000	Th	
U	238	193	3	53.12705	106.25410	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5717395	0.33	6074310	94.1	80	120	Li (IS)	
Sc (IS)	45	2	221203	0.93	180614	122.5	80	120	Sc (IS)	FAILED
Sc (IS)	45	3	4278588	0.97	3261875	131.2	80	120	Sc (IS)	FAILED
Ge (IS)	72	2	394476	1.72	380448	103.7	80	120	Ge (IS)	
Ge (IS)	72	3	2501948	0.82	2329877	107.4	80	120	Ge (IS)	
In (IS)	115	3	14719824	0.59	14581735	100.9	80	120	In (IS)	
Ho (IS)	165	2	10585104	0.11	10848635	97.6	80	120	Ho (IS)	
Ho (IS)	165	3	17201991	0.71	16597373	103.6	80	120	Ho (IS)	
Ir (IS)	193	2	6781475	0.34	7388306	91.8	80	120	Ir (IS)	
Ir (IS)	193	3	8270398	0.81	8451056	97.9	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Report

Sample Name	160-36942-B-4-A
Data File Name	111SMPL.D
DataPath	C:\ICPMH\1\DATA\012820B1.B
Acq Date Time	2020-01-29T03:58:07-06:00
Type	Sample
VialNumber	3211
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	072CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	9.67211	19.34422	ug/l	1000	Li	
Be	9	6	3	0.48173	0.96345	ug/l	1000	Be	
B	11	6	3	3.27507	6.55014	ug/l	2000	B	
Na	23	45	2	134.80676	269.61352	ug/l	50000	Na	
Mg	24	45	2	19966.68224	39933.36449	ug/l	50000	Mg	
Al	27	45	2	19610.04726	39220.09453	ug/l	100000	Al	
P	31	45	2	6391.45694	12782.91389	ug/l	100000	P	
K	39	45	2	5229.71481	10459.42963	ug/l	100000	K	
Ca	44	45	3	17302.38629	34604.77258	ug/l	100000	Ca	
Ti	47	45	3	959.84305	1919.68611	ug/l	2000	Ti	
V	51	45	2	56.68128	113.36256	ug/l	2000	V	
Cr	52	45	2	48.86761	97.73523	ug/l	2000	Cr	
Mn	55	72	2	222.18922	444.37845	ug/l	5000	Mn	
Fe	57	72	2	58691.88075	117383.76151	ug/l	100000	Fe	
Co	59	72	2	11.58316	23.16632	ug/l	2000	Co	
Ni	60	72	2	33.26023	66.52046	ug/l	2000	Ni	
Cu	63	72	2	1830.22148	3660.44297	ug/l	2000	Cu	
Zn	66	72	2	64.35709	128.71417	ug/l	5000	Zn	
As	75	72	2	19.39027	38.78053	ug/l	2000	As	
Se	78	72	2	8.27573	16.55146	ug/l	1000	Se	
Sr	88	72	3	101.76734	203.53468	ug/l	2000	Sr	
Y	89	72	2	13.80703	27.61407	ug/l	200	Y	
Zr	90	72	2	7.07632	14.15265	ug/l	2000	Zr	
Nb	93	72	2	0.37306	0.74612	ug/l	100	Nb	
Mo	95	72	3	13.92949	27.85898	ug/l	1000	Mo	
Ru	101	72	2	-0.01663	-0.03326	ug/l	200	Ru	
Rh	103	72	2	-0.01304	-0.02609	ug/l	200	Rh	
Pd	105	72	2	0.01397	0.02794	ug/l	20	Pd	
Ag	107	115	3	0.72040	1.44080	ug/l	400	Ag	
Cd	111	115	3	0.01127	0.02254	ug/l	2000	Cd	
Sn	118	115	3	24.08717	48.17433	ug/l	2000	Sn	
Sb	121	115	3	0.84072	1.68143	ug/l	1000	Sb	
Te	125	165	2	1.36370	2.72740	ug/l	200	Te	
Cs	133	165	2	3.58387	7.16775	ug/l	2000	Cs	
Ba	137	165	3	155.88354	311.76708	ug/l	5000	Ba	
La	139	165	2	21.82113	43.64225	ug/l	200	La	
Ce	140	165	2	56.32819	112.65637	ug/l	200	Ce	
Pr	141	165	2	7.17109	14.34218	ug/l	200	Pr	
Nd	146	165	2	32.34887	64.69774	ug/l	200	Nd	
Sm	147	165	3	7.24487	14.48973	ug/l	2000	Sm	
Hf	178	165	2	0.28432	0.56865	ug/l	200	Hf	
Ta	181	165	2	0.03459	0.06919	ug/l	200	Ta	
W	182	165	2	0.85508	1.71016	ug/l	2000	W	
Re	185	193	3	0.01525	0.03050	ug/l	200	Re	
Pt	195	193	2	0.00948	0.01895	ug/l	200	Pt	
Au	197	193	3	-0.01021	-0.02043	ug/l	2000	Au	
Tl	205	193	3	0.33030	0.66059	ug/l	400	Tl	
Pb	208	193	3	5.72487	11.44973	ug/l	5000	Pb	
Bi	209	193	2	2.22237	4.44474	ug/l	2000	Bi	
Th	232	193	3	55.35620	110.71240	ug/l	2000	Th	
U	238	193	3	20.60339	41.20679	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5695610	0.13	6074310	93.8	80	120	Li (IS)	
Sc (IS)	45	2	209894	1.22	180614	116.2	80	120	Sc (IS)	
Sc (IS)	45	3	4057163	0.22	3261875	124.4	80	120	Sc (IS)	FAILED
Ge (IS)	72	2	393559	0.96	380448	103.4	80	120	Ge (IS)	
Ge (IS)	72	3	2489419	0.77	2329877	106.8	80	120	Ge (IS)	
In (IS)	115	3	14704184	0.71	14581735	100.8	80	120	In (IS)	
Ho (IS)	165	2	10584370	0.49	10848635	97.6	80	120	Ho (IS)	
Ho (IS)	165	3	17082889	1.06	16597373	102.9	80	120	Ho (IS)	
Ir (IS)	193	2	6804523	1.58	7388306	92.1	80	120	Ir (IS)	
Ir (IS)	193	3	8269549	1.01	8451056	97.9	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

Sample Report

Sample Name	160-36942-B-5-A
Data File Name	112SMPL.D
DataPath	C:\ICPMH\1\DATA\012820B1.B
Acq Date Time	2020-01-29T04:04:52-06:00
Type	Sample
VialNumber	3212
Dilution	2
Comment	
Operator	LP 7700
ISTDRefDataFileName	072CALB.D

QC Analyte Table

Element	m/z	ISTD	Tune Step	Meas Value	FinalConcentration	Units	High Value	Analyte	QC Flag
Li	7	6	3	12.16594	24.33188	ug/l	1000	Li	
Be	9	6	3	0.97418	1.94835	ug/l	1000	Be	
B	11	6	3	2.80276	5.60552	ug/l	2000	B	
Na	23	45	2	232.37786	464.75572	ug/l	50000	Na	
Mg	24	45	2	25412.95026	50825.90052	ug/l	50000	Mg	
Al	27	45	2	27810.45161	55620.90322	ug/l	100000	Al	
P	31	45	2	5386.01833	10772.03665	ug/l	100000	P	
K	39	45	2	5492.87404	10985.74807	ug/l	100000	K	
Ca	44	45	3	21699.58926	43399.17853	ug/l	100000	Ca	
Ti	47	45	3	1235.36029	2470.72057	ug/l	2000	Ti	
V	51	45	2	130.40366	260.80732	ug/l	2000	V	
Cr	52	45	2	47.57946	95.15893	ug/l	2000	Cr	
Mn	55	72	2	255.66747	511.33494	ug/l	5000	Mn	
Fe	57	72	2	77487.72550	154975.45100	ug/l	100000	Fe	
Co	59	72	2	15.27381	30.54763	ug/l	2000	Co	
Ni	60	72	2	35.62926	71.25853	ug/l	2000	Ni	
Cu	63	72	2	7512.74442	15025.48885	ug/l	2000	Cu	FAILED
Zn	66	72	2	73.92974	147.85948	ug/l	5000	Zn	
As	75	72	2	10.88306	21.76612	ug/l	2000	As	
Se	78	72	2	11.93984	23.87969	ug/l	1000	Se	
Sr	88	72	3	103.33793	206.67586	ug/l	2000	Sr	
Y	89	72	2	15.43006	30.86012	ug/l	200	Y	
Zr	90	72	2	7.53979	15.07957	ug/l	2000	Zr	
Nb	93	72	2	0.42319	0.84638	ug/l	100	Nb	
Mo	95	72	3	8.70924	17.41849	ug/l	1000	Mo	
Ru	101	72	2	-0.01486	-0.02972	ug/l	200	Ru	
Rh	103	72	2	-0.01287	-0.02574	ug/l	200	Rh	
Pd	105	72	2	0.02057	0.04113	ug/l	20	Pd	
Ag	107	115	3	0.83732	1.67464	ug/l	400	Ag	
Cd	111	115	3	0.03342	0.06684	ug/l	2000	Cd	
Sn	118	115	3	29.67680	59.35361	ug/l	2000	Sn	
Sb	121	115	3	2.30114	4.60228	ug/l	1000	Sb	
Te	125	165	2	0.99086	1.98171	ug/l	200	Te	
Cs	133	165	2	3.06193	6.12385	ug/l	2000	Cs	
Ba	137	165	3	168.70369	337.40739	ug/l	5000	Ba	
La	139	165	2	25.61844	51.23687	ug/l	200	La	
Ce	140	165	2	59.67056	119.34112	ug/l	200	Ce	
Pr	141	165	2	7.18838	14.37676	ug/l	200	Pr	
Nd	146	165	2	30.88972	61.77944	ug/l	200	Nd	
Sm	147	165	3	6.11775	12.23550	ug/l	2000	Sm	
Hf	178	165	2	0.25788	0.51576	ug/l	200	Hf	
Ta	181	165	2	0.03484	0.06968	ug/l	200	Ta	
W	182	165	2	1.16498	2.32995	ug/l	2000	W	
Re	185	193	3	0.03083	0.06166	ug/l	200	Re	
Pt	195	193	2	0.00429	0.00859	ug/l	200	Pt	
Au	197	193	3	0.00372	0.00744	ug/l	2000	Au	
Tl	205	193	3	0.26549	0.53097	ug/l	400	Tl	
Pb	208	193	3	7.57504	15.15008	ug/l	5000	Pb	
Bi	209	193	2	2.84631	5.69262	ug/l	2000	Bi	
Th	232	193	3	34.37465	68.74930	ug/l	2000	Th	
U	238	193	3	27.26343	54.52687	ug/l	2000	U	

QC ISTD Table

Element	m/z	Tune Step	CPS	%RSD	Reference CPS	%Recovery	Lower Limit	Upper Limit	Analyte	QC Flag
Li (IS)	6	3	5810286	6.93	6074310	95.7	80	120	Li (IS)	
Sc (IS)	45	2	189762	0.84	180614	105.1	80	120	Sc (IS)	
Sc (IS)	45	3	3822149	7.99	3261875	117.2	80	120	Sc (IS)	
Ge (IS)	72	2	391561	0.76	380448	102.9	80	120	Ge (IS)	
Ge (IS)	72	3	2550958	6.98	2329877	109.5	80	120	Ge (IS)	
In (IS)	115	3	15285886	8.69	14581735	104.8	80	120	In (IS)	
Ho (IS)	165	2	10530012	1.00	10848635	97.1	80	120	Ho (IS)	
Ho (IS)	165	3	17671475	9.37	16597373	106.5	80	120	Ho (IS)	
Ir (IS)	193	2	6846809	1.12	7388306	92.7	80	120	Ir (IS)	
Ir (IS)	193	3	8593853	8.50	8451056	101.7	80	120	Ir (IS)	

TuneStep	TuneFile
2	he.u
3	nogas.u

GENERAL CHEMISTRY

COVER PAGE
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, St. Louis Job Number: 160-36942-2

SDG No.: 160-36942-2

Project: ACMS - Yerington OU-4b_OU-5_Soil

Client Sample ID	Lab Sample ID
STSB07_0-0.5	160-36942-1
STSB07_0.5-3	160-36942-2
STSB07-FD_0.5-3	160-36942-3
STSB07_3-6	160-36942-4
STSB07_6-15	160-36942-5

Comments:

9-IN
DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, St. Louis Job Number: 160-36942-2

SDG Number: 160-36942-2

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

9-IN
CALIBRATION BLANK DETECTION LIMITS
GENERAL CHEMISTRY

Lab Name: Eurofins TestAmerica, St. Louis Job Number: 160-36942-2

SDG Number: 160-36942-2

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.: 160-36942-2

SDG No.: 160-36942-2

Instrument ID: NOEQUIP Analysis Method: Moisture

Start Date: 01/15/2020 08:32 End Date: 01/15/2020 08:32

Lab Sample Id	D/F	Type	Time	% Sol	Moist	Analytes
160-36942-1	1	T	08:32	X	X	
160-36942-1 DU	1	T	08:32	X	X	
160-36942-2	1	T	08:32	X	X	
160-36942-3	1	T	08:32	X	X	
160-36942-4	1	T	08:32	X	X	
160-36942-5	1	T	08:32	X	X	
ZZZZZZ			08:32			
ZZZZZZ			08:32			
ZZZZZZ			08:32			
ZZZZZZ			08:32			
ZZZZZZ			08:32			
ZZZZZZ			08:32			
ZZZZZZ			08:32			
ZZZZZZ			08:32			
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ZZZZZZ			08:32			
ZZZZZZ			08:32			
ZZZZZZ			08:32			
ZZZZZZ			08:32			
ZZZZZZ			08:32			
ZZZZZZ			08:32			

Prep Types:
T = Total/NA

FORM XIII-IN

GENERAL CHEMISTRY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36942-2

SDG No.: 160-36942-2

Batch Number: 456781 Batch Start Date: 01/15/20 08:32 Batch Analyst: Domalewski, Ryan J

Batch Method: Moisture Batch End Date: 01/16/20 06:52

Lab Sample ID	Client Sample ID	Method Chain	Basis	DishWeight	SampleMassWet	SampleMassDry	
160-36942-B-1	STSB07_0-0.5	Moisture	T	1.1560 g	11.8572 g	11.2182 g	99.0%
160-36942-B-1 DU	STSB07_0-0.5	Moisture	T	1.0664 g	11.2347 g	10.6998 g	
160-36942-B-2	STSB07_0.5-3	Moisture	T	1.0579 g	11.7966 g	11.2643 g	
160-36942-B-3	STSB07-FD_0.5-3	Moisture	T	1.0555 g	11.4886 g	10.8305 g	93.7%
160-36942-B-4	STSB07_3-6	Moisture	T	1.0585 g	11.1807 g	10.7046 g	
160-36942-B-5	STSB07_6-15	Moisture	T	1.0761 g	11.7096 g	10.8681 g	92.1%

Batch Notes	
Balance ID	1119252511
Date samples were placed in the oven	01/15/2020
Oven Temp In	103 Degrees C
Time samples were place in the oven	09:21
Date samples were removed from oven	01/16/2020
Oven Temp Out	101 Degrees C
Time Samples were removed from oven	06:20
Oven ID	OC
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

Method 901.1
Ra-226

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

Prep Batch: 456720

Fill Geometry, 21-Day In-Growth

Gamma Spectroscopy Analysis Detail Report
Prep Batch: 456720

Lab Id: MB 160-456720/1-A | Analyzed: 02/04/20 10:38 | Ts: 30 | Sigma: 2
Client ID: | Detector: GV14 | Decay Corrected: No | Ingrowth:

Analyte	MB Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	-0.1255	0.119	0.119	U	pCi/g	1.00	0.360	459110
Radium-228	0.08826	0.0789	0.0795	U	pCi/g	1.00	0.129	459110

Lab Id: LCS 160-456720/2-A | Analyzed: 02/05/20 09:00 | Ts: 30 | Sigma: 2
Client ID: | Detector: GV9 | Decay Corrected: No | Ingrowth:

Analyte	LCS Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Americium-241	97.24	1.42	10.2		pCi/g		0.973	459382
Cesium-137	26.61	0.581	2.83		pCi/g		0.175	459382
Cobalt-60	10.26	0.302	1.07		pCi/g		0.0623	459382

Lab Id: 160-36942-1 | Analyzed: 02/04/20 10:40 | Ts: 30 | Sigma: 2
Client ID: STSB07_0-0.5 | Detector: GV16 | Decay Corrected: No | Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.42	0.214	0.260		pCi/g	1.00	0.226	459112
Radium-228	4.55	0.396	0.611		pCi/g	1.00	0.315	459112

Lab Id: 160-36942-1 DU | Analyzed: 02/04/20 11:23 | Ts: 30 | Sigma: 2
Client ID: STSB07_0-0.5 | Detector: GV9 | Decay Corrected: No | Ingrowth:

Analyte	DU Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.731	0.240	0.300		pCi/g	1.00	0.176	459118
Radium-228	4.622	0.367	0.598		pCi/g	1.00	0.174	459118

Lab Id: 160-36942-2 | Analyzed: 02/04/20 10:41 | Ts: 30 | Sigma: 2
Client ID: STSB07_0.5-3 | Detector: GV17 | Decay Corrected: No | Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	2.02	0.285	0.354		pCi/g	1.00	0.211	459113
Radium-228	3.42	0.428	0.552		pCi/g	1.00	0.209	459113

Lab Id: 160-36942-3 | Analyzed: 02/04/20 10:42 | Ts: 30 | Sigma: 2
Client ID: STSB07-FD_0.5-3 | Detector: GV8 | Decay Corrected: No | Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.87	0.300	0.358		pCi/g	1.00	0.220	459128
Radium-228	3.47	0.487	0.602		pCi/g	1.00	0.333	459128

Gamma Spectroscopy Analysis Detail Report
Prep Batch: 456720

Lab Id: 160-36942-4 | Analyzed: 02/04/20 10:43 | Ts: 30 | Sigma: 2
Client ID: STSB07_3-6 | Detector: GV5 | Decay Corrected: No | Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.21	0.249	0.279		pCi/g	1.00	0.199	459127
Radium-228	1.45	0.392	0.419		pCi/g	1.00	0.257	459127

Lab Id: 160-36942-5 | Analyzed: 02/04/20 11:23 | Ts: 30 | Sigma: 2
Client ID: STSB07_6-15 | Detector: GV12 | Decay Corrected: No | Ingrowth:

Analyte	Result	Count Unc	Total Unc	Qualifier	Unit	RL	MDC	Anly Batch
Radium-226	1.29	0.233	0.267		pCi/g	1.00	0.163	459117
Radium-228	1.88	0.293	0.349		pCi/g	1.00	0.122	459117

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 160-456720/1-A	Radium-226			-0.1255	U	pCi/g							-2.1054
MB 160-456720/1-A	Radium-228		Clear	0.08826	U	pCi/g							2.2217
Lab Control Sample ID:	**Analyte**	**Parent Result**	**Spike Added**	**LCS Result**	**Qualifier**	**Unit**	**% Rec**	**% Rec Limits**	**RPD**	**RER**	**DER**	**DER Limit**	**Z Factor**
LCS 160-456720/2-A	Americium-241		96.6	97.24		pCi/g	101	75 - 125					.1259
LCS 160-456720/2-A	Cesium-137		27.3	26.61		pCi/g	98	75 - 125					-.433
LCS 160-456720/2-A	Cobalt-60		10.6	10.26		pCi/g	97	75 - 125					-.5798
Duplicate ID:	**Analyte**	**Parent Result**	**Spike Added**	**DU Result**	**Qualifier**	**Unit**	**% Rec**	**% Rec Limits**	**RPD**	**RER**	**DER**	**DER Limit**	**Z Factor**
160-36942-1	Radium-226	1.42		1.731		pCi/g			20	0.55	1.56	2	1.5585
160-36942-1	Radium-228	4.55		4.622		pCi/g			1	0.06	0.16	2	.1573

Glossary:

Ts = Count Duration, Sample

GAMMA SPECTROSCOPY BATCH WORKSHEET

Lab Name: Eurofins TestAmerica, St. Loui Job No.: 160-36942-2

SDG No.: 160-36942-2

Batch Number: 456720 Batch Start Date: 01/14/20 09:54 Batch Analyst: Curtright, Logan T

Batch Method: Fill_Geo-21 Batch End Date: 01/14/20 11:25

Lab Sample ID	Client Sample ID	Method Chain	Basis	TareWeight	GrossWeight	InitialAmount	IngDecDate1	IngDecDate3	Geometry
MB 160-456720/1		Fill_Geo-21, 901.1				291.18 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
LCS 160-456720/2		Fill_Geo-21, 901.1				341.9 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-1-A	STSB07_0-0.5	Fill_Geo-21, 901.1	T	46.2 g	438.1 g	391.9 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-1-A DU	STSB07_0-0.5	Fill_Geo-21, 901.1	T	46.2 g	438.1 g	391.9 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-2-A	STSB07_0.5-3	Fill_Geo-21, 901.1	T	46.6 g	410.4 g	363.8 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-3-A	STSB07-FD_0.5-3	Fill_Geo-21, 901.1	T	46.3 g	400.3 g	354 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-4-A	STSB07_3-6	Fill_Geo-21, 901.1	T	46.5 g	390.0 g	343.5 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can
160-36942-A-5-A	STSB07_6-15	Fill_Geo-21, 901.1	T	46.0 g	353.5 g	307.5 g	01/14/2020 10:59	02/04/2020 10:59	Tuna Can

Lab Sample ID	Client Sample ID	Method Chain	Basis	Tuna Can LCS 00009
MB 160-456720/1		Fill_Geo-21, 901.1		
LCS 160-456720/2		Fill_Geo-21, 901.1		# g
160-36942-A-1-A	STSB07_0-0.5	Fill_Geo-21, 901.1	T	
160-36942-A-1-A DU	STSB07_0-0.5	Fill_Geo-21, 901.1	T	
160-36942-A-2-A	STSB07_0.5-3	Fill_Geo-21, 901.1	T	
160-36942-A-3-A	STSB07-FD_0.5-3	Fill_Geo-21, 901.1	T	
160-36942-A-4-A	STSB07_3-6	Fill_Geo-21, 901.1	T	
160-36942-A-5-A	STSB07_6-15	Fill_Geo-21, 901.1	T	

Batch Notes	
Balance ID	121432711
SOP Number	ST-RC-0025

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.: 160-36942-2

SDG No.: 160-36942-2

Batch Number: 456720 Batch Start Date: 01/14/20 09:54 Batch Analyst: Curtright, Logan T

Batch Method: Fill_Geo-21 Batch End Date: 01/14/20 11:25

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.

Daily Checks

2/4/20

GV 5, 8, 9, 12, 14, 16, 17

2/5/20

GV 9

Test America
St. Louis
Quality Control Check

Spectrum: 5_20200204001_QCAsLeft
Description: Quality control Check (QC Source 'A') Post Stabilization
Acquired: 2/4/2020 5:40:10 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	59.60	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	0.33	4.00	5.00	PASS
QA-662							
FWHM	1.36	0.00	0.00	1.37	3.06	3.16	PASS
ActivityDiff	596.80	-5.00	-4.00	-0.89	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5328.90	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.28	1333.01	1333.26	PASS
FWHM	1.90	0.00	0.00	1.77	4.10	4.20	PASS
ActivityDiff	1164.20	-5.00	-4.00	1.67	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 5_20200204002_BG
Description: Background Contamination Check
Acquired: 2/4/2020 6:15:09 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	1.43	1.55	1.60	PASS

Analyst: Caleb Quinn Reviewer: kody Saulters

Test America
St. Louis
Quality Control Check

Spectrum: 8_20200204003_QCAsLeft
Description: Quality control Check (QC Source 'D') Post Stabilization
Acquired: 2/4/2020 7:15:46 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	237.90	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.54	59.79	60.04	PASS
FWHM	1.10	0.00	0.00	1.30	2.20	2.30	PASS
ActivityDiff	650.60	-5.00	-4.00	2.21	4.00	5.00	PASS
QA-662							
FWHM	1.53	0.00	0.00	1.65	3.23	3.33	~~PASS~~
ActivityDiff	609.90	-5.00	-4.00	4.35	4.00	5.00	High OOT
QA-1332							
Channel	5330.00	5327.00	5328.00	5330.10	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.51	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	2.73	4.00	5.00	PASS ✓

OKay <3σ, no qual

Analyst: Caleb Quinn Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 8_20200204004_BG
Description: Background Contamination Check
Acquired: 2/4/2020 7:36:58 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	1.57	1.68	1.74	PASS

Analyst: Caleb Quinn Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 9_20200204001_BG
Description: Background Contamination Check
Acquired: 2/4/2020 5:22:56 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	1.84	2.14	2.26	PASS

Analyst: kody Saulters Reviewer: Caleb Quinn

Test America
St. Louis
Quality Control Check

Spectrum: 9_20200204002_QCAsLeft
Description: Quality control Check (QC Source 'E') Post Stabilization
Acquired: 2/4/2020 6:39:08 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	238.00	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.61	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	0.08	4.00	5.00	PASS
QA-662							
FWHM	1.62	0.00	0.00	1.48	3.32	3.42	PASS
ActivityDiff	607.56	-5.00	-4.00	-0.17	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	1332.30	1333.01	1333.26	PASS
FWHM	2.12	0.00	0.00	1.91	4.32	4.42	PASS
ActivityDiff	1191.31	-5.00	-4.00	-0.14	4.00	5.00	PASS

Analyst: Caleb Quinn Reviewer: Caleb Quinn

Test America
St. Louis
Background Check

Spectrum: 9_20200205001_BG
Description: Background Contamination Check
Acquired: 2/5/2020 5:25:51 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	1.75	2.14	2.26	PASS

Analyst: kody Saulters Reviewer: Caleb Quinn

Test America
St. Louis
Quality Control Check

Spectrum: 9_20200205002_QCAsLeft
Description: Quality control Check (QC Source 'E') Post Stabilization
Acquired: 2/5/2020 6:40:50 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	237.80	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.55	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	-1.10	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	-0.69	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5329.00	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.18	1333.01	1333.26	PASS
FWHM	2.12	0.00	0.00	2.09	4.32	4.42	PASS
ActivityDiff	1191.31	-5.00	-4.00	-0.86	4.00	5.00	PASS

Analyst: Caleb Quinn Reviewer: Caleb Quinn

Test America
St. Louis
Background Check

Spectrum: 12_20200204001_BG
Description: Background Contamination Check
Acquired: 2/4/2020 5:26:03 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	2.01	2.05	2.09	PASS

Analyst: kody Saulters Reviewer: Caleb Quinn

Test America
St. Louis
Quality Control Check

Spectrum: 12_20200204002_QCAsLeft
Description: Quality control Check (QC Source 'H') Post Stabilization
Acquired: 2/4/2020 6:42:56 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	237.70	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.54	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	0.38	4.00	5.00	PASS
QA-662							
FWHM	1.48	0.00	0.00	1.46	3.18	3.28	PASS
ActivityDiff	659.00	-5.00	-4.00	-1.04	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	2.00	0.00	0.00	2.00	4.20	4.30	PASS
ActivityDiff	1274.00	-5.00	-4.00	0.39	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: Caleb Quinn

Test America
St. Louis
Quality Control Check

Spectrum: 14_20200204001_QCAsLeft
Description: Quality control Check (QC Source 'E') Post Stabilization
Acquired: 2/4/2020 5:48:06 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	238.10	239.00	240.00	PASS
Energy	59.54	59.04	59.29	59.68	59.79	60.04	PASS
FWHM	0.76	0.00	0.00	0.90	1.86	1.96	PASS
ActivityDiff	671.90	-5.00	-4.00	-2.78	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	-2.87	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	1332.49	1333.01	1333.26	PASS
FWHM	1.91	0.00	0.00	1.80	4.11	4.21	PASS
ActivityDiff	1224.59	-5.00	-4.00	-0.77	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 14_20200204002_BG
Description: Background Contamination Check
Acquired: 2/4/2020 6:18:03 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	1.83	1.90	1.94	PASS

Analyst: Caleb Quinn Reviewer: kody Saulters

Test America
St. Louis
Quality Control Check

Spectrum: 16_20200204003_QCAsLeft
Description: Quality control Check (QC Source 'G') Post Stabilization
Acquired: 2/4/2020 7:31:33 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	1.03	2.06	2.16	PASS
ActivityDiff	602.10	-5.00	-4.00	2.53	4.00	5.00	PASS
QA-662							
FWHM	1.53	0.00	0.00	1.75	3.23	3.33	PASS
ActivityDiff	571.13	-5.00	-4.00	1.07	4.00	5.00	PASS
QA-1332							
Channel	5330.00	5327.00	5328.00	5331.00	5332.00	5333.00	PASS
Energy	1332.51	1331.76	1332.01	1332.86	1333.01	1333.26	PASS
FWHM	2.09	0.00	0.00	2.62	4.29	4.39	PASS
ActivityDiff	1139.05	-5.00	-4.00	3.27	4.00	5.00	PASS

Analyst: Caleb Quinn Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 16_20200204004_BG
Description: Background Contamination Check
Acquired: 2/4/2020 7:52:58 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	2.64	2.80	2.86	PASS

Analyst: Caleb Quinn Reviewer: kody Saulters

Test America
St. Louis
Quality Control Check

Spectrum: 17_20200204001_QCAsLeft
Description: Quality control Check (QC Source 'H') Post Stabilization
Acquired: 2/4/2020 6:03:53 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	59.63	59.79	60.04	PASS
FWHM	0.77	0.00	0.00	1.18	1.87	1.97	PASS
ActivityDiff	691.00	-5.00	-4.00	2.80	4.00	5.00	PASS
QA-662							
FWHM	1.37	0.00	0.00	1.62	3.07	3.17	PASS
ActivityDiff	659.00	-5.00	-4.00	1.00	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	1332.43	1333.01	1333.26	PASS
FWHM	1.88	0.00	0.00	1.99	4.08	4.18	PASS
ActivityDiff	1274.00	-5.00	-4.00	-0.64	4.00	5.00	PASS

Analyst: kody Saulters Reviewer: kody Saulters

Test America
St. Louis
Background Check

Spectrum: 17_20200204003_BG
Description: Background Contamination Check
Acquired: 2/4/2020 6:56:44 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	2.40	2.42	2.46	PASS

Analyst: Caleb Quinn Reviewer: kody Saulters

Initial Calibrations

detectors - tuna can

GV 5, 8, 9, 12, 14, 16, 17

Gamma Verification per Geometry

Detector: Ge5 ✓

Geometry: Tunacan ✓ * previously validated

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: 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: 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: 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

detectors - turn can

ov 5, 8, 9, 12, 14, 16, 17

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: 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: 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: 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

Monthly Backgrounds

January (1/10-1/11) bkgs

GV 5, 8, 9, 12, 14, 16, 17

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:

(Page 1 of 7)

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:

(Page 1 of 5)

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:

(Page 1 of 7)

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:

(Page 1 of 8)

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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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
02/04/20 05:19		CCV 160-459127/1		459127			
02/04/20 05:40		CCV 160-459127/2		459127			JFL
02/04/20 06:15		CCB 160-459127/3		459127			JFL
02/04/20 07:02	30	ZZZZZ		459127			
02/04/20 07:43	30	ZZZZZ		459127			
02/04/20 08:15	60	ZZZZZ		459127			
02/04/20 09:29	60	ZZZZZ		459127			
02/04/20 10:43	30	160-36942-4	STSB07_3-6	459127	456720	901.1 ✓	JFL
02/04/20 11:21	30	ZZZZZ		459127			
02/04/20 12:08	30	ZZZZZ		459127			
02/04/20 12:49	30	ZZZZZ		459127			
02/04/20 13:41	60	ZZZZZ		459127			
02/04/20 14:46	60	ZZZZZ		459127			

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
01/11/20 10:40		ICB 160-457661/1		457661			JLW
02/04/20 05:25		CCV 160-459128/1		459128			
02/04/20 05:47		CCV 160-459128/2		459128			
02/04/20 06:14		CCV 160-459128/3		459128			
02/04/20 06:35		CCV 160-459128/4		459128			
02/04/20 06:54		CCV 160-459128/5		459128			
02/04/20 07:15		CCV 160-459128/6		459128			KLS
02/04/20 07:36		CCB 160-459128/7		459128			KLS
02/04/20 08:17	30	ZZZZZ		459128			
02/04/20 09:03	30	ZZZZZ		459128			
02/04/20 10:00	30	ZZZZZ		459128			
02/04/20 10:42	30	160-36942-3	STSB07-FD_0.5-3	459128	456720	901.1 ✓	KLS
02/04/20 11:24	30	ZZZZZ		459128			
02/04/20 12:09	30	ZZZZZ		459128			
02/04/20 12:50	30	ZZZZZ		459128			
02/04/20 13:42	60	ZZZZZ		459128			
02/04/20 14:47	60	ZZZZZ		459128			

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
01/10/20 14:02		ICB 160-456551/1		456551			JLW
02/04/20 05:22		CCB 160-459118/1		459118			KLS
02/04/20 06:18		CCV 160-459118/2		459118			
02/04/20 06:39		CCV 160-459118/3		459118			KLS
02/04/20 06:59	30	ZZZZZ		459118			
02/04/20 07:39	30	ZZZZZ		459118			
02/04/20 08:11	30	ZZZZZ		459118			

Gamma Spectroscopy Run Log

Detector: GV9 (Continued)

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
02/04/20 08:59	30	ZZZZZ		459118			
02/04/20 09:54	30	ZZZZZ		459118			
02/04/20 10:37	30	ZZZZZ		459118			
02/04/20 11:23	30	160-36942-1 DU	STSB07_0-0.5 DU	459118	456720	901.1	KLS
02/04/20 12:06	30	ZZZZZ		459118			
02/04/20 12:45	30	ZZZZZ		459118			
02/04/20 13:21	30	ZZZZZ		459118			
02/04/20 13:55	30	ZZZZZ		459118			
02/04/20 15:01	30	ZZZZZ		459118			
02/04/20 15:36	30	ZZZZZ		459118			
02/04/20 16:15	30	ZZZZZ		459118			
02/04/20 16:57	30	ZZZZZ		459118			
02/05/20 05:25		CCB 160-459382/1		459382			KLS
02/05/20 06:20		CCV 160-459382/2		459382			
02/05/20 06:40		CCV 160-459382/3		459382			KLS
02/05/20 07:19	30	ZZZZZ		459382			
02/05/20 07:55	30	ZZZZZ		459382			
02/05/20 08:28	30	ZZZZZ		459382			
02/05/20 09:00	30	LCS 160-456720/2-A		459382	456720	901.1	KLS
02/05/20 09:32	30	ZZZZZ		459382			
02/05/20 10:05	30	ZZZZZ		459382			
02/05/20 10:38	30	ZZZZZ		459382			
02/05/20 11:13	30	ZZZZZ		459382			
02/05/20 11:45	30	ZZZZZ		459382			
02/05/20 12:22	30	ZZZZZ		459382			

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
04/24/18 09:26		ICV 160-364854/2		364854			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
02/04/20 05:26		CCB 160-459117/1		459117			JFL
02/04/20 06:22		CCV 160-459117/2		459117			
02/04/20 06:42		CCV 160-459117/3		459117			JFL
02/04/20 07:01	30	ZZZZZ		459117			
02/04/20 07:41	30	ZZZZZ		459117			
02/04/20 08:14	30	ZZZZZ		459117			
02/04/20 08:57		TCCLBA 160-459090/1-A		459117			
02/04/20 09:13		TCCLBB 160-459090/2-A		459117			
02/04/20 09:32		TCCLBC 160-459090/3-A		459117			
02/04/20 09:55	30	ZZZZZ		459117			
02/04/20 10:38	30	ZZZZZ		459117			
02/04/20 11:23	30	160-36942-5	STSB07_6-15	459117	456720	901.1	JFL
02/04/20 12:07	30	ZZZZZ		459117			
02/04/20 12:46	30	ZZZZZ		459117			

Gamma Spectroscopy Run Log

Detector: GV12 (Continued)

Analysis Date	Count Minutes	Lab Sample ID	Client Sample ID	Analysis Batch	Prep Batch	Method	Analyst Initials
02/04/20 13:22	30	ZZZZZ		459117			
02/04/20 13:53	30	ZZZZZ		459117			
02/04/20 14:33		ZZZZZ		459117			
02/04/20 14:33		ZZZZZ		459117			
02/04/20 14:50		ZZZZZ		459117			
02/04/20 14:50		ZZZZZ		459117			
02/04/20 15:26		ZZZZZ		459117			
02/04/20 15:26		ZZZZZ		459117			
02/04/20 16:14	30	ZZZZZ		459117			
02/04/20 16:52		ZZZZZ		459117			
02/04/20 16:52		ZZZZZ		459117			
02/04/20 17:09		ZZZZZ		459117			
02/04/20 17:09		ZZZZZ		459117			

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
02/04/20 05:26		CCV 160-459110/1		459110			
02/04/20 05:48		CCV 160-459110/2		459110			JFL
02/04/20 06:18		CCB 160-459110/3		459110			JFL
02/04/20 07:04	30	ZZZZZ		459110			
02/04/20 07:46	30	ZZZZZ		459110			
02/04/20 08:20	30	ZZZZZ		459110			
02/04/20 08:57		TCCLBB 160-459090/2-A		459110			
02/04/20 09:18		TCCLBC 160-459090/3-A		459110			
02/04/20 09:32		TCCLBA 160-459090/1-A		459110			
02/04/20 09:55	30	ZZZZZ		459110			
02/04/20 10:38	30	MB 160-456720/1-A		459110	456720	901.1	JFL
02/04/20 11:26	30	ZZZZZ		459110			
02/04/20 12:09	30	ZZZZZ		459110			
02/04/20 12:47	30	ZZZZZ		459110			
02/04/20 13:22	30	ZZZZZ		459110			
02/04/20 13:56	30	ZZZZZ		459110			
02/04/20 14:34		ZZZZZ		459110			
02/04/20 14:34		ZZZZZ		459110			
02/04/20 14:51		ZZZZZ		459110			
02/04/20 14:51		ZZZZZ		459110			
02/04/20 15:11		ZZZZZ		459110			
02/04/20 15:11		ZZZZZ		459110			
02/04/20 15:28		ZZZZZ		459110			
02/04/20 15:28		ZZZZZ		459110			
02/04/20 16:32		ZZZZZ		459110			
02/04/20 16:32		ZZZZZ		459110			
02/04/20 16:52		ZZZZZ		459110			
02/04/20 16:52		ZZZZZ		459110			
02/04/20 17:10		ZZZZZ		459110			
02/04/20 17:10		ZZZZZ		459110			

Gamma Spectroscopy Run Log

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
02/04/20 05:30		CCV 160-459112/1		459112			
02/04/20 05:54		CCV 160-459112/2		459112			
02/04/20 06:21		CCV 160-459112/3		459112			
02/04/20 06:44		CCV 160-459112/4		459112			
02/04/20 07:07		CCV 160-459112/5		459112			
02/04/20 07:31		CCV 160-459112/6		459112			KLS
02/04/20 07:52		CCB 160-459112/7		459112			KLS
02/04/20 08:28	30	ZZZZZ		459112			
02/04/20 09:05	30	ZZZZZ		459112			
02/04/20 09:58	30	ZZZZZ		459112			
02/04/20 10:40	30	160-36942-1	STSB07_0-0.5	459112	456720	901.1 ✓	KLS
02/04/20 11:28	30	ZZZZZ		459112			
02/04/20 12:11	30	ZZZZZ		459112			
02/04/20 12:48	30	ZZZZZ		459112			
02/04/20 13:25	30	ZZZZZ		459112			
02/04/20 13:59	120	ZZZZZ		459112			
02/04/20 16:22	30	ZZZZZ		459112			

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
02/04/20 05:40		CCV 160-459113/1		459113			
02/04/20 06:03		CCV 160-459113/2		459113			KLS
02/04/20 06:24		CCB 160-459113/3		459113			
02/04/20 06:56		CCB 160-459113/4		459113			KLS
02/04/20 07:40	120	ZZZZZ		459113			
02/04/20 09:59	30	ZZZZZ		459113			
02/04/20 10:41	30	160-36942-2	STSB07_0.5-3	459113	456720	901.1 ✓	KLS
02/04/20 11:29	30	ZZZZZ		459113			
02/04/20 12:13	30	ZZZZZ		459113			
02/04/20 12:51	60	ZZZZZ		459113			
02/04/20 13:54	60	ZZZZZ		459113			
02/04/20 15:33	30	ZZZZZ		459113			
02/04/20 16:23	30	ZZZZZ		459113			