2018 PERIODIC REVIEW REPORT

FORMER A.C. DUTTON LUMBER YARD
DUTCHESS COUNTY, NEW YORK

NYSDEC Site # C314081

REPORTING PERIOD (April 1, 2019 – March 30, 2020)

prepared for:

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May 14, 2020

Project No.: 9039

PERIODIC REVIEW REPORT

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LIST OF ACRONYMS

Acronym	Definition
AOC	Area of Concern
AST	Aboveground Storage Tank
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
bgs	Below ground surface
CAMP	Community Air Monitoring Plan
C&D	Construction & Demolition Materials
COC	Contaminant of Concern
COPEC	Constituents of Potential Ecological Concern
CY	Cubic yard
DER	Division of Environmental Remediation
DER-10	NYSDEC Technical Guidance for Site Investigation & Remediation
DUSR	Data Usability Summary Report
ECs	Engineering Controls
ECL	Environmental Conservation Law
ESA	Environmental Site Assessment
FER	Final Engineering Report
FWRIA	Fish and Wildlife Resources Impact Analysis
gpm	Gallons per minute
HHEA	Human Health Exposure Assessment
ICs	Institutional Controls
MW	Monitoring Well
NYSDEC	New York State Department of Environmental Conservation
PCB	Polychlorinated Biphenyls
PID	Photoionization Detector
ppm	Parts per million
QAPP	Quality Assurance Project Plan
RA	Remedial Action

Acronym	Definition
RASR	Remedial Action Selection Report
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RDD	Remedial Design Document
RI	Remedial Investigation
RIR	Remedial Investigation Report
RIWP	Remedial Investigation Work Plan
SCG	Standards, Criteria, and Guidance
SCO	Soil Cleanup Objectives
SESI	SESI Consulting Engineers, PC
SMP	Site Management Plan
SSDS	Sub-Slab Depressurization System
SVOCs	Semi-Volatile Organic Compounds
S&W	S&W Redevelopment of North America, LLC.
TAGM	Technical and Administrative Guidance Memorandum
TAL	Target Analyte List
TOGS	Technical and Operations Guidance Series
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds

1.0 INTRODUCTION

1.1 SUMMARY

This is the Periodic Review Report (PRR) for the period April 1, 2019 to March 30, 2020. The PRR is required as an element of the remedial program at the Former AC Dutton Lumber Yard (hereinafter referred to as the "Site") under the New York State (NYS) Brownfield Cleanup Program (BCP) administered by New York State Department of Environmental Conservation (NYSDEC). The Site was remediated in accordance with Brownfield Cleanup Agreement (BCA) Index W# 1066-05-05, Site #C314081, which was executed on July 6, 2005 and last amended on February 4, 2011. The Site area is 11.8 acres;. Engineering Controls (ECs) have been constructed on the Site to prevent exposure to the remaining residual contamination during Site use. An Environmental Easement granted to the NYSDEC, and recorded with the Dutchess County Clerk, requires compliance with the Site Management Plan (SMP) dated December 2014 and all ECs and institutional controls (ICs) placed on the Site. The ICs place restrictions on Site use, and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. A Site Location Map is provided in Figure 1.1 of the SMP. All SMP figures are included in **Appendix D** of this report.

This PRR reports the required inspection and monitoring activities that were conducted during the current reporting period. The inspection and monitoring were conducted to ensure compliance with all ECs and ICs required by the Environmental Easement and as stated in the SMP as approved by NYSDEC.

1.2 Effectiveness of Remedial Program

Residual contamination remains on the Site, which has been managed according to the requirements of the SMP to keep the Site safe for commercial and restricted residential uses.

The composite cover system remains intact on the site. The cover system has been and will continue to be effective in preventing public exposure to the residual contamination. During this period the construction on the proposed building has continued. The building foundations were constructed and therefore the demarcation layer was breached and replaced with the concrete hard surface within the footings footprint

The annual sampling of the monitoring well network to determine the effectiveness of the natural degradation of the residual contaminants of concern was conducted on March 27, 2020. Monitoring well PR-MW-2 was covered with soil on the date of sampling. A follow-up inspection and sampling was planned for March 30, 2020. However, a stop work order had been issued by the Town of Poughkeepsie due to the COVID-19 pandemic and therefore the well could not be sampled.

Arsenic was detected in monitoring well PR-MW-4 at levels that exceeded the NYSDEC effluent TOGS. A summary of the analytical data for the March 127, 2020 sampling event is provided in **Table 1 in Appendix B**.

The monitoring plan as required in the SMP is effective and protective of the human health and the environment.

1.3 Compliance

SESI completed a site inspection on March 27, 2020 to verify the integrity of the EC's in accordance with the Inspection Checklist provided in **Appendix A**.

The groundwater monitoring well PR-MW-4 was sampled once in the current reporting period on March 27, 2020 and analyzed for Metals in accordance with the monitoring program in the SMP. As previously discussed PR-MW-2 was inaccessible and could not be sampled.

1.4 Recommendations

SESI has verified that the EC's and IC's developed for the site are in compliance with the SMP. Based on the current and historic groundwater results SESI recommends halting on-going monitoring of groundwater because the levels in monitoring wells are reaching an asymptotic level with no major changes recorded over the years. In addition, SESI recommends the abandonment of the three monitoring wells. Finally, SESI recommends continuing the yearly monitoring of the cover system.

2.0 SITE OVERVIEW

2.1 Site Location and Description

The Site is located in the City and Town of Poughkeepsie, County of Dutchess, New York and is comprised of two lots (City of Poughkeepsie Tax ID: 6062-59-766443 and Town of Poughkeepsie Tax ID: 6062-02-763508) on the City and Town of Poughkeepsie Tax Maps. The site is an approximately 11.8-acre area bounded by Hudson River Rowing Association Dock (owned by Vassar College) to the north, a former natural gas regulation station (owned by Central Hudson Gas & Electric) to the south, North Water Street to the east, and a 2.45-acre parcel along the Hudson River Bank owned by the State of New York to the west.

2.2 Site History

The Site was utilized for industrial use from the mid-19th century to 1995. Before 1913, uses of the Site included an iron works and a glass works at the southern portion of the property. Several kilns were associated with the glass works and kiln ash and slag was reportedly used as fill material on the Site. The on-site pressure treatment of lumber using chromated copper arsenate (CCA) has reportedly began in 1966 by the A.C. Dutton Lumber Corporation and continued until 1995, when on-site operations ceased. During lumber processing activities, raw lumber was brought to the Site by truck, boat, and rail. Lumber was processed in the on-site pressure treatment plants and then dried and stored outside. Complete sSite history can be found in the following documents:

- Phase I Investigation Report, dated November 1987, prepared by EnviroPlan Associates, Inc.
- Phase I Environmental Site Assessment, dated August 8, 2002, prepared by Ecosystems Strategies, Inc.;
- Summary Report of Sub-structure Investigations, dated October 3, 2002, prepared by Ecosystems Strategies, Inc.; and
- Summary Report of Supplemental Subsurface Investigation, dated November 25, 2002, prepared by Ecosystems Strategies Inc.

2.2.1 Remedial Investigation (RI) conducted at Site

Soil

The areas surrounding the two pre-existing pressure treatment buildings were the most highly impacted by metals contamination. Investigations showed impacts to deposit/soil in the interior collection drains of one of the pressure treatment buildings as high as 138,000 parts per million (ppm) of arsenic. Chromium and copper were detected in that same location at 98,600 ppm and 8,290 ppm, respectively. That was the maximum concentration of chromium detected at the Site. The highest concentration of copper detected at the Site was 30,700 ppm.

Surface soil - The entire Site is impacted by arsenic, likely the result of storage of treated lumber in exposed areas. Concentrations of arsenic in surface soil identified during the RI ranged from non-detect to 811 ppm.

Subsurface soil- Subsurface soil was impacted by arsenic across the Site. Concentrations tended to decrease with increasing depth and most impacts were limited to 1 foot below the ground surface with areas of deeper impacts to 3 feet. The soils in the vicinity of the chemical storage tanks in the pressure treatment buildings were impacted by arsenic and chromium to greater depths (8 feet or more). There were four areas of petroleum impacted soils. Soil samples from these areas showed very limited impacts by volatile organic compounds or semi-volatile organic compounds.

Site-Related Groundwater

Limited impacts to groundwater by metals were identified during the RI. Impacts were limited to isolated locations near the pressure treatment buildings. Contaminants associated with petroleum products (i.e., volatile organic compounds and semi-volatile organic compounds) were not detected during the RI in groundwater samples collected from the vicinity of the petroleum impacted areas.

Site-Related Soil Vapor Intrusion

There was no soil vapor intrusion investigation conducted on Site due to the low levels of volatile organic compounds detected in the soil and groundwater.

Underground Storage Tanks

Four areas of known or suspected petroleum impacted soil have been documented on-site at the locations of known or suspected underground storage tanks (USTs). Limited associated groundwater contamination has also been documented. Petroleum impacted soils have been document at the following locations: south and southwest of the northern former pressure treatment plant building; under and around the large office building; immediately northeast of the southern former pressure treatment plant building; and, southwest of the former garage/automotive repair building at the southern end of the Site.

2.2.2 Description of Remedial Actions

The Site was remediated in accordance with the NYSDEC-approved Remedial Design Work Plan (RDWP) dated May 2011, an Addendum to the approved RDWP, dated November 7, 2011, and a minor modification to the RDWP dated December 4, 2012.

The following is a summary of the Remedial Actions performed at the Site:

1. Excavation of asphalt/soil/fill/concrete exceeding the Site-specific guidance level of 300 mg/kg (ppm) for arsenic and restricted residential SCOs for other COCs. The guidance level for arsenic was modified by the NYSDEC during remediation and included the stipulation that a four foot barrier layer of clean fill be installed.
2. Removal of all CBS tanks, their contents, and associated CCS impacted debris;
3. Scarification of the floor of the Southern Pressure Plant Building to a depth of ½“ or until there was no visual evidence of staining;
4. Removal of five (5) petroleum bulk storage (PBS) tanks from the Site;
5. Demolition of on-site structures;
6. Construction and maintenance of a soil cover system to prevent human exposure to remaining contaminated soil/fill remaining at the Site will consist of 2 feet of clean soil, a demarcation layer and 4-6 feet of fill with slight PAH exceedance of the restricted residential SCO approved by the DEC. The cover will also include a minimum of 6-inch newly installed paving system or

concrete during the Site development into restricted-residential/commercial use.

7. The Site was dynamically compacted and any proposed buildings will be surcharged for settlement. This combined compaction will minimize the disturbance of the Site soils because it will require shallower foundation.
8. Groundwater monitoring; 4 groundwater monitoring wells (MW) were installed on-site after the completion of the remediation. The MWs were sampled semi-annually for the first year. Additional subsequent sampling was approved for a reduction to an annual sampling frequency.
9. Execution and recording of an Environmental Easement to restrict land use and prevent future exposure to any contamination remaining at the Site.
10. Development and implementation of a Site Management Plan for long term management of remaining contamination as required by the Environmental Easement, which includes plans for: (1) Institutional and Engineering Controls, (2) monitoring, (3) operation and maintenance and (4) reporting.

2.2.3 Removal of Contaminated Materials from the Site

As part of Remedial Action, various contaminated materials were removed and disposed off-site. The materials removed from the Site and their quantities are listed in Table 2.1 below.

Table 2.1: Summary of materials removed for off-site disposal

Material Removed	Volume of material Removed	Disposal Location	Disposal Period/Date
Non-Haz wastewater from STP secondary containment area	21,625-gallons	Paradise Heating Oil	10/10/11 through 10/11/11
Hazardous CBS tank residue from tanks in NTP and STP	2,900-gallons	Pro-Teck	10/13/11
Non-Haz CBS/PBS tank residues from NTP and STP	1088-gallons diesel/fuel oil 100-gallons non-haz liquid 2,390 non-haz liquid	AB Oil Services	10/19/11
Scarification waste from STP	(39) 55-gallon drums scarification waste. (1) 55-gallon drum debris	Model City	10/08/2012
CCA contaminated a soil and concrete from NTP and STP (FO35 hazardous waste direct landfill disposal)	792.77 tons	Envirowaste of Ohio, Inc.	11/27/2012 through 01/09/2013
CCA contaminated soil and concrete and CCA contaminated debris (STP only)	97.61 tons	Model city	10/08/2012
Hazardous FO35 liquid waste from sumps in NTP	(4) 55-gallon drums	Pro-Teck	05/2/2013
Cans of oil based paints found in on-site	(1) 55-gallon drum	Pro-Teck	05/2/2013

2.2.4 On-Site and Off-Site Treatment Systems

No long-term treatment systems were required to be installed as part of the Site remedy.

2.2.5 Description of Residual Contamination

- The excavation for metal contaminated soils was conducted to the site-specific levels for arsenic, chromium and copper as specified in the SMP.
- A soil cap that ranges in thickness from 4 to 10 feet covers the entire Site. The installed soil cap forms a capping system to cover the impacted soils and it acts as grading to raise the Site above the flooding levels. The cap consists of 2-feet of clean soil that meets the restricted residential SCOs over a demarcation layer. The balance of the soils underneath the demarcation layer consists of soils that

meet the restricted residential with few exceedances in the poly-aromatic hydrocarbons (PAHs) allowed and approved by the NYDEC.

Figures 1-7, 1-7B and 1-7C from SMP represent the contaminated soils remaining at the Site after completion of Remedial Action that exceed the Track 1 (unrestricted) SCOs.

2.2.6 Management of Residual Contamination through Engineering and Institutional Controls in the Environmental Easement

The SMP lists the ECs and ICs required by the NYSDEC to manage the residual contamination present at this Site to protect public health and the environment in the future and keep the Site safe for reuse. The primary Engineering Controls at the Site are: (1) a composite cover system comprised, from top to bottom, of a minimum of 24 inches of clean soil, a demarcation layer and 2-6 feet of soils that meet the restricted residential SCO with few PAH exceedances allowed and approved by the NYSDEC since the material is under the demarcation layer; and (2) monitoring of groundwater. The Applicant and Applicant's successors or assigns, must manage the controls and monitoring in full compliance with the terms of the remedial program.

3.0 REMEDY PERFORMANCE, EFFECTIVENESS, AND PROTECTIVENESS

The goal of the SMP is to manage the residual contamination at the Site through implementation of ICs and ECs. At present, SESI is conducting monitoring/inspection of the ICs and ECs on the Site in accordance with the SMP dated December 2014.

The overall Site remedy was designed to ensure that residual soil contamination that remains on-site in fill materials below the two-foot clean soil cap does not significantly exceed the more stringent of the applicable NYSDEC restricted residential SCO.

In order to monitor the effectiveness of the contaminant removal and the Site natural attenuation, an onsite monitoring well network is sampled on an annual basis. **Table 1 in Appendix B** provides a tabular summary of the groundwater monitoring results of the March 27, 2020 sampling event. Arsenic resulted in an exceedance of the NYSDEC groundwater effluent TOGS during the annual sampling event in one (1) monitoring well (PR-MW4). However, the levels in this wells and other wells did not fluctuated within a limited range and therefore asymptotic levels have been reached. The

monitoring well locations are depicted in Figure 1.3 of the SMP. The laboratory analytical data packages are provided in **Appendix B**. Table 3.1 Below presents the historic data of Arsenic.

Table 3.1: Historic Data for Arsenic in Groundwater

Sample ID	Effluent Limitation Class GA	6/23/2015	1/26/2016	10/14/2016	11/21/2017	3/15/2019	3/27/2020
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
PR-MW1	50	16	16	6.6	5.6	NA	NA
PR-MW2	50	27	130	176	302	200	NA
PR-MW3	50	2.3	9.9	2.3	2.9	NA	NA
PR-MW4	50	8.9	80	23.9	32.5	31.4	85.59

4.0 IC/EC PLAN COMPLIANCE

4.1 IC/EC Requirements and Compliance

Institutional Controls

The Institutional Controls (ICs) in-place at the Site consist of (1) implement, maintain and monitor Engineering Control systems; (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination; and, (3) limit the use and development of the Site to restricted residential, which will also permit commercial and industrial uses.

The land-use restriction remains in-place and is effective to prohibit the use of the Site for anything other than the restricted residential. It also prohibits vegetable gardens and farming on the Site.

The Monitoring Plan is intended as a means to observe the long-term effectiveness of the engineering controls at the Site. If at any time, the results of the monitoring plan indicate that the Site remedy is no longer effective or protective of human health, then ICs will be adjusted and/or added based on the monitoring data.

The SMP is intended to provide guidance for any and all intrusive activities on the Site including building construction/expansion, utility line repair/construction and any new construction activities that will cause a disturbance of the soil beneath the demarcation layer. The Site Management Plan remains in-place and is effective.

Engineering Controls

The Engineering Controls (ECs) in-place at the Site consist of (1) Site cover system, and (2) a monitoring well network.

The Site cover system consists of a minimum 24 inches of clean soil, a demarcation layer and 2-6 feet of soils that meet the restricted residential SCO with few PAH exceedances allowed and approved by the NYSDEC since the material is under the demarcation layer. The objective of this is to prevent the public from being exposed to the residual contamination present beneath the soil cover. The Site cover system remains in-place and is effective.

An onsite monitoring well network is in-place. The monitoring wells are sampled annually to determine the effectiveness of the natural attenuation/degradation. The monitoring wells are all currently in-place and effective for their purpose. However, during this sampling period well PR-MW2 was covered with soil and could not be reached.

4.2 IC/EC CERTIFICATION

The NYSDEC Institutional and Engineering Controls Certification Form has been completed and is included in **Appendix C**.

5.0 MONITORING PLAN COMPLIANCE

Table 5.1: Monitoring Program Frequency

Monitoring Program	Frequency*	Matrix	Analysis
Cover System	Annually	Soil	Visual
Groundwater	Annually for the current Reporting Period	Water	Metals

Monitoring Completed During Current Reporting Period

Inspection of Composite Cover System was conducted on March 27, 2020. Monitoring well PR-MW-4 were sampled on March 27, 2020. As previously discussed monitoring well PR-MW-2 was covered with soil and inaccessible for sampling.

Comparison with Remedial Objectives

The remedial objectives for the composite cover system are being met. The cover system continues to be protective of the human health and the environment for the intended restricted residential use of the property.

The composite cover system was found to include the foundations of the building during the visual inspection that was conducted on March 27, 2020. The building construction will continue for the next 12-18 months. Once the building and the surrounding areas are completed the SMP will be updated to reflect the new cover system components and as-built. The composite cover system inspection form is included with the Site Inspection Forms denoted as **Appendix A**.

During the annual monitoring well sampling event conducted on March 27, 2020, one monitoring well (PR-MW4) resulted in a level of Arsenic that exceeded the NYSDEC TOGS effluent for groundwater of 50 ug/L. . A summary of the analytical data for the March 27, 2020 sampling event is provided in Table 1 **in Appendix A**.

Monitoring Deficiencies

All aspects of the monitoring plan were in accordance with NYDEC applicable regulations.

Conclusions and Recommendations

All aspects of the remedial program appear to be meeting the site remedy design goal.

We recommend the following for the next reporting period:

- Groundwater Monitoring: SESI recommends the halt of the groundwater monitoring. Arsenic in PR-MW4 was detected exceeding the AWQS during this reporting period however the detection level remained within the range of the levels that have been reported on the Site. Therefore, asymptotic levels of arsenic have been reached. SESI recommends abandonment of all monitoring wells.
- Cover system: continue the annual visual inspection of the cover system.

6.0 OPERATION AND MAINTENANCE PLAN COMPLIANCE

The site remedy does not rely on any mechanical systems, such as sub-slab depressurization systems or air sparge/ soil vapor extraction systems to protect public health and the environment. Therefore, the operation and maintenance of such components is not applicable.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Compliance with the SMP

All aspects of the SMP including IC/EC and monitoring have met the requirements. The O&M is not required at this time for the site.

There are no new exposure pathways resulting in an unacceptable risk.

Performance and Effectiveness of the Remedy

The composite cover system has changed due to the addition of the proposed building footings. The SMP will be updated with the new cover system elements and as-built once the building construction has been completed. The cover system has been and will continue to be effective in preventing public exposure to the residual contamination left onsite beneath the cover system.

The sampling of the monitoring well network is determining the effectiveness of the site's ability to naturally degrade the contaminants of concern in groundwater.

The proposed periodic monitoring plan for the cover system and groundwater monitoring are effective and protective of the previously approved overall site remedy.

Future PRR Submittals

We do not recommend any changes to the frequency of the PRR submittal at this time because IC's and EC's remain in-place and are effective. The next PRR will be submitted in May 2021.

Recommendations

We recommend the following for the next reporting period:

- Groundwater Monitoring: halt of the monitoring program and abandonment of the wells.
- Cover system: continue the annual visual inspection of the cover system.

APPENDIX A – SITE INSPECTION FORMS

INSPECTION CHECKLIST

FORMER AC DUTTON
POUGHKEEPSIE , NEW YORK
NYSDEC BCP No. C314081

SESI CONSULTING ENGINEERS **Inspection Date: 3.27.2020**

COMPOSITE COVER SYSTEM

- Is the integrity of the cover system in tact? Yes _X_ No ___
- Do the maintenance records indicate any invasive subsurface work has been completed after the last inspection? Yes _X_ No __
- Has any soil been removed or imported from the Site since the last inspection? Yes _X_ No ___
- If soil has been disposed off-Site or imported, has this been completed in accordance with the NYSDEC approved Soil Management Plan for the Site? Yes _X_ No ___
- If subsurface invasive work was undertaken, has the demarcation geotextile and the "clean soil cover" been restored? Yes ___ No ___
- Did a Professional Engineer or a qualified environmental professional (approved by the NYSDEC) oversee the above work? Yes _X_ No ___
- Was NYSDEC notified of disturbances to the "Clean Soil Cover" ? Yes _X_ No ___
- List of all reported disturbances since last inspection:

NONE

MONITORING WELL NETWORK

- Are all the on-Site monitoring wells accessible for annual compliance sampling (i.e., they are not covered by soil, dumpsters, etc.)? Yes __ No _X__
- Is the integrity of the flush-mount/stickup manhole covers And associated concrete pads intact? Yes __ No _X_
- Are the monitoring wells locked and the locks functioning? Yes ___ No _X_

Monitoring well PR-MW-2 was covered by soil and not accessible. The well cover could not be uncovered and restored due to a stop work order issued pursuant to COVID-19. The well will be restored and sampled when the COVID-19 restrictions have been removed.

INSPECTION CHECKLIST
FORMER AC DUTTON
POUGHKEEPSIE, NEW YORK
NYSDEC BCP No. C314081

SESI CONSULTING ENGINEERS **Inspection Date: 3.27.2020**

COMPOSITE COVER SYSTEM

- Is the integrity of the cover system in tact? Yes _X_ No ___
- Do the maintenance records indicate any invasive subsurface work has been completed after the last inspection? Yes _X_ No ___
- Has any soil been removed or imported from the Site since the last inspection? Yes _X_ No ___
- If soil has been disposed off-Site or imported, has this been completed in accordance with the NYSDEC approved Soil Management Plan for the Site? Yes _X_ No __
- If subsurface invasive work was undertaken, has the demarcation geotextile and the "clean soil cover" been restored? Yes ___ No ___
- Did a Professional Engineer or a qualified environmental professional (approved by the NYSDEC) oversee the above work? Yes _X_ No ___
- Was NYSDEC notified of disturbances to the "Clean Soil Cover" ? Yes _X_ No ___
- List of all reported disturbances since last inspection:

NONE

APPENDIX B – LABORATORY ANALYTICAL REPORTS

Table 1 - Summary of Groundwater Analytical Data
Former AC Dutton Lumber Yard - NYSDEC 314081

	SAMPLE ID:	PR-MW4			
	LAB ID:	L2013733-01			
	COLLECTION DATE:	3/27/2020			
	SAMPLE MATRIX:	WATER			
	UNITS	ug/L			
TOTAL METALS	**AWQS (ug/L)**	**Conc**	**Q**	**RL**	**MDL**
Aluminum, Total		35.3		10	3.27
Antimony, Total	3	ND		4	0.42
Arsenic, Total	25	85.59		0.5	0.16
Barium, Total	1000	22.28		0.5	0.17
Beryllium, Total	3	ND		0.5	0.1
Cadmium, Total	5	ND		0.2	0.05
Calcium, Total		52100		100	39.4
Chromium, Total	50	0.88	J	1	0.17
Cobalt, Total		ND		0.5	0.16
Copper, Total	200	1.35		1	0.38
Iron, Total	300	291		50	19.1
Lead, Total	25	ND		1	0.34
Magnesium, Total	35000	10600		70	24.2
Manganese, Total	300	202.4		1	0.44
Mercury, Total	0.7	ND		0.2	0.09
Nickel, Total	100	0.72	J	2	0.55
Potassium, Total		3600		100	30.9
Selenium, Total	10	ND		5	1.73
Silver, Total	50	ND		0.4	0.16
Sodium, Total	20000	31500		100	29.3
Thallium, Total	0.5	ND		1	0.14
Vanadium, Total		ND		5	1.57
Zinc, Total	2000	11.8		10	3.41

Notes:

AWQS - New York TOGS 111 Ambient Water Quality Standards criteria reflects all addendum to criteria through June 2004

ug/L - Micrograms per Liter

NS - No Standard

Conc. - Concentration

Q - Qualifier

RL - Reporting Limit

MDL - Minimum Detection Limit

Yellow Highlight - Detected concentration exceeds AWQS

J - Estimated Concentration

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Alpha Analytical

Laboratory Code: 11148

SDG Number: L2013733

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Project Name:	A.C. DALTON POUGHKEEPSIE	**Lab Number:**	L2013733
Project Number:	9039C PHASE 1	**Report Date:**	04/03/20

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2013733-01	PR-MW4	WATER	POUGHKEEPSIE, NY	03/27/20 11:05	03/27/20

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Caitlin Walukevich Report Date: 04/03/20

Title: Technical Director/Representative

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: DU Report with 'J' Qualifiers

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Volatile Organics Instruments

Volatile Organics:

Instrument: Agilent 7890 GC/5975C MSD	Columns (length x ID x df):
Trap: Supelco K Trap (VOACARB 3000)	RTX-VMS 20m x 0.18mm x 1um
Concentrator: EST Encon (or equivalent)	RTX-VMS 30m x 0.25mm x 1.4um
Autosampler: EST Centurion (or equivalent)	RTX-502.2 40m x 0.18mm x 1um
Purge time: 11 min	

Volatile Organics: VPH

Instrument: Agilent 6890 (or equivalent)	Column Type: Restek RTX 502.2
Trap: Supelco K Trap (VOACARB 3000)	Column Length: 105 Meters
Concentrator: EST Encon (or equivalent)	df: 3.00 um
Autosampler: EST Centurion (or equivalent)	ID: 0.53mm

Volatile Organics: PIANO

Instrument: Agilent 7890 GC/5975C MSD	Column Type: DB-VRX
Trap: Supelco K Trap (VOACARB 3000)	Column Length: 60 Meters
Concentrator: Tekmar Velocity / EST Encon	df: 1.40 um
Autosampler: Varian Archon / EST Centurion	ID: 0.25 mm
Purge time: 11 min	Desorb: 1 min

Volatile Organics: Dissolved Gas

Instrument: Agilent 7890 (or equivalent) with FID/TCD	
	Column Type: Haysep S Column
	Column Length: 2 Meters packed (100/200 mesh)
Autosampler: LEAP Headspace	Purge time: 0.6 min

Volatile Organics in Air Instruments

Volatile Organics in Air:

Instruments: Agilent 6890 GC / 5975 MSD Shimadzu QP2010-SE / QP2020

Concentrator: Entech 7100A or 7200	Column Type: Restek RTX-1
Autosampler: Entech 7016CA or 7016D	Column Length: 60 Meters
	df: 1.00 um
	ID: 0.25 mm or 0.32 mm

Trap 1: Glass Bead: manufacturer-Entech: 20 cm packing material
Trap 2: Tenax: manufacturer-Entech: 20 cm packing material

Semivolatile Organics Instruments - Westborough

Semivolatile Organics (Acid/Base/Neutral Extractables):

Instrument: Agilent 5973N MSD	Injection volume: 1 ul;2 uL LVI
Column Type: Restek RXI-5SILMS	df: 0.32 um
Column Length: 30 Meters	ID: 0.25 mm

Polynuclear Aromatic Hydrocarbons by 8270 SIM:

Instrument: Agilent 5973 MSD	Injection volume: 1 ul;2 uL LVI
Column Type: Restek RXI-5SILMS	df: 0.25 um
Column Length: 30 Meters	ID: 0.25 mm

Pesticides/PCB/Herbicides:

Instrument: Agilent 6890 w/Dual Micro ECDs	Injection Volume: 1uL
Column A: Restek RTX-CL/STX-CL	df: 0.32
Column B: Restek RTX/STX-CLPPesticide II	df: 0.25
Column Length: 30 Meters	ID: 0.32 mm

Petroleum/EPH:

Instrument: Agilent 6890 w/FID / HP 5890 w/ FID	Injection Volume: 1uL
Column: Restek RTX 5	df: 0.25
Column Length: 30 Meters	
ID: 0.32 mm	

Semivolatile Organic Instruments - Mansfield

Semivolatile Organics (ALK-PAH Extractables):

Instrument: Agilent 5973N / 5975 MSD	Injection volume: 1 ul
Column Type: ZB-5	df: 0.25 um
Column Length: 60 Meters	ID: 0.25 mm

Semivolatile Organics (8270):

Instrument: Agilent 5973N / 5975 MSD	Injection volume: 2 ul
Column Type: ZB-Semivolatiles	df: 0.25 um
Column Length: 30 Meters	ID: 0.25 mm

Semivolatile Organics (8270 SIM):

Instrument: Agilent 5973N / 5975 MSD	Injection volume: 3 ul
Column Type: ZB-5	df: 0.25 um
Column Length: 30 Meters	ID: 0.25 mm

Semivolatile Organics (1,4-Dioxane):

Instrument: Agilent 5973N / 5975 / 5977 MSD	Injection volume: 3 ul
Column Type: RTX-5	df: 0.25um, 0.18 um
Column Length: 30 Meters	ID: 0.25um, 0.18 mm

Semivolatile Organics (209 Congener):

Instrument: Agilent 5973N / 5975 MSD	Injection volume: 3 ul
Column Type: RTX-5, RTX-PCB	df: 0.25um, 0.18 um
Column Length: 60 Meters	ID: 0.25um, 0.18 mm

Semivolatile Organics (8081):

Instrument: Agilent 6890 / 7890	Injection volume: 1 ul
Column Type: RTX-5 / RTX-CLP II	df: 0.25 um
Column Length: 60 Meters	ID: 0.25 mm

Semivolatile Organics (8082):

Instrument: Agilent 6890 w/Dual Micro ECDs	Injection Volume: 1uL
Column A: Restek RTX-CL/STX-CL	df: 0.32
Column B: Restek RTX/STX-CLPPesticide II	df: 0.25
Column Length: 30 Meters	ID: 0.32 mm

Semivolatile Organics (SHC Extractables):

Instrument: Agilent 6890	Injection volume: 1 ul
Column Type: RTX-5	df: 0.25 um
Column Length: 60 Meters	ID: 0.25 mm

Sample Delivery Group Summary

Alpha Job Number : L2013733

Account Name : Soils Engineering Services, Inc.
Project Number : 9039C PHASE 1
Project Name : A.C. DALTON POUGHKEEPSIE

Received : 27-MAR-2020
Reviewer : Chris Tebeau

Delivery Information

Samples Delivered By : Alpha Courier

Chain of Custody : Present

Cooler Information

Cooler	Seal/Seal#	Preservation	Temperature(°C)	Additional Information
A	Absent/	Ice	2.2	

Condition Information

1) All samples on COC received?	**YES**
2) Extra samples received?	**NO**
3) Are there any sample container discrepancies?	**NO**
4) Are there any discrepancies between sample labels & COC?	**NO**
5) Are samples in appropriate containers for requested analysis?	**YES**
6) Are samples properly preserved for requested analysis?	**YES**
7) Are samples within holding time for requested analysis?	**YES**
8) All sampling equipment returned?	**NA**

Volatile Organics/VPH

1) Reagent Water Vials Frozen by Client?	**NA**

ALPHA ANALYTICAL LABORATORIES, INC.
LOGIN CHAIN OF CUSTODY REPORT
Apr 03 2020, 01:14 pm

Login Number: L2013733
Account: SESI Soils Engineering Services, Inc.Project: 9039C PHASE 1
Received: 27MAR20 Due Date: 03APR20

Sample #	Client ID	Mat	PR	Collected
L2013733-01	PR-MW4	S0	1	27MAR20 11:05

| ASP-B Package Due Date: 04/03/20

ASP-B,TAL-6020T,AG-6020T,AL-6020T,AS-6020T,BA-6020T,BE-6020T,CA-6020T,CD-6020T,CO-6020T,CR-6020T,CU-6020T,FE-6020T,HG-T,K-6020T,MG-6020T,MN-6020T,NA-6020T,NI-6020T,PB-6020T,PREPT,SB-6020T,SE-6020T,TL-6020T,V-6020T,ZN-6020T

Logged By: Michelle Callahan

NEW YORK CHAIN OF CUSTODY

ALPHA ANALYTICAL

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page 1 of 1

Date Rec'd in Lab: 3/27/20

ALPHA Job #: L2013735

Client Information
Client: SESI
Address: 12A Maple Ave
Pine Brook, NJ
Phone: 973-808-9050
Fax:
Email: ssg@sesi.org

Project Information
Project Name: A.C Dutton Poughkeepsie
Project Location: Poughkeepsie, NY
Project # 9039C Phase 1
(Use Project name as Project #)
Project Manager: Steve Gustavus
ALPHAQuote #:

Turn-Around Time
Standard [X] Due Date:
Rush (only if pre approved) [ ] # of Days:

Deliverables
[ ] ASP-A [✓] ASP-B
[ ] EQuIS (1 File) [ ] EQuIS (4 File)
[ ] Other

Regulatory Requirement
[ ] NY TOGS [ ] NY Part 375
[✓] AWQ Standards [ ] NY CP-51
[ ] NY Restricted Use [ ] Other
[ ] NY Unrestricted Use
[ ] NYC Sewer Discharge

Billing Information
[ ] Same as Client Info
PO #

Disposal Site Information
Please identify below location of applicable disposal facilities.
Disposal Facility:
[ ] NJ [ ] NY
[ ] Other:

These samples have been previously analyzed by Alpha [ ]

Other project specific requirements/comments:

Please specify Metals or TAL.

ANALYSIS
TAL metals with Hg

Sample Filtration
[ ] Done
[ ] Lab to do
Preservation
[ ] Lab to do
(Please Specify below)

Total Bottle

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	TAL metals with Hg	Sample Specific Comments
13733-01	PR-MW4	3/27/2020	11:05	GW	T.P	✓	
		~~3/27/2020~~					

Preservative Code:
A = None
B = HCl
C = HNO3
D = H2SO4
E = NaOH
F = MeOH
G = NaHSO4
H = Na2S2O3
K/E = Zn Ac/NaOH
O = Other

Container Code
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Container Type	
Preservative	

Relinquished By:	Date/Time	Received By:	Date/Time
Tej Patel	3/27/2020 1645	Joan Hoegelunger AAL	3/27/20 1645
Joan Hoegelunger AAL	3/27/20 1800	P.S. AAL	3/27/20 17:00
P.S. AAL	3/27/20 20:40	Allena Krigg AAL	3/27/20 2040

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

Metals

Inorganic Data
(ICPMS Analysis)

Form 1
METALS

Client	: Soils Engineering Services, Inc.	**Lab Number**	: L2013733
Project Name	: A.C. DALTON POUGHKEEPSIE	**Project Number**	: 9039C PHASE 1
Lab ID	: L2013733-01	**Date Collected**	: 03/27/20 11:05
Client ID	: PR-MW4	**Date Received**	: 03/27/20
Sample Location	: POUGHKEEPSIE, NY	**Date Analyzed**	: 03/31/20 23:10
Sample Matrix	: WATER	**Dilution Factor**	: 1
Analytical Method	: 1,6020B	**Analyst**	: MG
Lab File ID	: WG1356716.pdf	**Instrument ID**	: ICPMSQ
Sample Amount	: 50ml	**%Solids**	: N/A
Digestion Method	: EPA 3005A	**Date Digested**	: 03/31/20

		mg/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
7429-90-5	Aluminum, Total	0.0353	0.0100	0.00327	
7440-36-0	Antimony, Total	ND	0.00400	0.00042	U
7440-38-2	Arsenic, Total	0.08559	0.00050	0.00016	
7440-39-3	Barium, Total	0.02228	0.00050	0.00017	
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	ND	0.00020	0.00005	U
7440-70-2	Calcium, Total	52.1	0.100	0.0394	
7440-47-3	Chromium, Total	0.00088	0.00100	0.00017	J
7440-48-4	Cobalt, Total	ND	0.00050	0.00016	U
7440-50-8	Copper, Total	0.00135	0.00100	0.00038	
7439-89-6	Iron, Total	0.291	0.0500	0.0191	
7439-92-1	Lead, Total	ND	0.00100	0.00034	U
7439-95-4	Magnesium, Total	10.6	0.0700	0.0242	
7439-96-5	Manganese, Total	0.2024	0.00100	0.00044	
7440-02-0	Nickel, Total	0.00072	0.00200	0.00055	J
7440-09-7	Potassium, Total	3.60	0.100	0.0309	
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	31.5	0.100	0.0293	
7440-28-0	Thallium, Total	ND	0.00100	0.00014	U
7440-62-2	Vanadium, Total	ND	0.00500	0.00157	U
7440-66-6	Zinc, Total	0.01180	0.01000	0.00341	

Form 1
METALS

Client	: Soils Engineering Services, Inc.	**Lab Number**	: L2013733
Project Name	: A.C. DALTON POUGHKEEPSIE	**Project Number**	: 9039C PHASE 1
Lab ID	: WG1356738-1	**Date Collected**	: NA
Client ID	: WG1356738-1BLANK	**Date Received**	: NA
Sample Location	:	**Date Analyzed**	: 03/31/20 21:48
Sample Matrix	: WATER	**Dilution Factor**	: 1
Analytical Method	: 1,6020B	**Analyst**	: MG
Lab File ID	: WG1356716.pdf	**Instrument ID**	: ICPMSQ
Sample Amount	: 50ml	**%Solids**	: N/A
Digestion Method	: EPA 3005A	**Date Digested**	: 03/31/20

		mg/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
7429-90-5	Aluminum, Total	ND	0.0100	0.00327	U
7440-36-0	Antimony, Total	ND	0.00400	0.00042	U
7440-38-2	Arsenic, Total	ND	0.00050	0.00016	U
7440-39-3	Barium, Total	ND	0.00050	0.00017	U
7440-41-7	Beryllium, Total	ND	0.00050	0.00010	U
7440-43-9	Cadmium, Total	ND	0.00020	0.00005	U
7440-70-2	Calcium, Total	ND	0.100	0.0394	U
7440-47-3	Chromium, Total	0.00071	0.00100	0.00017	J
7440-48-4	Cobalt, Total	ND	0.00050	0.00016	U
7440-50-8	Copper, Total	ND	0.00100	0.00038	U
7439-89-6	Iron, Total	ND	0.0500	0.0191	U
7439-92-1	Lead, Total	ND	0.00100	0.00034	U
7439-95-4	Magnesium, Total	ND	0.0700	0.0242	U
7439-96-5	Manganese, Total	ND	0.00100	0.00044	U
7440-02-0	Nickel, Total	ND	0.00200	0.00055	U
7440-09-7	Potassium, Total	ND	0.100	0.0309	U
7782-49-2	Selenium, Total	ND	0.00500	0.00173	U
7440-22-4	Silver, Total	ND	0.00040	0.00016	U
7440-23-5	Sodium, Total	ND	0.100	0.0293	U
7440-28-0	Thallium, Total	ND	0.00100	0.00014	U
7440-62-2	Vanadium, Total	ND	0.00500	0.00157	U
7440-66-6	Zinc, Total	ND	0.01000	0.00341	U

Form 2A
Initial and Continuing Calibration Verification

Client	: Soils Engineering Services, Inc.	**Lab Number**	: L2013733
Project Name	: A.C. DALTON POUGHKEEPSIE	**Project Number**	: 9039C PHASE 1
Instrument ID	: ICPMSQ	**Units**	: ug/l

	Initial Calibration			Continuing Calibration(s)						
Lab ID :	R1299857-1			R1299857-4			R1299857-6		R1299857-8	
Date Analyzed:	03/31/20 10:44			03/31/20 11:13			03/31/20 12:39		03/31/20 13:46	
Parameter	**True**	**Found**	**%R**	**True**	**Found**	**%R**	**Found**	**%R**	**Found**	**%R**
Aluminum	50.0	46.4000	93	60.0000	54.1	90	55.1	92	56.3	94
Antimony	50.0	45.2000	90	60.0000	55.4	92	53.8	90	51.0	85
Arsenic	50.0	48.0000	96	60.0000	55.4	92	52.5	88	49.3	82
Barium	50.0	47.8000	96	60.0000	56.7	94	58.5	98	58.3	97
Beryllium	50.0	49.2000	98	60.0000	58.7	98	54.3	90	50.7	84
Cadmium	50.0	48.8000	98	60.0000	55.9	93	55.6	93	52.4	87
Calcium	5000	4840.0000	97	6000.0000	5800	97	5920	99	5870	98
Chromium	50.0	49.2000	98	60.0000	58.0	97	59.4	99	58.4	97
Cobalt	50.0	49.0000	98	60.0000	58.1	97	58.6	98	57.8	96
Copper	50.0	49.0000	98	60.0000	58.7	98	58.9	98	57.9	96
Iron	5000	4870.0000	97	6000.0000	5770	96	5840	97	5760	96
Lead	50.0	48.3000	97	60.0000	60.0	100	59.7	100	64.1	107
Magnesium	5000	4780.0000	96	6000.0000	5720	95	5620	94	5780	96
Manganese	50.0	48.6000	97	60.0000	57.4	96	58.9	98	58.6	98
Nickel	50.0	49.8000	100	60.0000	58.8	98	58.8	98	57.8	96
Potassium	5000	4790.0000	96	6000.0000	5770	96	5770	96	5870	98
Selenium	50.0	48.1000	96	60.0000	54.1	90	47.9	80	43.2	72
Silver	50.0	49.9000	100	60.0000	58.3	97	60.6	101	60.5	101
Sodium	5000	4820.0000	96	6000.0000	5720	95	5730	96	5830	97
Thallium	50.0	50.9000	102	60.0000	63.5	106	63.4	106	65.2	109
Vanadium	50.0	48.1000	96	60.0000	57.7	96	58.4	97	57.9	96
Zinc	50.0	47.5000	95	60.0000	55.7	93	52.1	87	48.5	81

Acceptance Criteria:

ICV:	95-105%	(Methods 200.7, 245.1)
	90-110%	(Methods 200.8, 6010, 6020, 7470, 7471, 7474)
	85-115%	(Method 1631)
CCV:	90-110%	(Methods 200.7, 245.1, 6010, 6020, 7474)
	85-115%	(Methods 200.8, 1631)
	80-120%	(Methods 7470, 7471)

Form 2A
Initial and Continuing Calibration Verification

Client	: Soils Engineering Services, Inc.	**Lab Number**	: L2013733
Project Name	: A.C. DALTON POUGHKEEPSIE	**Project Number**	: 9039C PHASE 1
Instrument ID	: ICPMSQ	**Units**	: ug/l

	Initial Calibration			Continuing Calibration(s)						
Lab ID :	R1299857-11			R1299857-13			R1299857-15			
Date Analyzed:	03/31/20 14:50			03/31/20 15:51			03/31/20 16:57			
Parameter	**True**	**Found**	**%R**	**True**	**Found**	**%R**	**Found**	**%R**	**Found**	**%R**
Aluminum	50.0	54.7000	109	60.0000	63.1	105	63.3	106		
Antimony	50.0	47.3000	95	60.0000	54.6	91	54.4	91		
Arsenic	50.0	50.3000	101	60.0000	57.4	96	56.3	94		
Barium	50.0	50.8000	102	60.0000	60.2	100	59.7	100		
Beryllium	50.0	51.6000	103	60.0000	58.8	98	56.6	94		
Cadmium	50.0	49.9000	100	60.0000	57.8	96	55.7	93		
Calcium	5000	5230.0000	105	6000.0000	6240	104	6450	108		
Chromium	50.0	53.7000	107	60.0000	62.0	103	62.2	104		
Cobalt	50.0	53.1000	106	60.0000	61.5	102	61.9	103		
Copper	50.0	52.2000	104	60.0000	62.0	103	62.0	103		
Iron	5000	5280.0000	106	6000.0000	6020	100	6130	102		
Lead	50.0	50.8000	102	60.0000	60.4	101	54.4	91		
Magnesium	5000	5360.0000	107	6000.0000	6280	105	6430	107		
Manganese	50.0	54.0000	108	60.0000	61.2	102	62.6	104		
Nickel	50.0	53.0000	106	60.0000	61.4	102	60.7	101		
Potassium	5000	5260.0000	105	6000.0000	6400	107	6520	109		
Selenium	50.0	50.8000	102	60.0000	56.5	94	54.3	90		
Silver	50.0	52.9000	106	60.0000	62.8	105	62.6	104		
Sodium	5000	5310.0000	106	6000.0000	6300	105	6430	107		
Thallium	50.0	52.2000	104	60.0000	62.1	104	56.3	94		
Vanadium	50.0	52.1000	104	60.0000	60.7	101	61.5	102		
Zinc	50.0	51.9000	104	60.0000	59.6	99	57.2	95		

Acceptance Criteria:

ICV:	95-105%	(Methods 200.7, 245.1)
	90-110%	(Methods 200.8, 6010, 6020, 7470, 7471, 7474)
	85-115%	(Method 1631)
CCV:	90-110%	(Methods 200.7, 245.1, 6010, 6020, 7474)
	85-115%	(Methods 200.8, 1631)
	80-120%	(Methods 7470, 7471)

Form 2A
Initial and Continuing Calibration Verification

Client	: Soils Engineering Services, Inc.	**Lab Number**	: L2013733
Project Name	: A.C. DALTON POUGHKEEPSIE	**Project Number**	: 9039C PHASE 1
Instrument ID	: ICPMSQ	**Units**	: ug/l

	Initial Calibration			Continuing Calibration(s)						
Lab ID :	R1299857-17			R1299857-19			R1299857-21			
Date Analyzed:	03/31/20 21:37			03/31/20 22:39			03/31/20 23:40			
Parameter	**True**	**Found**	**%R**	**True**	**Found**	**%R**	**Found**	**%R**	**Found**	**%R**
Aluminum	50.0	50.8000	102	60.0000	61.2	102	61.6	103		
Antimony	50.0	48.5000	97	60.0000	56.3	94	55.5	92		
Arsenic	50.0	50.1000	100	60.0000	59.7	100	57.1	95		
Barium	50.0	50.9000	102	60.0000	61.5	102	60.7	101		
Beryllium	50.0	51.7000	103	60.0000	60.9	102	58.5	98		
Cadmium	50.0	51.1000	102	60.0000	59.1	98	57.2	95		
Calcium	5000	4910.0000	98	6000.0000	6080	101	6070	101		
Chromium	50.0	51.8000	104	60.0000	60.9	102	60.2	100		
Cobalt	50.0	51.7000	103	60.0000	61.2	102	60.8	101		
Copper	50.0	51.5000	103	60.0000	61.8	103	60.4	101		
Iron	5000	5150.0000	103	6000.0000	6100	102	5900	98		
Lead	50.0	50.8000	102	60.0000	60.2	100	60.2	100		
Magnesium	5000	4900.0000	98	6000.0000	6050	101	5990	100		
Manganese	50.0	50.6000	101	60.0000	61.6	103	60.8	101		
Nickel	50.0	52.1000	104	60.0000	60.2	100	60.4	101		
Potassium	5000	4890.0000	98	6000.0000	6120	102	6000	100		
Selenium	50.0	51.2000	102	60.0000	61.0	102	57.1	95		
Silver	50.0	53.2000	106	60.0000	62.9	105	61.1	102		
Sodium	5000	4870.0000	97	6000.0000	5930	99	5790	96		
Thallium	50.0	52.6000	105	60.0000	61.6	103	62.0	103		
Vanadium	50.0	49.8000	100	60.0000	60.0	100	59.2	99		
Zinc	50.0	51.4000	103	60.0000	60.8	101	58.9	98		

Acceptance Criteria:

ICV:	95-105%	(Methods 200.7, 245.1)
	90-110%	(Methods 200.8, 6010, 6020, 7470, 7471, 7474)
	85-115%	(Method 1631)
CCV:	90-110%	(Methods 200.7, 245.1, 6010, 6020, 7474)
	85-115%	(Methods 200.8, 1631)
	80-120%	(Methods 7470, 7471)

Form 3
Blanks

Client	: Soils Engineering Services, Inc.	**Lab Number**	: L2013733
Project Name	: A.C. DALTON POUGHKEEPSIE	**Project Number**	: 9039C PHASE 1
Instrument ID	: ICPMSQ		

	Initial Calibration Blank		Continuing Calibration Blank(s)						Preparation Blank	
Lab ID :	R1299857-2		R1299857-5		R1299857-7		R1299857-9		WG1356738-1	
Date Analyzed :	03/31/20 10:50		03/31/20 11:18		03/31/20 12:47		03/31/20 13:54		03/31/20 21:48	
Parameter	**ug/l**	**Q**	**ug/l**	**Q**	**ug/l**	**Q**	**ug/l**	**Q**	**mg/l**	**Q**
Aluminum	3.27	U	3.27	U	3.27	U	3.27	U	0.00327	U
Antimony	0.429	U	0.429	U	0.429	U	0.429	U	0.00042	U
Arsenic	0.165	U	0.165	U	0.165	U	0.165	U	0.00016	U
Barium	0.173	U	0.173	U	0.173	U	0.173	U	0.00017	U
Beryllium	0.107	U	0.107	U	0.107	U	0.107	U	0.00010	U
Cadmium	0.0599	U	0.0599	U	0.0599	U	0.0599	U	0.00005	U
Calcium	39.4	U	39.4	U	39.4	U	39.4	U	0.0394	U
Chromium	0.178	U	0.178	U	0.178	U	0.178	U	0.00071	J
Cobalt	0.163	U	0.163	U	0.163	U	0.163	U	0.00016	U
Copper	0.384	U	0.384	U	0.384	U	0.384	U	0.00038	U
Iron	21.9	J	51.0		34.3	J	40.3	J	0.0191	U
Lead	0.343	U	0.343	U	0.343	U	0.343	U	0.00034	U
Magnesium	24.2	U	24.2	U	24.2	U	24.2	U	0.0242	U
Manganese	0.440	U	0.440	U	0.440	U	0.440	U	0.00044	U
Nickel	0.556	U	0.556	U	0.556	U	0.556	U	0.00055	U
Potassium	30.9	U	30.9	U	30.9	U	30.9	U	0.0309	U
Selenium	1.73	U	1.73	U	1.73	U	1.73	U	0.00173	U
Silver	0.163	U	0.163	U	0.163	U	0.163	U	0.00016	U
Sodium	29.3	U	29.3	U	29.3	U	29.3	U	0.0293	U
Thallium	0.463	J	0.313	J	0.744		0.730		0.00014	U
Vanadium	1.57	U	1.57	U	1.57	U	1.57	U	0.00157	U
Zinc	3.41	U	3.41	U	3.41	U	3.41	U	0.00341	U

Form 3
Blanks

Client	: Soils Engineering Services, Inc.	**Lab Number**	: L2013733
Project Name	: A.C. DALTON POUGHKEEPSIE	**Project Number**	: 9039C PHASE 1
Instrument ID	: ICPMSQ		

	Initial Calibration Blank		Continuing Calibration Blank(s)						Preparation Blank	
Lab ID :	R1299857-12		R1299857-14		R1299857-16		R1299857-20			
Date Analyzed :	03/31/20 14:55		03/31/20 16:01		03/31/20 17:02		03/31/20 22:44			
Parameter	ug/l	Q	ug/l	Q	ug/l	Q	ug/l	Q		Q
Aluminum	3.27	U	3.27	U	3.27	U	3.27	U		
Antimony	0.474	J	0.429	U	0.429	U	0.429	U		
Arsenic	0.165	U	0.165	U	0.165	U	0.165	U		
Barium	0.173	U	0.173	U	0.173	U	0.173	U		
Beryllium	0.107	U	0.107	U	0.107	U	0.107	U		
Cadmium	0.0599	U	0.0599	U	0.0599	U	0.0599	U		
Calcium	39.4	U	39.4	U	39.4	U	39.4	U		
Chromium	0.178	U	0.178	U	0.178	U	0.178	U		
Cobalt	0.163	U	0.163	U	0.163	U	0.163	U		
Copper	0.384	U	0.384	U	0.384	U	0.384	U		
Iron	19.1	U	19.1	U	32.4	J	41.6	J		
Lead	0.343	U	0.343	U	0.343	U	0.343	U		
Magnesium	24.2	U	24.2	U	24.2	U	24.2	U		
Manganese	0.440	U	0.440	U	0.440	U	0.440	U		
Nickel	0.556	U	0.556	U	0.556	U	0.556	U		
Potassium	30.9	U	30.9	U	30.9	U	30.9	U		
Selenium	1.73	U	1.73	U	1.73	U	1.73	U		
Silver	0.163	U	0.163	U	0.163	U	0.163	U		
Sodium	29.3	U	29.3	U	29.3	U	29.3	U		
Thallium	0.570		0.143	U	0.455	J	0.682			
Vanadium	1.57	U	1.57	U	1.57	U	1.57	U		
Zinc	3.41	U	3.41	U	3.41	U	3.41	U		

Form 3
Blanks

Client	: Soils Engineering Services, Inc.	**Lab Number**	: L2013733
Project Name	: A.C. DALTON POUGHKEEPSIE	**Project Number**	: 9039C PHASE 1
Instrument ID	: ICPMSQ		

	Initial Calibration Blank		Continuing Calibration Blank(s)						Preparation Blank	
Lab ID :	R1299857-18		R1299857-22							
Date Analyzed:	03/31/20 21:42		03/31/20 23:46							
Parameter	ug/l	Q	ug/l	Q	ug/l	Q	ug/l	Q		Q
Aluminum	3.27	U	3.27	U						
Antimony	0.461	J	0.429	U						
Arsenic	0.165	U	0.165	U						
Barium	0.173	U	0.173	U						
Beryllium	0.107	U	0.107	U						
Cadmium	0.0599	U	0.0599	U						
Calcium	39.4	U	39.4	U						
Chromium	0.178	U	0.178	U						
Cobalt	0.163	U	0.163	U						
Copper	0.384	U	0.384	U						
Iron	26.5	J	39.6	J						
Lead	0.343	U	0.343	U						
Magnesium	24.2	U	24.2	U						
Manganese	0.440	U	0.440	U						
Nickel	0.556	U	0.556	U						
Potassium	30.9	U	30.9	U						
Selenium	1.73	U	1.73	U						
Silver	0.163	U	0.163	U						
Sodium	29.3	U	29.3	U						
Thallium	0.718		0.751							
Vanadium	1.57	U	1.57	U						
Zinc	3.41	U	3.41	U						

Form 4a
Interference Check Sample

Client	: Soils Engineering Services, Inc.	**Lab Number**	: L2013733
Project Name	: A.C. DALTON POUGHKEEPSIE	**Project Number**	: 9039C PHASE 1
Instrument ID	: ICPMSQ	**Concentration Units**	: ug/l

	True		Initial Found				Final Found			
Lab ID :			R1299857-3							
Analysis Date :			03/31/20 11:02							
Analyte	**Sol. A**	**Sol. AB**	**Sol. A**	**%R**	**Sol. AB**	**%R**	**Sol. A**	**%R**	**Sol. AB**	**%R**
Aluminum	20000		16500	82						
Antimony			0.142							
Arsenic			0.182							
Barium			0.211							
Beryllium			0.0115							
Cadmium			0.0726							
Calcium	60000		58900	98						
Chromium			0.0370							
Cobalt			0.261							
Copper			0.150							
Iron	50000		56200	112						
Lead			0.165							
Magnesium	20000		18900	94						
Manganese			0.547							
Nickel			0.240							
Potassium	20000		19300	96						
Selenium			0.00848							
Silver			0.0121							
Sodium	50000		57700	115						
Thallium			0.197							
Vanadium			-0.247							
Zinc			0.0235							

Acceptance Criteria: Methods 200.7, 200.8, 6010, 6020

ICSA: 80-120%

ICSAB: 80-120%

Form 5a
Matrix Spike

Client	: Soils Engineering Services, Inc.	**Lab Number**	: L2013733
Project Name	: A.C. DALTON POUGHKEEPSIE	**Project Number**	: 9039C PHASE 1
Client Sample ID	: NA	**Matrix**	: WATER
Lab Sample ID	: L2013845-07		
Matrix Spike	: WG1356738-3	**MS Analysis Date**	: 03/31/20 22:04
Matrix Spike Dup	: WG1356738-4	**MSD Analysis Date**	: 03/31/20 22:09

		Matrix Spike Sample				Matrix Spike Duplicate						
Parameter	**Sample Conc. (mg/l)**	**Spike Added (mg/l)**	**Spike Conc. (mg/l)**	**%R**		**Spike Added (mg/l)**	**Spike Conc. (mg/l)**	**%R**		**RPD**	**Recovery Limits**	**RPD Limit**
Aluminum, Total	0.135	2	2.23	105		2	2.36	111		6	75-125	20
Antimony, Total	0.00050J	0.5	0.5520	110		0.5	0.5453	109		1	75-125	20
Arsenic, Total	0.00573	0.12	0.1332	106		0.12	0.1330	106		0	75-125	20
Barium, Total	0.2301	2	2.311	104		2	2.347	106		2	75-125	20
Beryllium, Total	ND	0.05	0.05434	109		0.05	0.05455	109		0	75-125	20
Cadmium, Total	ND	0.051	0.05563	109		0.051	0.05467	107		2	75-125	20
Calcium, Total	111.	10	122.	110		10	127.	160	Q	4	75-125	20
Chromium, Total	0.00176	0.2	0.2129	106		0.2	0.2166	107		2	75-125	20
Cobalt, Total	0.00117	0.5	0.5269	105		0.5	0.5368	107		2	75-125	20
Copper, Total	0.00179	0.25	0.2541	101		0.25	0.2600	103		2	75-125	20
Iron, Total	31.4	1	31.4	0	Q	1	31.7	30	Q	1	75-125	20
Lead, Total	0.01186	0.51	0.5651	108		0.51	0.5749	110		2	75-125	20
Magnesium, Total	24.4	10	35.0	106		10	36.8	124		5	75-125	20
Manganese, Total	0.6891	0.5	1.219	106		0.5	1.245	111		2	75-125	20
Nickel, Total	0.00386	0.5	0.5231	104		0.5	0.5442	108		4	75-125	20
Potassium, Total	10.7	10	19.7	90		10	21.0	103		6	75-125	20
Selenium, Total	ND	0.12	0.128	107		0.12	0.124	103		3	75-125	20
Silver, Total	ND	0.05	0.05465	109		0.05	0.05497	110		1	75-125	20
Sodium, Total	104.	10	95.6	0	Q	10	102.	0	Q	6	75-125	20
Thallium, Total	ND	0.12	0.1363	114		0.12	0.1325	110		3	75-125	20
Vanadium, Total	ND	0.5	0.5182	104		0.5	0.5466	109		5	75-125	20
Zinc, Total	0.02365	0.5	0.5679	109		0.5	0.5818	112		2	75-125	20

Form 7
Laboratory Control Sample

Client	: Soils Engineering Services, Inc.	**Lab Number**	: L2013733
Project Name	: A.C. DALTON POUGHKEEPSIE	**Project Number**	: 9039C PHASE 1
Client Sample ID	: NA	**Matrix**	: WATER
Lab Sample ID	: WG1356738-2	**LCS Analysis Date**	: 03/31/20 21:53
Dup Sample ID	:	**LCSD Analysis Date**	:

	Laboratory Control Sample			Laboratory Control Duplicate					
Parameter	**True (mg/l)**	**Found (mg/l)**	**%R**	**True (mg/l)**	**Found (mg/l)**	**%R**	**RPD**	**Recovery Limits**	**RPD Limit**
Aluminum, Total	2.00	2.16	108.					80-120	20
Antimony, Total	0.500	0.422	84.					80-120	20
Arsenic, Total	0.120	0.122	102.					80-120	20
Barium, Total	2.00	2.11	105.					80-120	20
Beryllium, Total	0.0500	0.0538	108.					80-120	20
Cadmium, Total	0.0510	0.0555	109.					80-120	20
Calcium, Total	10.0	9.69	97.					80-120	20
Chromium, Total	0.200	0.210	105.					80-120	20
Cobalt, Total	0.500	0.534	107.					80-120	20
Copper, Total	0.250	0.261	104.					80-120	20
Iron, Total	1.00	1.11	111.					80-120	20
Lead, Total	0.510	0.553	108.					80-120	20
Magnesium, Total	10.0	10.2	102.					80-120	20
Manganese, Total	0.500	0.518	104.					80-120	20
Nickel, Total	0.500	0.544	109.					80-120	20
Potassium, Total	10.0	9.36	94.					80-120	20
Selenium, Total	0.120	0.120	100.					80-120	20
Silver, Total	0.0500	0.0539	108.					80-120	20
Sodium, Total	10.0	9.29	93.					80-120	20
Thallium, Total	0.120	0.130	108.					80-120	20
Vanadium, Total	0.500	0.530	106.					80-120	20
Zinc, Total	0.500	0.558	112.					80-120	20

Form 12
Preparation Log

Client	: Soils Engineering Services, Inc.	**Lab Number**	: L2013733
Project Name	: A.C. DALTON POUGHKEEPSIE	**Project Number**	: 9039C PHASE 1
Matrix	: WATER	**Prep Method**	: EPA 3005A

Sample Number	Preparation Date	Weight (gram)	Volume (mL)
L2013733-01	03/31/20 09:56	-	50
WG1356738-1	03/31/20 09:56	-	50
WG1356738-2	03/31/20 09:56	-	50
WG1356738-3	03/31/20 09:56	-	50
WG1356738-4	03/31/20 09:56	-	50

Form 13
Analysis Run Log

Client	: Soils Engineering Services, Inc.	**Lab Number**	: L2013733
Project Name	: A.C. DALTON POUGHKEEPSIE	**Project Number**	: 9039C PHASE 1
Instrument ID	: ICPMSQ	**Analysis Method**	: 1,6020B
Start Date	: 03/31/20 09:46	**End Date**	: 03/31/20 23:46

Sample Number	Dilution Factor	Analysis Time	Aluminum, Total	Antimony, Total	Arsenic, Total	Barium, Total	Beryllium, Total	Cadmium, Total	Calcium, Total	Chromium, Total	Cobalt, Total	Copper, Total	Iron, Total	Lead, Total	Magnesium, Total	Manganese, Total	Nickel, Total	Potassium, Total	Selenium, Total	Silver, Total	Sodium, Total	Thallium, Total	Vanadium, Total	Zinc, Total
R1299857-10 TUNE		09:46:00																						
R1299857-1 ICV	1	10:44:37	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
R1299857-2 ICB	1	10:50:59	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
R1299857-3 ICSA	1	11:02:50	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
R1299857-4 CCV	1	11:13:03	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
R1299857-5 CCB	1	11:18:11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
R1299857-6 CCV	1	12:39:57	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
R1299857-7 CCB	1	12:47:07	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
R1299857-8 CCV	1	13:46:11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
R1299857-9 CCB	1	13:54:02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
R1299857-11 ICV	1	14:50:02	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
R1299857-12 ICB	1	14:55:09	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
R1299857-13 CCV	1	15:51:09	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
R1299857-14 CCB	1	16:01:27	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
R1299857-15 CCV	1	16:57:36	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
R1299857-16 CCB	1	17:02:44	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
R1299857-17 ICV	1	21:37:51	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
R1299857-18 ICB	1	21:42:59	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WG1356738-1 BLANK	1	21:48:45	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WG1356738-2 LCS	5	21:53:51	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WG1356738-3 MS	10	22:04:01	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WG1356738-4 MSD	10	22:09:05	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
R1299857-19 CCV	1	22:39:31	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
R1299857-20 CCB	1	22:44:40	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
L2013733-01	1	23:10:23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
R1299857-21 CCV	1	23:40:57	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
R1299857-22 CCB	1	23:46:06	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Form 14
ICP-MS Tune

Client	: Soils Engineering Services, Inc.	**Lab Number**	: L2013733
Project Name	: A.C. DALTON POUGHKEEPSIE	**Project Number**	: 9039C PHASE 1
Lab Sample ID	: R1299857-10	**Analysis Date**	: 03/31/20 09:46
ICP-MS Instrument	: ICPMSQ		

Mass Element	Avg Measured Mass (amu)	Avg. Peak Width at 10% Peak Height (amu)	%RSD
59 Co	58.9787	0.665	1.3
115 In	114.9496	0.68	0.9
7 Li	7.0571	0.697	1.6
238 U	238.1428	0.661	1.4

Form 15
ICP-MS Internal Standards Relative Intensity Summary

Client	: Soils Engineering Services, Inc.	**Lab Number**	: L2013733
Project Name	: A.C. DALTON POUGHKEEPSIE	**Project Number**	: 9039C PHASE 1
Instrument ID	: ICPMSQ	**Analysis Method**	: 1,6020B
Start Date	: 03/31/20	**End Date**	: 03/31/20

Sample #	Time	Internal Standards %RI For:				
		Lithium	Scandium	Ge	In	Bismuth
R1299857-1 ICV	10:44:37	76	91	87	90	94
R1299857-2 ICB	10:50:59	70	75	82	87	90
R1299857-3 ICSA	11:02:50	70	81	82	85	74
R1299857-4 CCV	11:13:03	70	83	83	90	88
R1299857-5 CCB	11:18:11	65	70	80	85	90
R1299857-6 CCV	12:39:57	58	65	69	76	86
R1299857-7 CCB	12:47:07	55	56	64	73	75
R1299857-8 CCV	13:46:11	60	70	72	79	74
R1299857-9 CCB	13:54:02	58	61	70	80	82
R1299857-11 ICV	14:50:02	98	103	95	97	88
R1299857-12 ICB	14:55:09	92	89	91	94	85
R1299857-13 CCV	15:51:09	106	120	105	104	90
R1299857-14 CCB	16:01:27	100	99	101	102	95
R1299857-15 CCV	16:57:36	112	126	106	108	104
R1299857-16 CCB	17:02:44	104	102	103	106	93
R1299857-17 ICV	21:37:51	97	99	94	96	97
R1299857-18 ICB	21:42:59	94	90	93	97	97
WG1356738-1 BLANK	21:48:45	97	91	99	100	100
WG1356738-2 LCS	21:53:51	99	98	99	100	100
WG1356738-3 MS	22:04:01	97	95	97	99	97
WG1356738-4 MSD	22:09:05	97	94	98	99	97
R1299857-19 CCV	22:39:31	102	114	102	104	99
R1299857-20 CCB	22:44:40	98	93	98	102	98
L2013733-01	23:10:23	113	106	114	112	102
R1299857-21 CCV	23:40:57	101	108	96	100	96
R1299857-22 CCB	23:46:06	94	88	93	96	94

Date Created: 11/04/16
Created By: Jason Hebert
File: PM2960-2
Page: 1

METALS by 200.8, 6020A (WATER)

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria	Holding Time	Container/Sample Preservation
Aluminum, Total	7429-90-5	0.01	0.00327	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Antimony, Total	7440-36-0	0.002	0.000429	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Arsenic, Total	7440-38-2	0.0005	0.000165	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Barium, Total	7440-39-3	0.0005	0.000173	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Beryllium, Total	7440-41-7	0.0005	0.000107	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Cadmium, Total	7440-43-9	0.0002	0.0000599	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Calcium, Total	7440-70-2	0.1	0.0394	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Chromium, Total	7440-47-3	0.001	0.000178	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Cobalt, Total	7440-48-4	0.0005	0.000163	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Copper, Total	7440-50-8	0.001	0.000384	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Iron, Total	7439-89-6	0.05	0.0191	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Lead, Total	7439-92-1	0.001	0.000343	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Magnesium, Total	7439-95-4	0.07	0.0242	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Manganese, Total	7439-96-5	0.001	0.00044	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Nickel, Total	7440-02-0	0.002	0.000556	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Potassium, Total	7440-09-7	0.1	0.0309	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Selenium, Total	7782-49-2	0.005	0.00173	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Silver, Total	7440-22-4	0.00025	0.000163	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Sodium, Total	7440-23-5	0.1	0.0293	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Thallium, Total	7440-28-0	0.0005	0.000143	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Vanadium, Total	7440-62-2	0.005	0.00157	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved
Zinc, Total	7440-66-6	0.01	0.00341	mg/l	80-120		75-125	20	20		180 days	1 - Plastic 500ml HNO3 preserved

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. (Soil/Solids only)
Please Note that the information provided in this table is subject to change at anytime at the discretion of Alpha Analytical, Inc.

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Created By: Jason Hebert
File: PM2963-1
Page: 1

METALS by 6020A (SOIL)

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria	Holding Time	Container/Sample Preservation
Aluminum, Total	7429-90-5	10	1.48	mg/kg	48-151	20	75-125	20	20		180 days	1 - Metals Only - Glass 60mL/2oz unpreserved
Antimony, Total	7440-36-0	0.05	0.01352	mg/kg	1-208	20	75-125	20	20		180 days	1 - Metals Only - Glass 60mL/2oz unpreserved
Arsenic, Total	7440-38-2	0.05	0.0066	mg/kg	79-121	20	75-125	20	20		180 days	1 - Metals Only - Glass 60mL/2oz unpreserved
Barium, Total	7440-39-3	0.3	0.02112	mg/kg	83-117	20	75-125	20	20		180 days	1 - Metals Only - Glass 60mL/2oz unpreserved
Beryllium, Total	7440-41-7	0.03	0.00872	mg/kg	83-117	20	75-125	20	20		180 days	1 - Metals Only - Glass 60mL/2oz unpreserved
Cadmium, Total	7440-43-9	0.02	0.00264	mg/kg	83-117	20	75-125	20	20		180 days	1 - Metals Only - Glass 60mL/2oz unpreserved
Calcium, Total	7440-70-2	50	6.08	mg/kg	81-119	20	75-125	20	20		180 days	1 - Metals Only - Glass 60mL/2oz unpreserved
Chromium, Total	7440-47-3	0.2	0.0468	mg/kg	80-120	20	75-125	20	20		180 days	1 - Metals Only - Glass 60mL/2oz unpreserved
Cobalt, Total	7440-48-4	0.05	0.00532	mg/kg	84-115	20	75-125	20	20		180 days	1 - Metals Only - Glass 60mL/2oz unpreserved
Copper, Total	7440-50-8	0.2	0.0194	mg/kg	81-118	20	75-125	20	20		180 days	1 - Metals Only - Glass 60mL/2oz unpreserved
Iron, Total	7439-89-6	20	2.06	mg/kg	45-155	20	75-125	20	20		180 days	1 - Metals Only - Glass 60mL/2oz unpreserved
Lead, Total	7439-92-1	0.06	0.0146	mg/kg	81-117	20	75-125	20	20		180 days	1 - Metals Only - Glass 60mL/2oz unpreserved
Magnesium, Total	7439-95-4	10	1.232	mg/kg	76-124	20	75-125	20	20		180 days	1 - Metals Only - Glass 60mL/2oz unpreserved
Manganese, Total	7439-96-5	0.2	0.0444	mg/kg	81-117	20	75-125	20	20		180 days	1 - Metals Only - Glass 60mL/2oz unpreserved
Nickel, Total	7440-02-0	0.1	0.02672	mg/kg	83-117	20	75-125	20	20		180 days	1 - Metals Only - Glass 60mL/2oz unpreserved
Potassium, Total	7440-09-7	10	1.588	mg/kg	71-129	20	75-125	20	20		180 days	1 - Metals Only - Glass 60mL/2oz unpreserved
Selenium, Total	7782-49-2	0.2	0.0756	mg/kg	78-122	20	75-125	20	20		180 days	1 - Metals Only - Glass 60mL/2oz unpreserved
Silver, Total	7440-22-4	0.05	0.00488	mg/kg	75-124	20	75-125	20	20		180 days	1 - Metals Only - Glass 60mL/2oz unpreserved
Sodium, Total	7440-23-5	15	1.172	mg/kg	72-127	20	75-125	20	20		180 days	1 - Metals Only - Glass 60mL/2oz unpreserved
Thallium, Total	7440-28-0	0.02	0.00516	mg/kg	80-120	20	75-125	20	20		180 days	1 - Metals Only - Glass 60mL/2oz unpreserved
Vanadium, Total	7440-62-2	0.1	0.03792	mg/kg	78-122	20	75-125	20	20		180 days	1 - Metals Only - Glass 60mL/2oz unpreserved
Zinc, Total	7440-66-6	1	0.26	mg/kg	82-118	20	75-125	20	20		180 days	1 - Metals Only - Glass 60mL/2oz unpreserved

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. (Soil/Solids only)
Please Note that the information provided in this table is subject to change at anytime at the discretion of Alpha Analytical, Inc.

Performance Report

QTEGRA

System

Start time:	3/31/2020 9:46:04 AM
Instrument:	iCAP Q
Operator:	ALPHALAB\metals-instrument
Template:	STD AGD
Instrument Serial Number:	03031R
Last Autotune:	Autotune-SourceTune High Matrix Alpha Custom-20200331-093450775.imatdat
Solution:	1 ppb Tune B in 2% HNO3 and 0.5% HCl.

Sensitivity & Stability Test

Result	Runs	Sweeps
Passed	5	10

Sensitivity

Analyte	Result	Value	Condition	Limit
7Li	Passed	17,778.0 CPS	Greater than	10,000.0 CPS
59Co	Passed	57,095.0 CPS	Greater than	1,000.0 CPS
238U	Passed	101,269.0 CPS	Greater than	20,000.0 CPS
140Ce.16O/140Ce	Passed	0.0229	Less than	0.025
137Ba++/137Ba	Passed	0.032	Less than	0.034
115In	Passed	80,340.0 CPS	Greater than	5,000.0 CPS

Stability

Analyte	Value	Limit
7Li	1.6%	5
59Co	1.3%	5
238U	1.4%	5
140Ce.16O	5.0%	2
140Ce	0.9%	2
115In	0.9%	5

Mass Calibration Test

Result	Channels	Dwell	MeasureWidth	PointSpacing	Sweeps
Passed	75	0.04	1.5	0.02	10

Analyte	Result	Centroid Mass [u]	Offset	Peak width [u]	Peak width min [u]	Peak width max [u]
7Li	Passed	7.0571	0.0411	0.697	0.600	0.900
59Co	Passed	58.9787	0.0455	0.665	0.600	0.900
115In	Passed	114.9496	0.0457	0.680	0.600	0.900
238U	Passed	238.1428	0.0920	0.661	0.600	0.900

Tune Settings

Parameter	Value
Additional Gas Flow 1	52.69
Additional Gas Flow 2	0.00
Additional Gas Flow 3	0.00
Angular Deflection	-365.00
Auxilliary Flow	0.80
CCT Bias	-2.01
CCT Entry Lens	-110.00
CCT Exit Lens	-160.01
CCT Focus Lens	-6.04
CCT1 Flow	0.00
CCT1 Shut-Off Valve	0.00
CCT2 Flow	0.00
CCT2 Shut-Off Valve	0.00
Cool Flow	14.00
D1 Lens	-200.05
D2 Lens	-90.01
Deflection Entry Lens	-35.00
Dry Pump Speed	0.00
Extraction Lens 1 Negative	0.00
Extraction Lens 1 Polarity	0.00
Extraction Lens 1 Positive	0.00
Extraction Lens 2	-116.87
Focus Lens	18.79
Nebulizer Flow	0.36
Peristaltic Pump Speed	20.00
Plasma Power	1550.00
Pole Bias	1.00
Quad Entry Lens	-19.61
Sampling Depth	5.00
Spray Chamber Temperature	2.70
Torch Horizontal Position	-0.60
Torch Vertical Position	-1.24
Virtual CCT Mass Maximum Dac Limit Set	4095.00
Virtual CCT Mass parameter b	0.65
Virtual CCT Mass to Dac Factor	130.00
Virtual CCT Mass to Dac Offset	-220.00

Vacuum Check

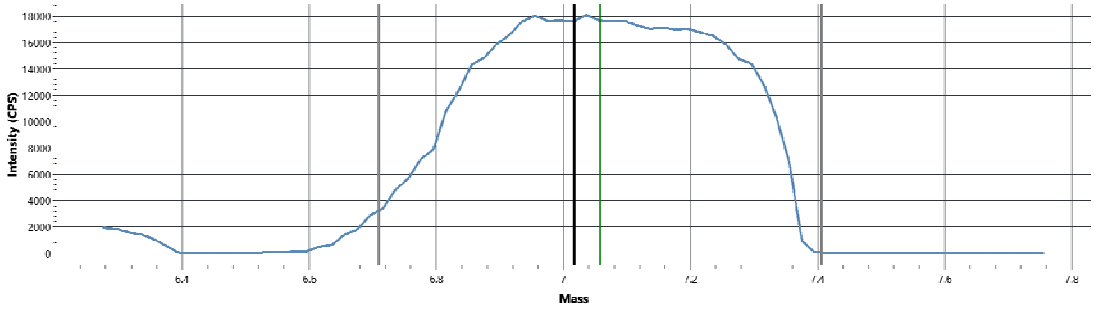
Parameter	Result	Value
Analyzer Pressure	Vacuum ok	1.793e-7
Interface Pressure		1.769e+0

Detector Voltages

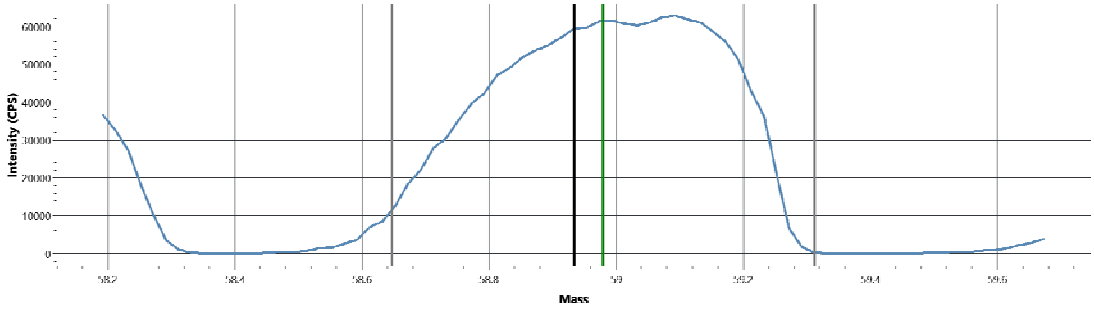
Analog	Counting
-1887.50	1087.50

Mass Calibration Peaks

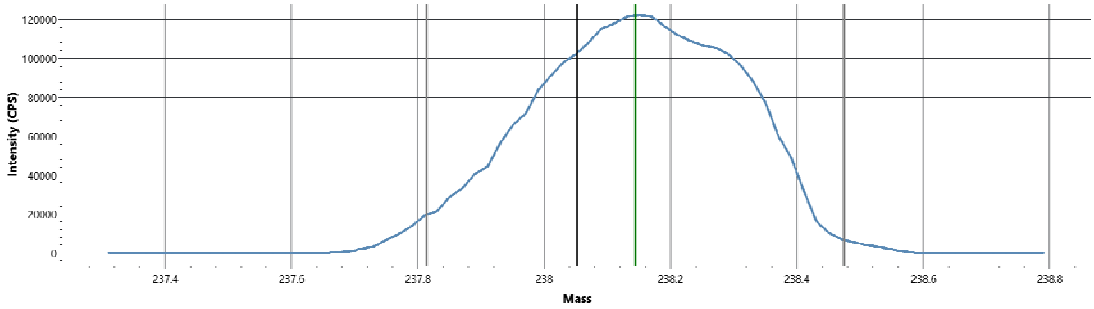
Analyte: 7Li



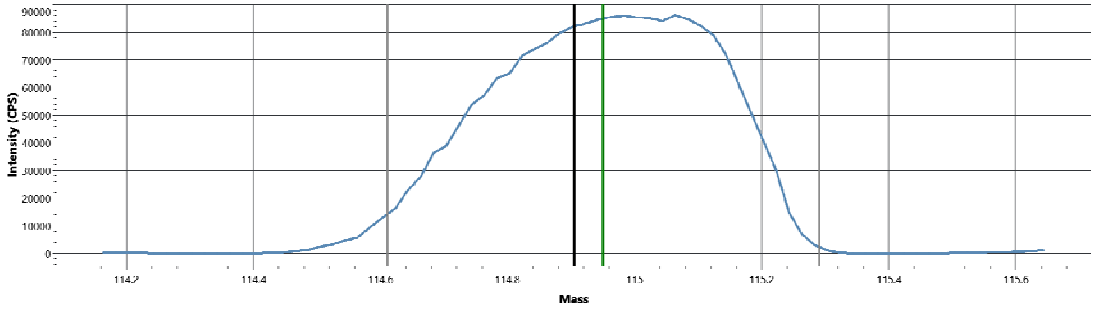
Analyte: 59Co



Analyte: 238U

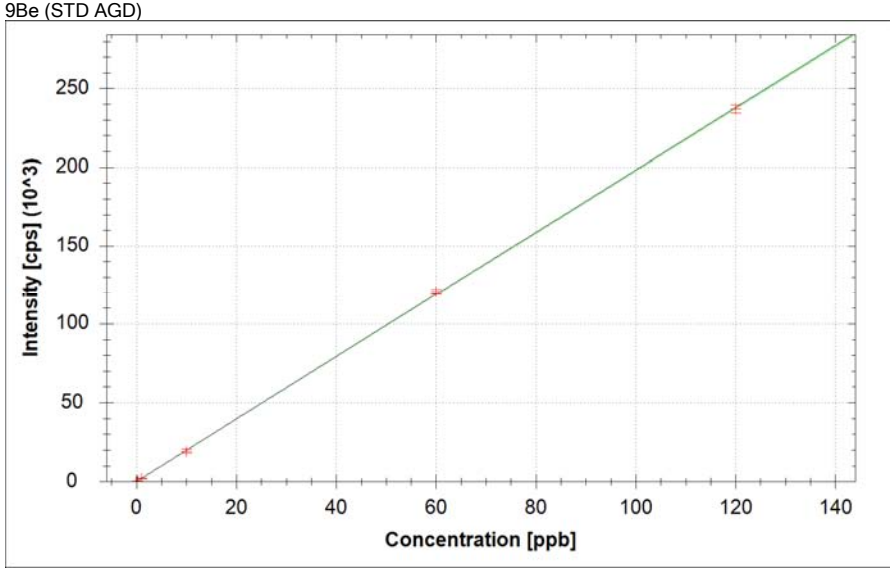


Analyte: 115In



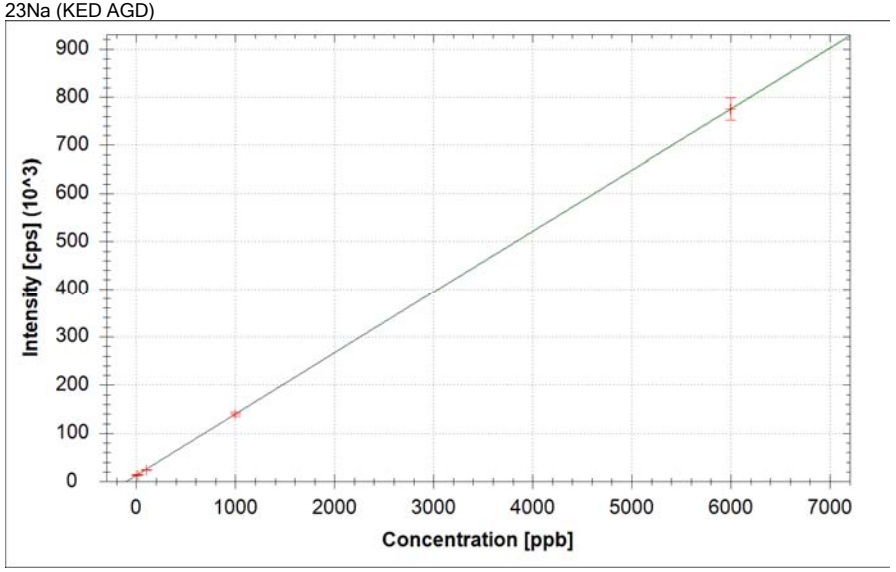
Calibration Curves:

9Be (STD AGD)



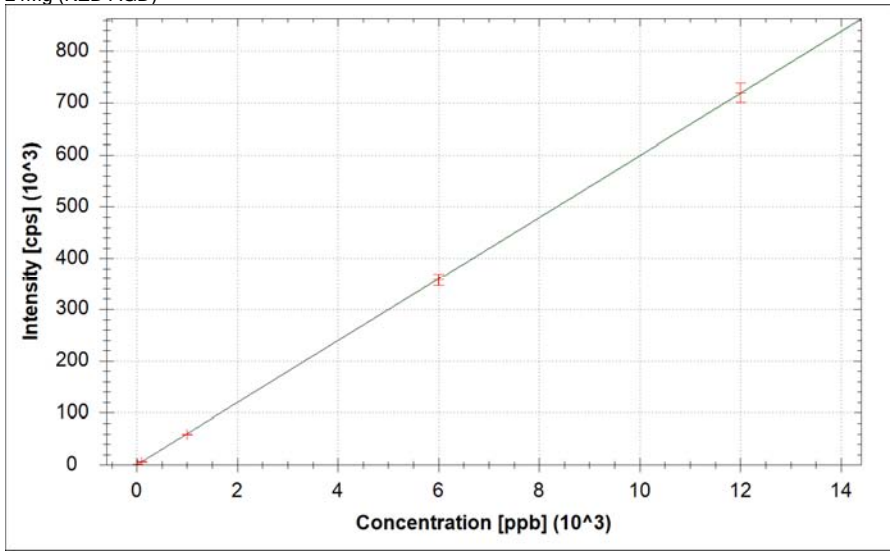
f(x) = 1980.3022*x + 0.4239
R² = 0.9999
BEC = 0.000 ppb
LoD = 0.0011 ppb

23Na (KED AGD)



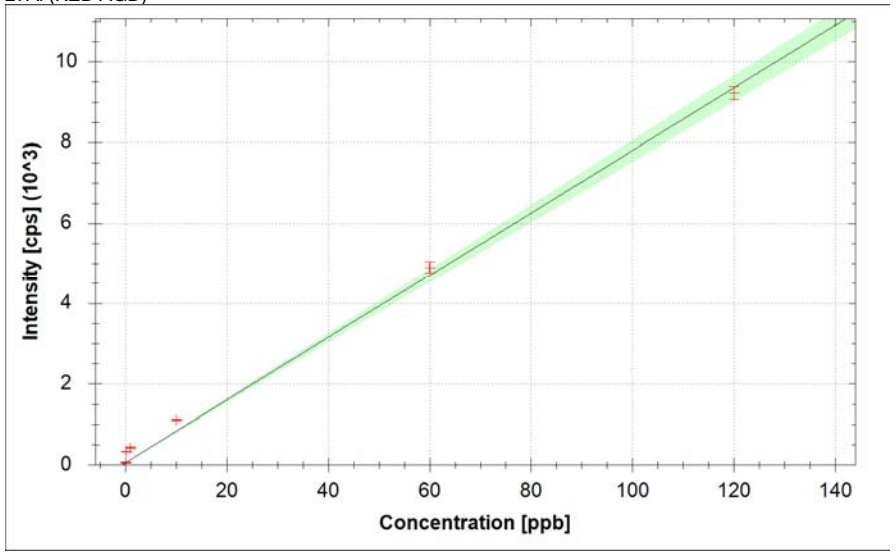
f(x) = 127.0713*x + 12597.0917
R² = 1.0000
BEC = 99.134 ppb
LoD = 18.5553 ppb

24Mg (KED AGD)



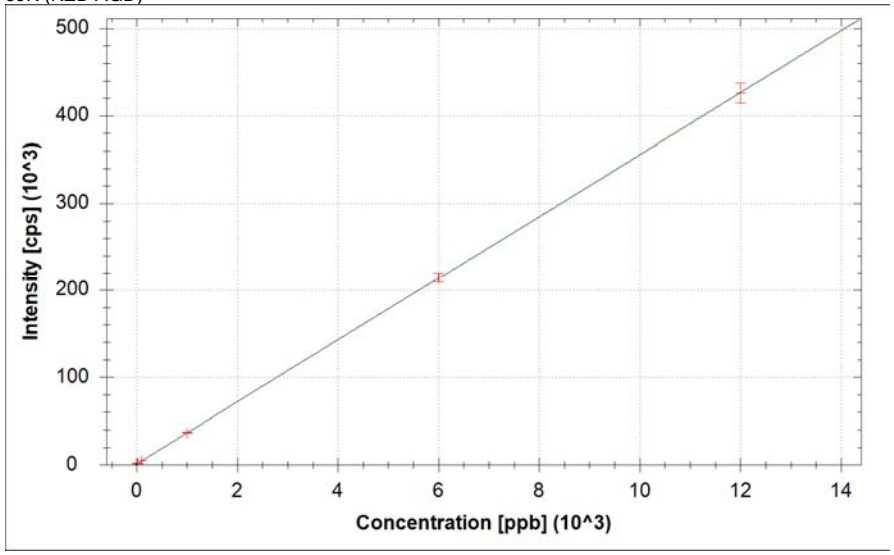
f(x) = 59.8402*x + 17.7400
R² = 1.0000
BEC = 0.296 ppb
LoD = 0.3776 ppb

27Al (KED AGD)



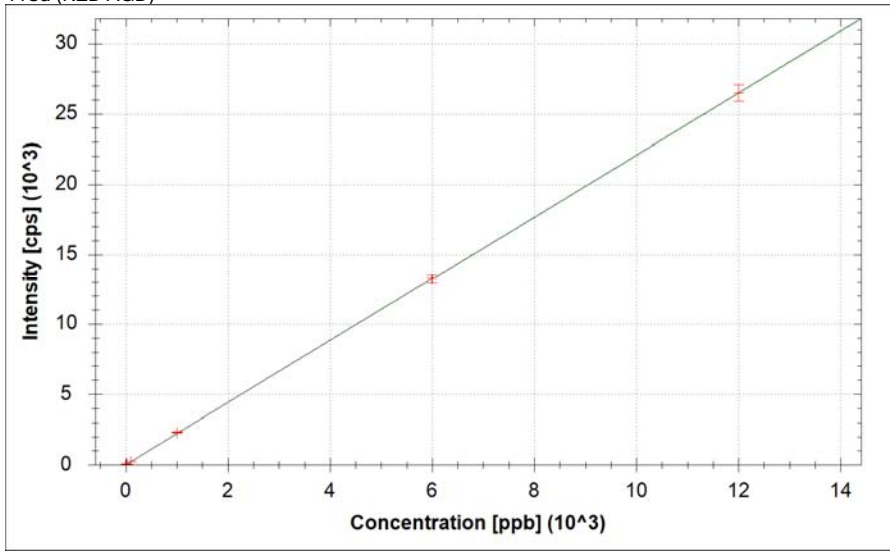
f(x) = 77.4502*x + 53.8245
R² = 0.9958
BEC = 0.695 ppb
LoD = 0.5857 ppb

39K (KED AGD)



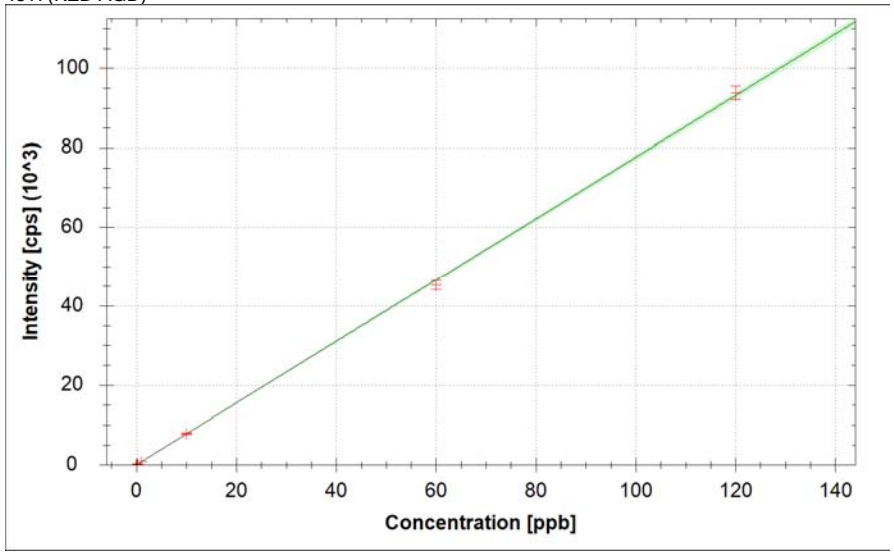
f(x) = 35.4523*x + 984.2358
R² = 1.0000
BEC = 27.762 ppb
LoD = 5.0189 ppb

44Ca (KED AGD)



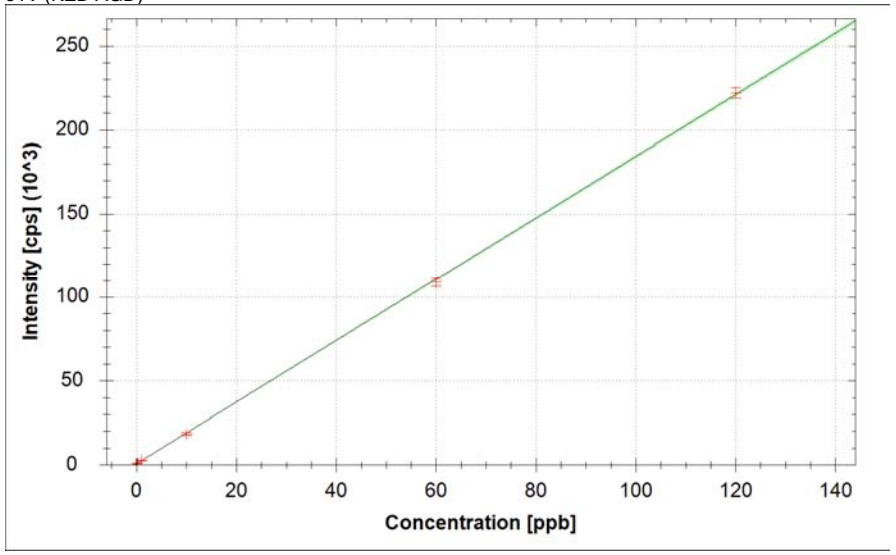
f(x) = 2.2063*x + 7.2783
R² = 1.0000
BEC = 3.299 ppb
LoD = 3.1553 ppb

48Ti (KED AGD)



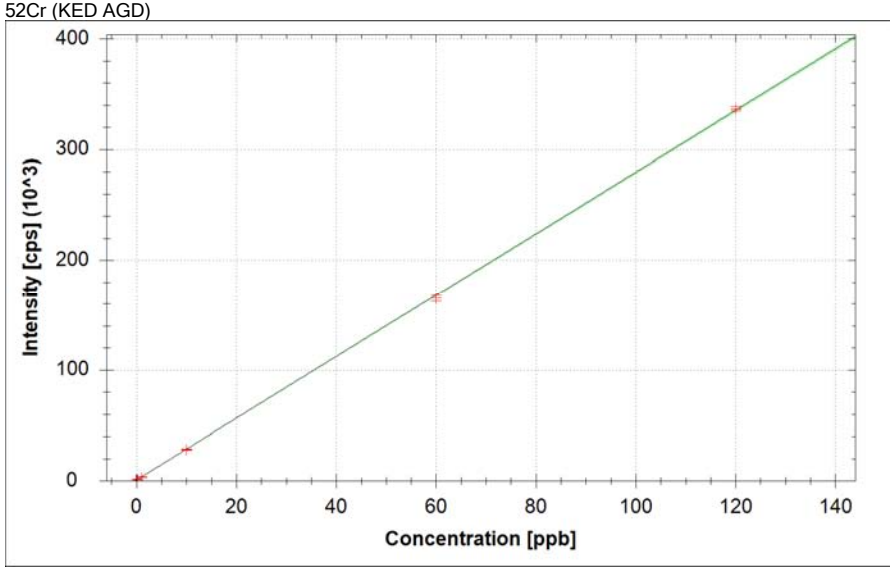
f(x) = 775.7538*x + 24.4596
R² = 0.9997
BEC = 0.032 ppb
LoD = 0.0154 ppb

51V (KED AGD)



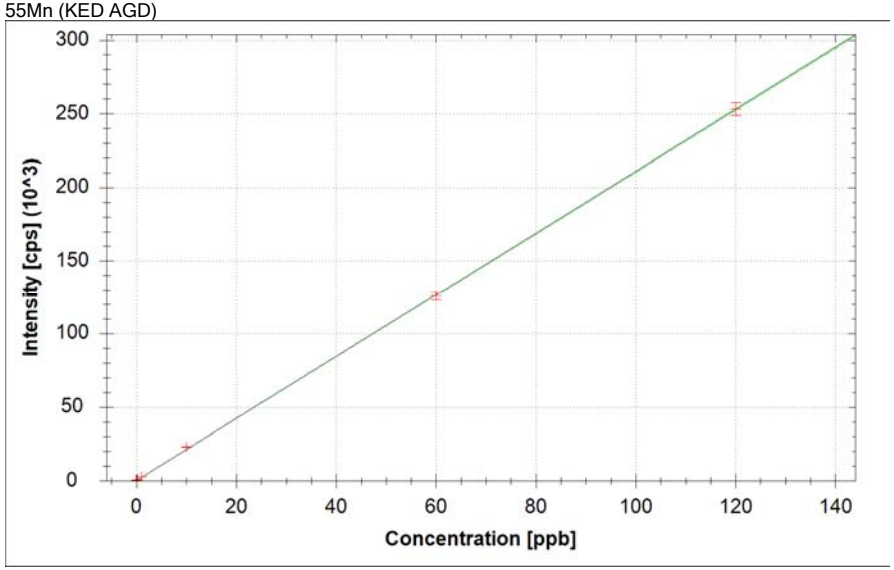
f(x) = 1835.9550*x + 606.7430
R² = 0.9999
BEC = 0.330 ppb
LoD = 0.0411 ppb

52Cr (KED AGD)



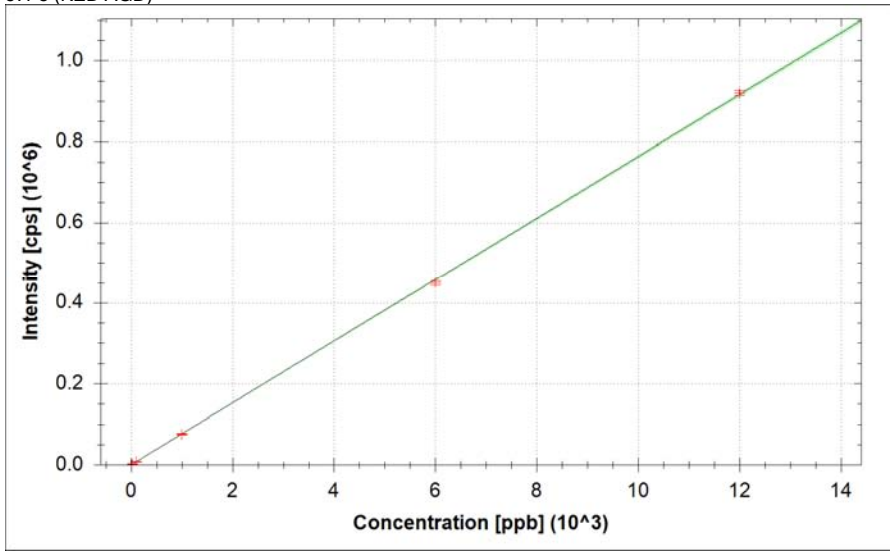
f(x) = 2785.9760*x + 741.3883
R² = 0.9999
BEC = 0.266 ppb
LoD = 0.0812 ppb

55Mn (KED AGD)



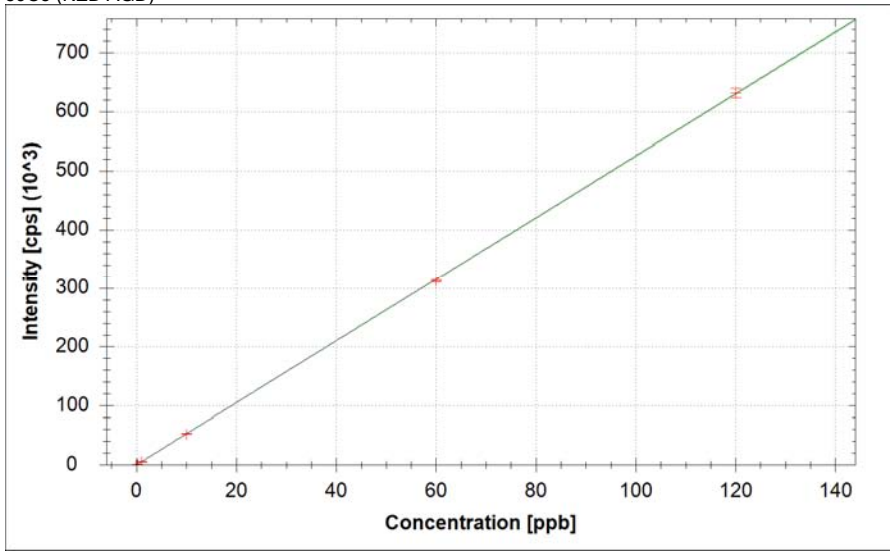
f(x) = 2105.4302*x + 199.8955
R² = 0.9999
BEC = 0.095 ppb
LoD = 0.0612 ppb

57Fe (KED AGD)



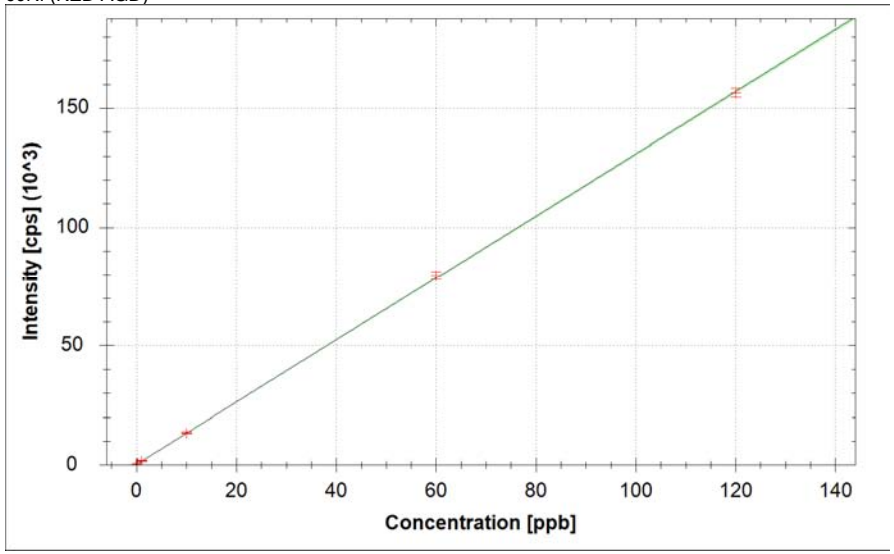
f(x) = 76.2872*x + 208.8322
R² = 0.9999
BEC = 2.737 ppb
LoD = 1.4264 ppb

59Co (KED AGD)



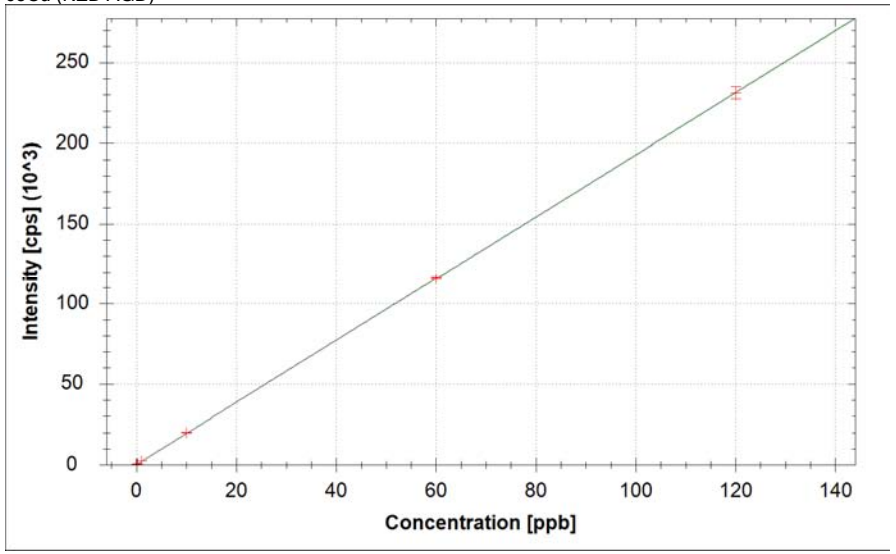
f(x) = 5252.1555*x + 22.2302
R² = 1.0000
BEC = 0.004 ppb
LoD = 0.0022 ppb

60Ni (KED AGD)



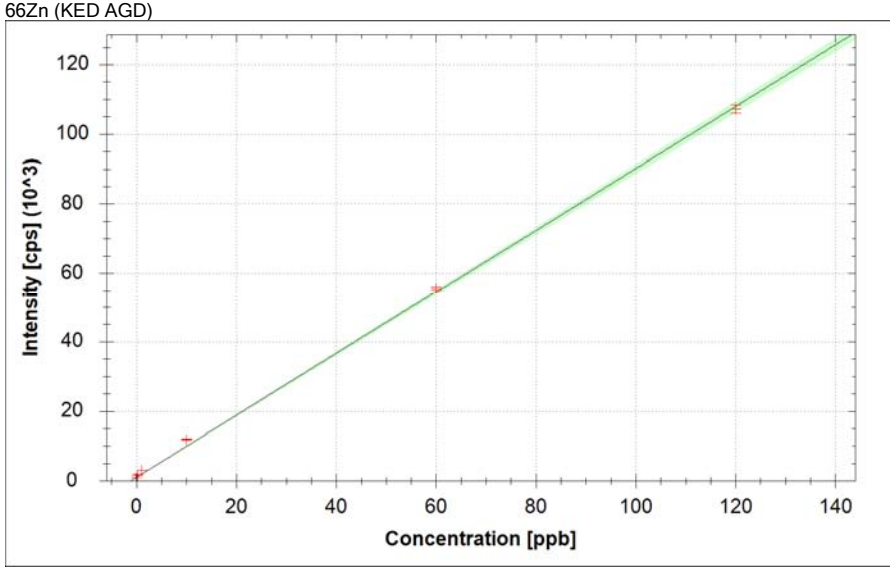
f(x) = 1306.0901*x + 162.2377
R² = 0.9999
BEC = 0.124 ppb
LoD = 0.0790 ppb

65Cu (KED AGD)



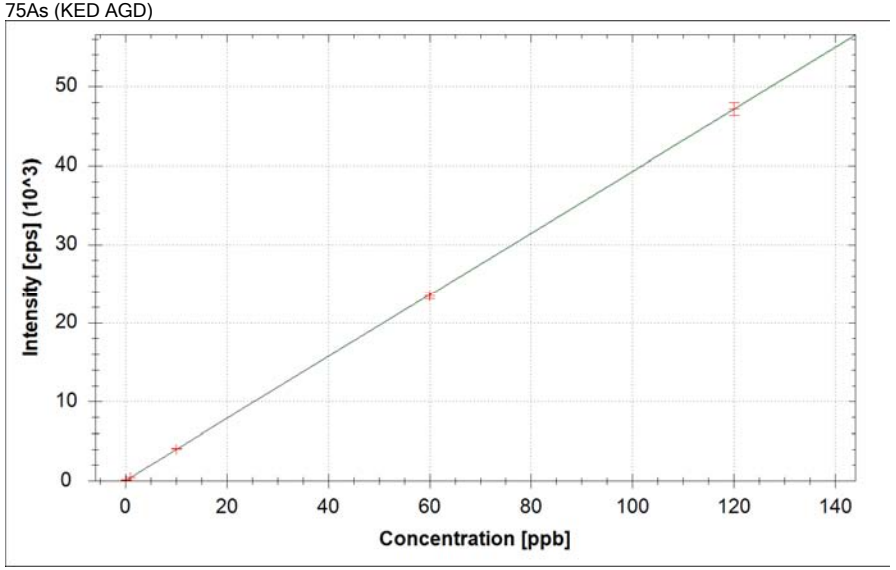
f(x) = 1926.6025*x + 135.5691
R² = 1.0000
BEC = 0.070 ppb
LoD = 0.0162 ppb

66Zn (KED AGD)



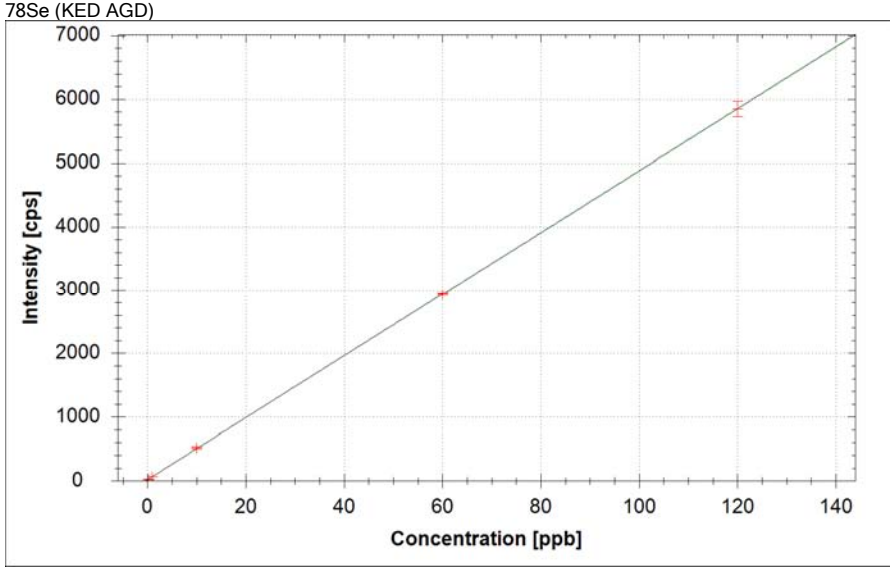
f(x) = 890.7179*x + 994.7599
R² = 0.9993
BEC = 1.117 ppb
LoD = 0.0959 ppb

75As (KED AGD)



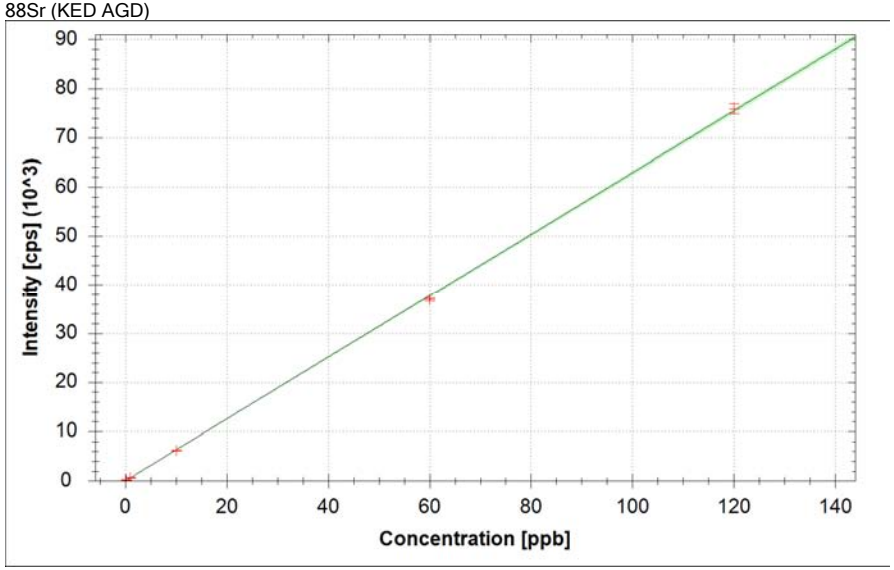
f(x) = 392.1635*x + 34.9975
R² = 1.0000
BEC = 0.089 ppb
LoD = 0.0121 ppb

78Se (KED AGD)



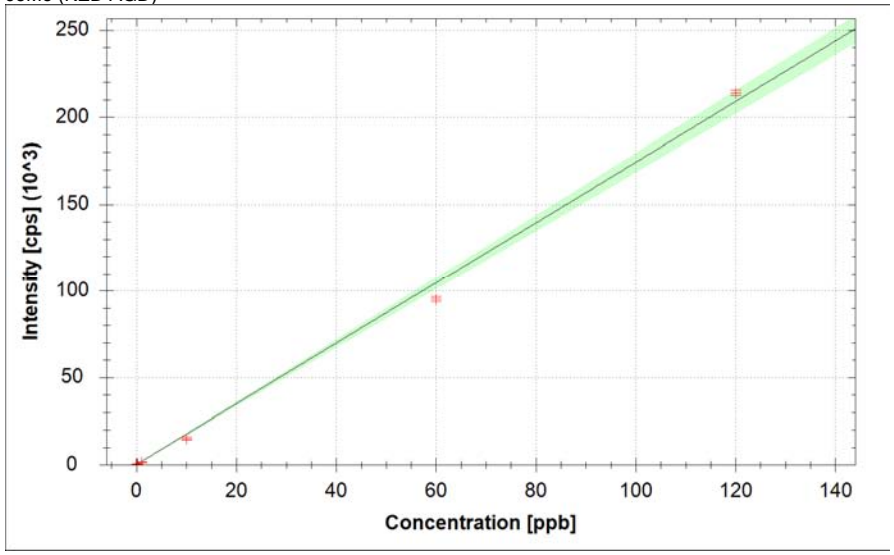
f(x) = 48.6094*x + 17.2195
R² = 1.0000
BEC = 0.354 ppb
LoD = 0.1351 ppb

88Sr (KED AGD)



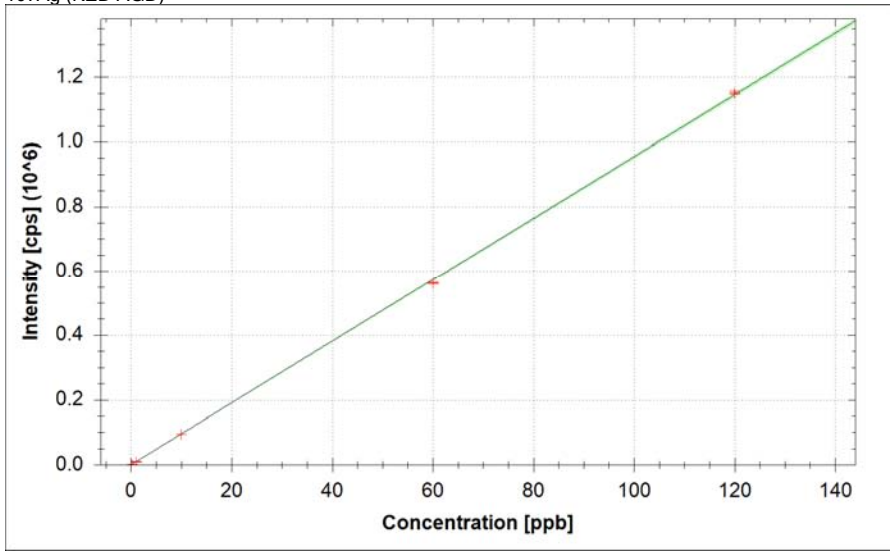
f(x) = 628.4369*x + 21.3796
R² = 0.9998
BEC = 0.034 ppb
LoD = 0.0093 ppb

95Mo (KED AGD)



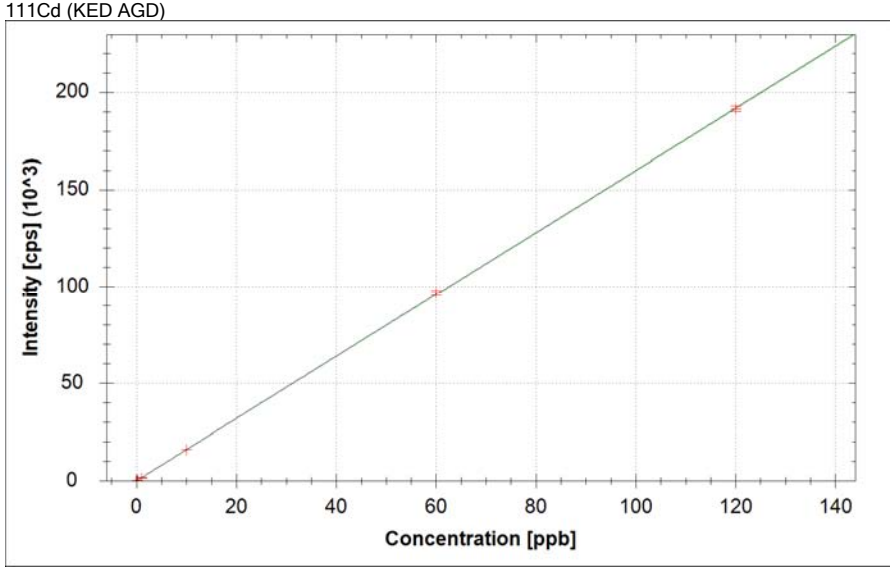
f(x) = 1740.1112*x + 179.9876
R² = 0.9968
BEC = 0.103 ppb
LoD = 0.0638 ppb

107Ag (KED AGD)



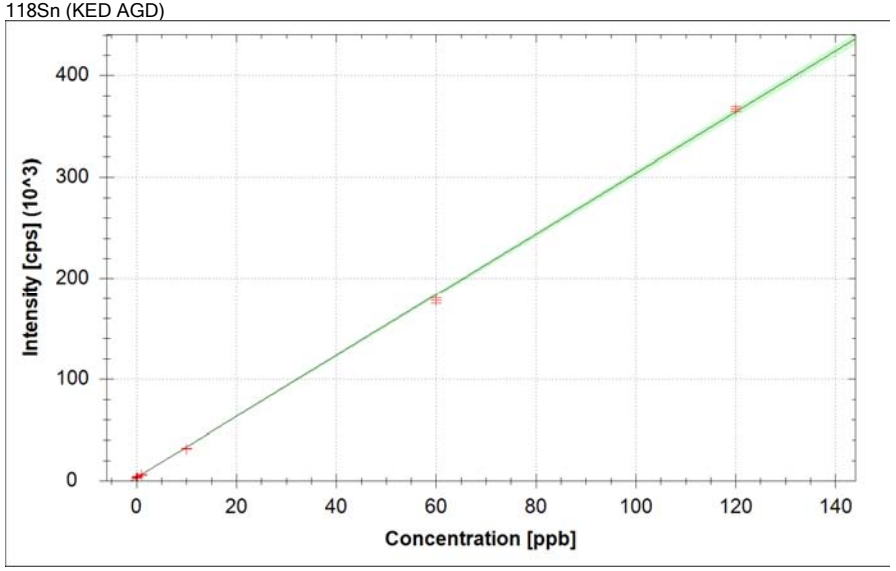
f(x) = 9542.6005*x + 31.1194
R² = 0.9999
BEC = 0.003 ppb
LoD = 0.0034 ppb

111Cd (KED AGD)



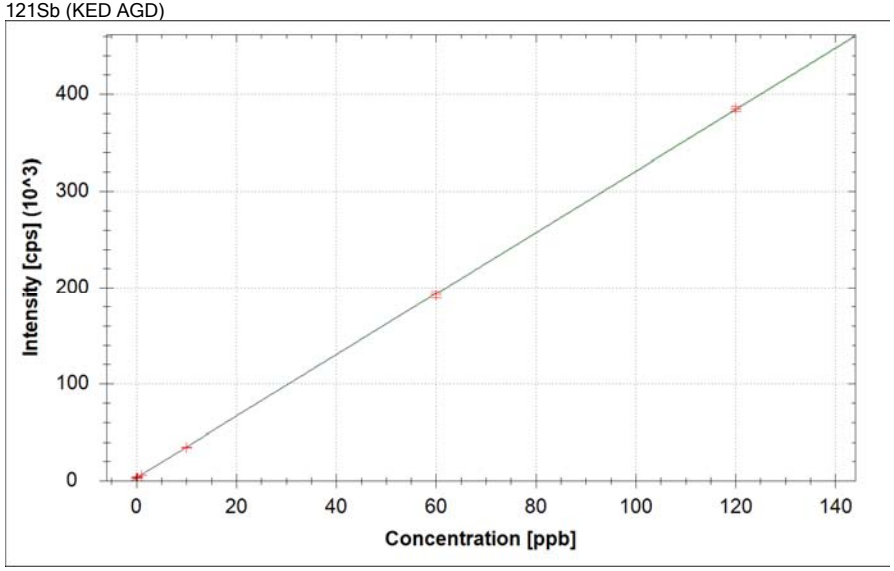
f(x) = 1597.2596*x + 3.1105
R² = 1.0000
BEC = 0.002 ppb
LoD = 0.0014 ppb

118Sn (KED AGD)



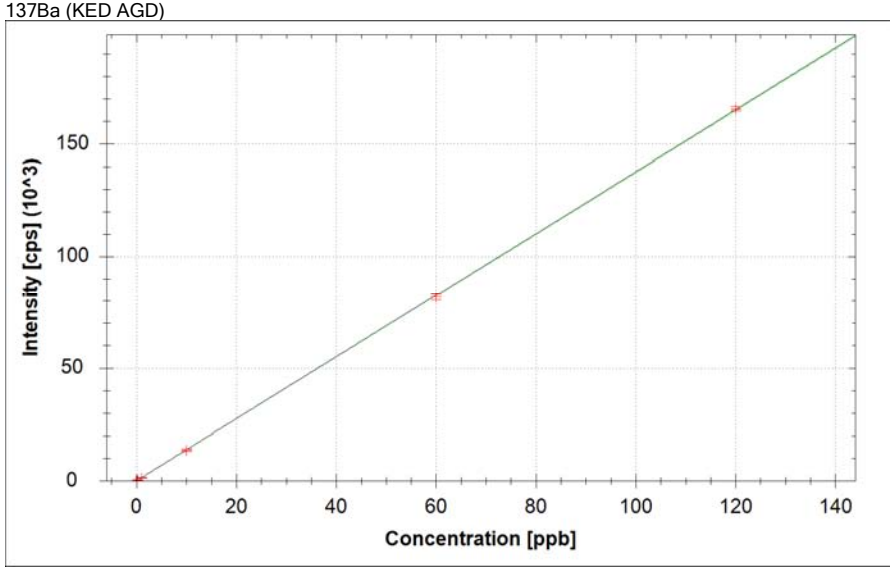
f(x) = 3005.6702*x + 3154.3825
R² = 0.9996
BEC = 1.049 ppb
LoD = 0.1430 ppb

121Sb (KED AGD)



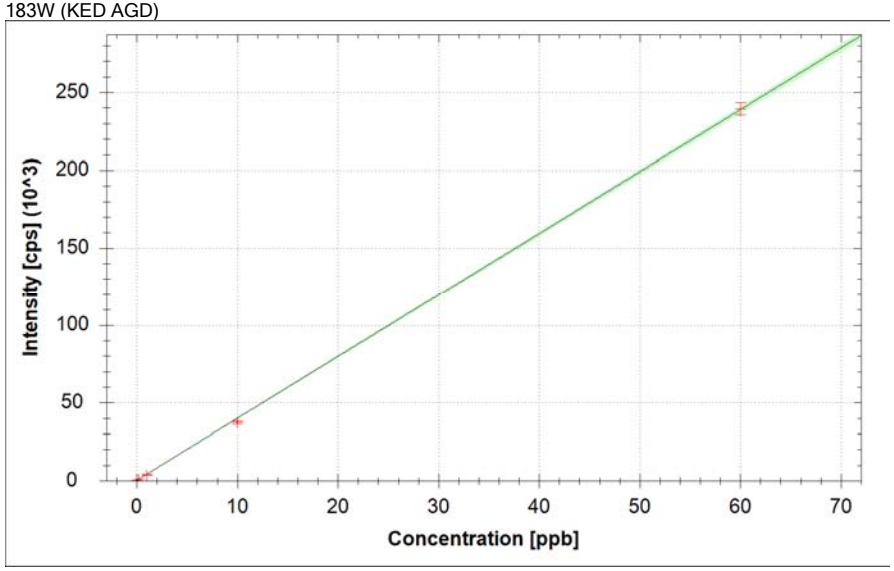
f(x) = 3174.2461*x + 3098.4548
R² = 1.0000
BEC = 0.976 ppb
LoD = 0.2249 ppb

137Ba (KED AGD)



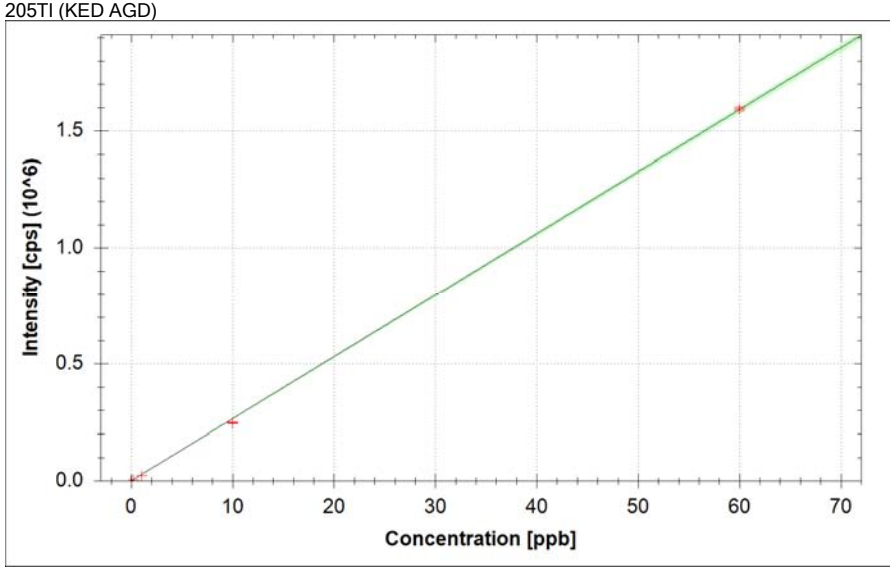
f(x) = 1375.4539*x + 26.7178
R² = 1.0000
BEC = 0.019 ppb
LoD = 0.0152 ppb

183W (KED AGD)



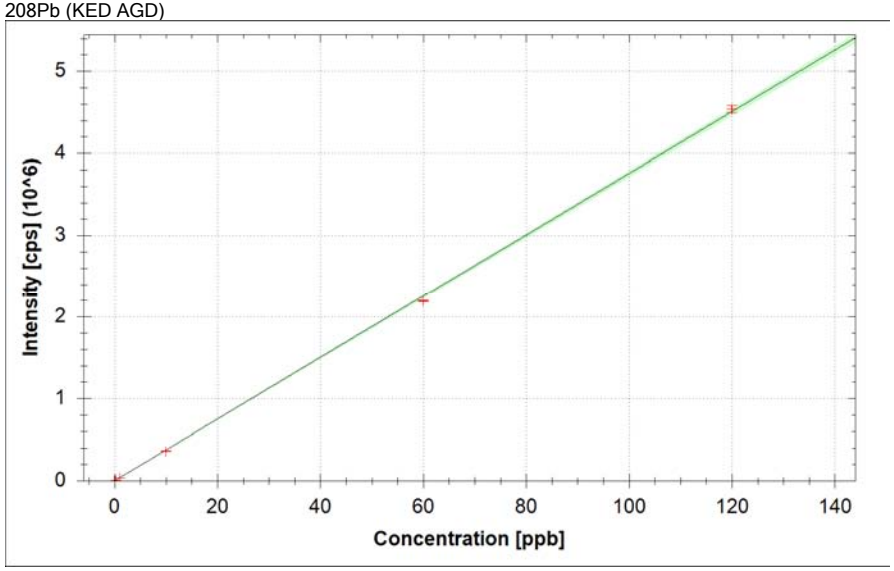
f(x) = 3975.0929*x + 316.7177
R² = 0.9998
BEC = 0.080 ppb
LoD = 0.0245 ppb

205TI (KED AGD)



f(x) = 26509.5230*x + 170.0224
R² = 0.9998
BEC = 0.006 ppb
LoD = 0.0017 ppb

208Pb (KED AGD)



f(x) = 37539.3162*x + 525.7229
R^2 = 0.9997
BEC = 0.014 ppb
LoD = 0.0025 ppb

Standards:

Analysis Index: 4
Analysis Name: 0.2/20 Cal
Analysis Type: STD
Analysis Started at: 3/31/2020 10:12:20 AM
Standard (Stock): Calibration Standard 6020/2008
Standard DF: 50000

Category	Concentration average	Concentration RSD	Standard Concentration
6Li (STD AGD)	86.209 %	0.6 %	
6Li (KED AGD)	96.487 %	4.0 %	
9Be (STD AGD)	0.181 ppb	4.8 %	0.200 ppb
23Na (KED AGD)	8.974 ppb	67.0 %	20.000 ppb
24Mg (KED AGD)	16.397 ppb	15.6 %	20.000 ppb
27Al (KED AGD)	3.552 ppb	1.9 %	0.200 ppb
39K (KED AGD)	16.433 ppb	13.5 %	20.000 ppb
44Ca (KED AGD)	20.338 ppb	12.3 %	20.000 ppb
45Sc (STD AGD)	96.175 %	0.8 %	
48Ti (KED AGD)	0.214 ppb	10.1 %	0.200 ppb
51V (KED AGD)	0.181 ppb	42.1 %	0.200 ppb
52Cr (KED AGD)	0.150 ppb	13.8 %	0.200 ppb
55Mn (KED AGD)	0.225 ppb	5.3 %	0.200 ppb
57Fe (KED AGD)	19.892 ppb	7.9 %	20.000 ppb
59Co (KED AGD)	0.166 ppb	10.2 %	0.200 ppb
60Ni (KED AGD)	0.337 ppb	11.6 %	0.200 ppb
65Cu (KED AGD)	0.253 ppb	15.2 %	0.200 ppb
66Zn (KED AGD)	0.831 ppb	5.1 %	0.200 ppb
74Ge (KED AGD)	98.101 %	2.6 %	
75As (KED AGD)	0.123 ppb	21.0 %	0.200 ppb
78Se (KED AGD)	0.118 ppb	70.7 %	0.200 ppb
88Sr (KED AGD)	0.202 ppb	4.1 %	0.200 ppb
95Mo (KED AGD)	0.178 ppb	28.5 %	0.200 ppb
103Rh (KED AGD)	97.874 %	0.3 %	
107Ag (KED AGD)	0.161 ppb	3.9 %	0.200 ppb
111Cd (KED AGD)	0.152 ppb	0.5 %	0.200 ppb
115In (KED AGD)	96.838 %	2.5 %	
118Sn (KED AGD)	0.330 ppb	23.6 %	0.200 ppb
121Sb (KED AGD)	0.215 ppb	13.5 %	0.200 ppb
137Ba (KED AGD)	0.198 ppb	21.1 %	0.200 ppb
159Tb (KED AGD)	98.427 %	1.0 %	
175Lu (KED AGD)	98.999 %	1.1 %	
183W (KED AGD)	0.172 ppb	3.7 %	0.200 ppb
205Tl (KED AGD)	0.133 ppb	2.5 %	0.200 ppb
208Pb (KED AGD)	0.162 ppb	1.9 %	0.200 ppb
209Bi (KED AGD)	98.711 %	0.3 %	

Standards:

Analysis Index: 5
Analysis Name: 1/100 Cal
Analysis Type: STD
Analysis Started at: 3/31/2020 10:17:24 AM
Standard (Stock): Calibration Standard 6020/2008
Standard DF: 10000

Category	Concentration average	Concentration RSD	Standard Concentration
6Li (STD AGD)	85.248 %	1.9 %	
6Li (KED AGD)	96.278 %	1.2 %	
9Be (STD AGD)	1.026 ppb	4.4 %	1.000 ppb
23Na (KED AGD)	88.447 ppb	4.9 %	100.000 ppb
24Mg (KED AGD)	96.031 ppb	4.1 %	100.000 ppb
27Al (KED AGD)	4.787 ppb	5.2 %	1.000 ppb
39K (KED AGD)	102.302 ppb	5.7 %	100.000 ppb
44Ca (KED AGD)	107.942 ppb	4.8 %	100.000 ppb
45Sc (STD AGD)	97.900 %	1.6 %	
48Ti (KED AGD)	1.061 ppb	6.0 %	1.000 ppb
51V (KED AGD)	1.060 ppb	3.4 %	1.000 ppb
52Cr (KED AGD)	0.902 ppb	3.1 %	1.000 ppb
55Mn (KED AGD)	1.118 ppb	0.4 %	1.000 ppb
57Fe (KED AGD)	99.824 ppb	4.6 %	100.000 ppb
59Co (KED AGD)	1.021 ppb	4.1 %	1.000 ppb
60Ni (KED AGD)	1.085 ppb	15.4 %	1.000 ppb
65Cu (KED AGD)	1.188 ppb	3.2 %	1.000 ppb
66Zn (KED AGD)	2.259 ppb	1.8 %	1.000 ppb
74Ge (KED AGD)	96.969 %	0.4 %	
75As (KED AGD)	0.976 ppb	3.9 %	1.000 ppb
78Se (KED AGD)	0.927 ppb	5.3 %	1.000 ppb
88Sr (KED AGD)	0.981 ppb	2.1 %	1.000 ppb
95Mo (KED AGD)	0.766 ppb	10.0 %	1.000 ppb
103Rh (KED AGD)	96.181 %	1.0 %	
107Ag (KED AGD)	0.971 ppb	4.0 %	1.000 ppb
111Cd (KED AGD)	0.967 ppb	2.7 %	1.000 ppb
115In (KED AGD)	97.549 %	0.5 %	
118Sn (KED AGD)	0.969 ppb	5.7 %	1.000 ppb
121Sb (KED AGD)	0.961 ppb	0.4 %	1.000 ppb
137Ba (KED AGD)	0.954 ppb	6.3 %	1.000 ppb
159Tb (KED AGD)	97.729 %	1.0 %	
175Lu (KED AGD)	98.906 %	1.9 %	
183W (KED AGD)	0.891 ppb	2.6 %	1.000 ppb
205Tl (KED AGD)	0.851 ppb	1.5 %	1.000 ppb
208Pb (KED AGD)	0.948 ppb	1.5 %	1.000 ppb
209Bi (KED AGD)	98.039 %	0.9 %	

Standards:

Analysis Index: 6
Analysis Name: 10/1000 Cal
Analysis Type: STD
Analysis Started at: 3/31/2020 10:22:29 AM
Standard (Stock): Calibration Standard 6020/2008
Standard DF: 1000

Category	Concentration average	Concentration RSD	Standard Concentration
6Li (STD AGD)	87.545 %	9.6 %	
6Li (KED AGD)	90.869 %	6.0 %	
9Be (STD AGD)	9.656 ppb	7.2 %	10.000 ppb
23Na (KED AGD)	996.580 ppb	3.2 %	1,000.000 ppb
24Mg (KED AGD)	979.554 ppb	1.2 %	1,000.000 ppb
27Al (KED AGD)	13.639 ppb	1.2 %	10.000 ppb
39K (KED AGD)	1,003.932 ppb	1.6 %	1,000.000 ppb
44Ca (KED AGD)	1,035.453 ppb	1.1 %	1,000.000 ppb
45Sc (STD AGD)	96.924 %	0.3 %	
48Ti (KED AGD)	10.014 ppb	3.2 %	10.000 ppb
51V (KED AGD)	9.637 ppb	4.6 %	10.000 ppb
52Cr (KED AGD)	9.851 ppb	2.1 %	10.000 ppb
55Mn (KED AGD)	10.825 ppb	1.0 %	10.000 ppb
57Fe (KED AGD)	991.826 ppb	1.8 %	1,000.000 ppb
59Co (KED AGD)	9.910 ppb	0.7 %	10.000 ppb
60Ni (KED AGD)	10.151 ppb	2.0 %	10.000 ppb
65Cu (KED AGD)	10.248 ppb	1.5 %	10.000 ppb
66Zn (KED AGD)	12.112 ppb	1.7 %	10.000 ppb
74Ge (KED AGD)	94.471 %	1.0 %	
75As (KED AGD)	10.235 ppb	0.7 %	10.000 ppb
78Se (KED AGD)	10.248 ppb	3.6 %	10.000 ppb
88Sr (KED AGD)	9.773 ppb	1.1 %	10.000 ppb
95Mo (KED AGD)	8.504 ppb	4.7 %	10.000 ppb
103Rh (KED AGD)	93.674 %	1.0 %	
107Ag (KED AGD)	9.861 ppb	0.4 %	10.000 ppb
111Cd (KED AGD)	9.976 ppb	0.1 %	10.000 ppb
115In (KED AGD)	94.993 %	0.3 %	
118Sn (KED AGD)	9.405 ppb	0.6 %	10.000 ppb
121Sb (KED AGD)	9.896 ppb	0.9 %	10.000 ppb
137Ba (KED AGD)	9.823 ppb	4.0 %	10.000 ppb
159Tb (KED AGD)	96.801 %	1.7 %	
175Lu (KED AGD)	98.314 %	1.5 %	
183W (KED AGD)	9.299 ppb	2.3 %	10.000 ppb
205Tl (KED AGD)	9.336 ppb	0.9 %	10.000 ppb
208Pb (KED AGD)	9.566 ppb	1.2 %	10.000 ppb
209Bi (KED AGD)	96.794 %	1.5 %	

Standards:

Analysis Index: 7
Analysis Name: 60/6000 Cal
Analysis Type: STD
Analysis Started at: 3/31/2020 10:27:35 AM
Standard (Stock): Calibration Standard 6020/2008
Standard DF: 166.6666666

Category	Concentration average	Concentration RSD	Standard Concentration
6Li (STD AGD)	80.157 %	0.7 %	
6Li (KED AGD)	88.541 %	4.4 %	
9Be (STD AGD)	60.785 ppb	1.3 %	60.000 ppb
23Na (KED AGD)	6,000.799 ppb	3.1 %	6,000.000 ppb
24Mg (KED AGD)	5,974.279 ppb	3.2 %	6,000.000 ppb
27Al (KED AGD)	62.544 ppb	2.8 %	60.000 ppb
39K (KED AGD)	6,021.446 ppb	2.5 %	6,000.000 ppb
44Ca (KED AGD)	5,994.308 ppb	2.4 %	6,000.000 ppb
45Sc (STD AGD)	96.742 %	0.4 %	
48Ti (KED AGD)	58.326 ppb	2.5 %	60.000 ppb
51V (KED AGD)	58.943 ppb	2.1 %	60.000 ppb
52Cr (KED AGD)	59.057 ppb	1.6 %	60.000 ppb
55Mn (KED AGD)	59.595 ppb	2.1 %	60.000 ppb
57Fe (KED AGD)	5,889.264 ppb	1.1 %	6,000.000 ppb
59Co (KED AGD)	59.452 ppb	0.7 %	60.000 ppb
60Ni (KED AGD)	60.826 ppb	1.9 %	60.000 ppb
65Cu (KED AGD)	60.172 ppb	0.8 %	60.000 ppb
66Zn (KED AGD)	61.139 ppb	0.9 %	60.000 ppb
74Ge (KED AGD)	93.463 %	0.5 %	
75As (KED AGD)	59.746 ppb	1.6 %	60.000 ppb
78Se (KED AGD)	60.119 ppb	0.9 %	60.000 ppb
88Sr (KED AGD)	58.759 ppb	0.7 %	60.000 ppb
95Mo (KED AGD)	54.587 ppb	1.4 %	60.000 ppb
103Rh (KED AGD)	91.690 %	1.5 %	
107Ag (KED AGD)	58.861 ppb	0.6 %	60.000 ppb
111Cd (KED AGD)	60.467 ppb	1.2 %	60.000 ppb
115In (KED AGD)	93.859 %	1.0 %	
118Sn (KED AGD)	58.043 ppb	1.5 %	60.000 ppb
121Sb (KED AGD)	59.619 ppb	2.0 %	60.000 ppb
137Ba (KED AGD)	59.425 ppb	1.5 %	60.000 ppb
159Tb (KED AGD)	96.587 %	0.4 %	
175Lu (KED AGD)	97.164 %	0.4 %	
183W (KED AGD)	60.119 ppb	1.7 %	60.000 ppb
205Tl (KED AGD)	60.113 ppb	0.5 %	60.000 ppb
208Pb (KED AGD)	58.295 ppb	0.3 %	60.000 ppb
209Bi (KED AGD)	96.947 %	1.1 %	

Standards:

Analysis Index: 8
Analysis Name: 120/12000 Cal
Analysis Type: STD
Analysis Started at: 3/31/2020 10:32:41 AM
Standard (Stock): Calibration Standard 6020/2008
Standard DF: 83.33333333

Category	Concentration average	Concentration RSD	Standard Concentration
6Li (STD AGD)	77.283 %	0.7 %	
6Li (KED AGD)	84.415 %	1.9 %	
9Be (STD AGD)	119.636 ppb	1.1 %	120.000 ppb
23Na (KED AGD)	14,686.263 ppb	1.9 %	12,000.000 ppb
24Mg (KED AGD)	12,014.603 ppb	2.6 %	12,000.000 ppb
27Al (KED AGD)	118.388 ppb	1.8 %	120.000 ppb
39K (KED AGD)	11,988.936 ppb	2.7 %	12,000.000 ppb
44Ca (KED AGD)	11,999.825 ppb	2.2 %	12,000.000 ppb
45Sc (STD AGD)	96.181 %	1.1 %	
48Ti (KED AGD)	120.836 ppb	1.8 %	120.000 ppb
51V (KED AGD)	120.558 ppb	1.4 %	120.000 ppb
52Cr (KED AGD)	120.485 ppb	0.6 %	120.000 ppb
55Mn (KED AGD)	120.133 ppb	1.8 %	120.000 ppb
57Fe (KED AGD)	12,056.051 ppb	0.6 %	12,000.000 ppb
59Co (KED AGD)	120.282 ppb	1.3 %	120.000 ppb
60Ni (KED AGD)	119.573 ppb	1.2 %	120.000 ppb
65Cu (KED AGD)	119.892 ppb	1.7 %	120.000 ppb
66Zn (KED AGD)	119.243 ppb	1.1 %	120.000 ppb
74Ge (KED AGD)	88.485 %	1.5 %	
75As (KED AGD)	120.108 ppb	1.8 %	120.000 ppb
78Se (KED AGD)	119.920 ppb	2.0 %	120.000 ppb
88Sr (KED AGD)	120.639 ppb	1.3 %	120.000 ppb
95Mo (KED AGD)	122.833 ppb	0.7 %	120.000 ppb
103Rh (KED AGD)	86.938 %	1.1 %	
107Ag (KED AGD)	120.582 ppb	0.4 %	120.000 ppb
111Cd (KED AGD)	119.769 ppb	0.7 %	120.000 ppb
115In (KED AGD)	89.995 %	0.8 %	
118Sn (KED AGD)	121.028 ppb	0.7 %	120.000 ppb
121Sb (KED AGD)	120.200 ppb	0.6 %	120.000 ppb
137Ba (KED AGD)	120.303 ppb	0.5 %	120.000 ppb
159Tb (KED AGD)	92.251 %	0.4 %	
175Lu (KED AGD)	93.544 %	0.9 %	
183W (KED AGD)	142.774 ppb	10.8 %	120.000 ppb
205Tl (KED AGD)	145.791 ppb	0.8 %	120.000 ppb
208Pb (KED AGD)	120.889 ppb	0.9 %	120.000 ppb
209Bi (KED AGD)	91.653 %	0.8 %	

Analysis index:	1	Analysis started at:	3/31/2020 9:57:03 AM
Analysis label:	Rinse	User name:	ALPHALAB\metals-instrument

Analysis index:	2	Analysis started at:	3/31/2020 10:02:07 AM
Analysis label:	Rinse	User name:	ALPHALAB\metals-instrument

Alpha ICPMSQ Full

3/31/2020 2:08:38 PM

Analysis index: 3
Analysis label: Blank AM ICPMSQ
Analysis started at: 3/31/2020 10:07:11 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	100.000 %	100.000 %	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	100.000 %
Concentration per Run	100.000 %	100.000 %	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	100.000 %
Concentration RSD	0.1 %	0.0 %	1.7 %	0.1 %	0.4 %	0.3 %	0.1 %	0.3 %	0.0 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb
Concentration per Run	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb
Concentration RSD	0.2 %	0.0 %	0.1 %	0.2 %	0.2 %	0.2 %	0.2 %	0.1 %	0.0 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	100.000 %	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	100.000 %	0.000 ppb	0.000 ppb	100.000 %
Concentration per Run	100.000 %	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	100.000 %	0.000 ppb	0.000 ppb	100.000 %
Concentration RSD	0.0 %	0.0 %	0.1 %	0.1 %	0.2 %	0.0 %	0.3 %	0.2 %	0.0 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.000 ppb	0.000 ppb	0.000 ppb	100.000 %	100.000 %	0.000 ppb	0.000 ppb	0.000 ppb	100.000 %
Concentration per Run	0.000 ppb	0.000 ppb	0.000 ppb	100.000 %	100.000 %	0.000 ppb	0.000 ppb	0.000 ppb	100.000 %
Concentration RSD	0.0 %	0.1 %	0.3 %	0.0 %	0.0 %	0.1 %	0.1 %	0.1 %	0.0 %

Alpha ICPMSQ Full

3/31/2020 2:08:38 PM

Analysis index: 4
Analysis label: 0.2/20 Cal
Analysis started at: 3/31/2020 10:12:20 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	86.209 %	96.487 %	0.181 ppb	8.974 ppb	16.397 ppb	3.552 ppb	16.433 ppb	20.338 ppb	96.175 %
Concentration per Run 1	86.659 %	95.177 %	0.175 ppb	2.283 ppb	15.036 ppb	3.483 ppb	14.114 ppb	22.385 ppb	96.428 %
Concentration per Run 2	86.331 %	93.420 %	0.191 ppb	13.937 ppb	14.801 ppb	3.560 ppb	18.536 ppb	21.068 ppb	96.736 %
Concentration per Run 3	85.638 %	100.864 %	0.177 ppb	10.701 ppb	19.354 ppb	3.614 ppb	16.649 ppb	17.560 ppb	95.360 %
Concentration RSD	0.6 %	4.0 %	4.8 %	67.0 %	15.6 %	1.9 %	13.5 %	12.3 %	0.8 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.214 ppb	0.181 ppb	0.150 ppb	0.225 ppb	19.892 ppb	0.166 ppb	0.337 ppb	0.253 ppb	0.831 ppb
Concentration per Run 1	0.190 ppb	0.097 ppb	0.141 ppb	0.238 ppb	20.116 ppb	0.184 ppb	0.299 ppb	0.278 ppb	0.855 ppb
Concentration per Run 2	0.220 ppb	0.245 ppb	0.174 ppb	0.224 ppb	18.213 ppb	0.150 ppb	0.377 ppb	0.271 ppb	0.782 ppb
Concentration per Run 3	0.231 ppb	0.202 ppb	0.135 ppb	0.214 ppb	21.348 ppb	0.163 ppb	0.333 ppb	0.209 ppb	0.858 ppb
Concentration RSD	10.1 %	42.1 %	13.8 %	5.3 %	7.9 %	10.2 %	11.6 %	15.2 %	5.1 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	98.101 %	0.123 ppb	0.118 ppb	0.202 ppb	0.178 ppb	97.874 %	0.161 ppb	0.152 ppb	96.838 %
Concentration per Run 1	95.234 %	0.094 ppb	0.026 ppb	0.200 ppb	0.130 ppb	97.565 %	0.157 ppb	0.151 ppb	94.066 %
Concentration per Run 2	100.125 %	0.132 ppb	0.188 ppb	0.212 ppb	0.231 ppb	97.903 %	0.157 ppb	0.153 ppb	98.484 %
Concentration per Run 3	98.944 %	0.143 ppb	0.138 ppb	0.196 ppb	0.173 ppb	98.154 %	0.168 ppb	0.153 ppb	97.964 %
Concentration RSD	2.6 %	21.0 %	70.7 %	4.1 %	28.5 %	0.3 %	3.9 %	0.5 %	2.5 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.330 ppb	0.215 ppb	0.198 ppb	98.427 %	98.999 %	0.172 ppb	0.133 ppb	0.162 ppb	98.711 %
Concentration per Run 1	0.253 ppb	0.189 ppb	0.227 ppb	98.457 %	97.838 %	0.174 ppb	0.131 ppb	0.162 ppb	98.733 %
Concentration per Run 2	0.328 ppb	0.210 ppb	0.216 ppb	97.439 %	99.140 %	0.177 ppb	0.132 ppb	0.159 ppb	98.364 %
Concentration per Run 3	0.409 ppb	0.247 ppb	0.150 ppb	99.386 %	100.019 %	0.165 ppb	0.137 ppb	0.165 ppb	99.037 %
Concentration RSD	23.6 %	13.5 %	21.1 %	1.0 %	1.1 %	3.7 %	2.5 %	1.9 %	0.3 %

Alpha ICPMSQ Full

3/31/2020 2:08:38 PM

Analysis index: 5
Analysis label: 1/100 Cal
Analysis started at: 3/31/2020 10:17:24 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	85.248 %	96.278 %	1.026 ppb	88.447 ppb	96.031 ppb	4.787 ppb	102.302 ppb	107.942 ppb	97.900 %
Concentration per Run 1	86.575 %	96.724 %	1.022 ppb	83.466 ppb	95.267 ppb	4.731 ppb	97.242 ppb	111.936 ppb	99.396 %
Concentration per Run 2	85.668 %	95.009 %	1.073 ppb	90.254 ppb	100.251 ppb	5.057 ppb	108.640 ppb	109.809 ppb	98.050 %
Concentration per Run 3	83.500 %	97.100 %	0.983 ppb	91.621 ppb	92.574 ppb	4.571 ppb	101.026 ppb	102.081 ppb	96.256 %
Concentration RSD	1.9 %	1.2 %	4.4 %	4.9 %	4.1 %	5.2 %	5.7 %	4.8 %	1.6 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	1.061 ppb	1.060 ppb	0.902 ppb	1.118 ppb	99.824 ppb	1.021 ppb	1.085 ppb	1.188 ppb	2.259 ppb
Concentration per Run 1	1.132 ppb	1.101 ppb	0.904 ppb	1.114 ppb	101.384 ppb	1.026 ppb	1.225 ppb	1.221 ppb	2.214 ppb
Concentration per Run 2	1.045 ppb	1.042 ppb	0.930 ppb	1.117 ppb	103.438 ppb	1.061 ppb	1.128 ppb	1.146 ppb	2.293 ppb
Concentration per Run 3	1.008 ppb	1.036 ppb	0.873 ppb	1.123 ppb	94.649 ppb	0.977 ppb	0.900 ppb	1.198 ppb	2.268 ppb
Concentration RSD	6.0 %	3.4 %	3.1 %	0.4 %	4.6 %	4.1 %	15.4 %	3.2 %	1.8 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	96.969 %	0.976 ppb	0.927 ppb	0.981 ppb	0.766 ppb	96.181 %	0.971 ppb	0.967 ppb	97.549 %
Concentration per Run 1	97.387 %	0.984 ppb	0.871 ppb	1.004 ppb	0.740 ppb	97.184 %	0.964 ppb	0.993 ppb	97.990 %
Concentration per Run 2	96.989 %	0.934 ppb	0.963 ppb	0.963 ppb	0.852 ppb	95.984 %	1.013 ppb	0.967 ppb	97.051 %
Concentration per Run 3	96.530 %	1.010 ppb	0.948 ppb	0.977 ppb	0.705 ppb	95.375 %	0.935 ppb	0.942 ppb	97.607 %
Concentration RSD	0.4 %	3.9 %	5.3 %	2.1 %	10.0 %	1.0 %	4.0 %	2.7 %	0.5 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.969 ppb	0.961 ppb	0.954 ppb	97.729 %	98.906 %	0.891 ppb	0.851 ppb	0.948 ppb	98.039 %
Concentration per Run 1	0.937 ppb	0.962 ppb	0.954 ppb	98.683 %	100.984 %	0.908 ppb	0.847 ppb	0.945 ppb	98.981 %
Concentration per Run 2	0.936 ppb	0.957 ppb	0.893 ppb	97.816 %	98.294 %	0.901 ppb	0.840 ppb	0.964 ppb	97.222 %
Concentration per Run 3	1.033 ppb	0.965 ppb	1.013 ppb	96.687 %	97.442 %	0.865 ppb	0.865 ppb	0.935 ppb	97.913 %
Concentration RSD	5.7 %	0.4 %	6.3 %	1.0 %	1.9 %	2.6 %	1.5 %	1.5 %	0.9 %

Alpha ICPMSQ Full

3/31/2020 2:08:38 PM

Analysis index: 6
Analysis label: 10/1000 Cal
Analysis started at: 3/31/2020 10:22:29 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	87.545 %	90.869 %	9.656 ppb	996.580 ppb	979.554 ppb	13.639 ppb	1,003.932 ppb	1,035.453 ppb	96.924 %
Concentration per Run 1	83.536 %	88.193 %	9.879 ppb	1,013.445 ppb	986.375 ppb	13.559 ppb	1,019.531 ppb	1,021.764 ppb	97.240 %
Concentration per Run 2	97.201 %	87.231 %	8.875 ppb	1,016.230 ppb	985.799 ppb	13.824 ppb	987.101 ppb	1,043.094 ppb	96.605 %
Concentration per Run 3	81.898 %	97.184 %	10.214 ppb	960.067 ppb	966.489 ppb	13.533 ppb	1,005.164 ppb	1,041.500 ppb	96.929 %
Concentration RSD	9.6 %	6.0 %	7.2 %	3.2 %	1.2 %	1.2 %	1.6 %	1.1 %	0.3 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	10.014 ppb	9.637 ppb	9.851 ppb	10.825 ppb	991.826 ppb	9.910 ppb	10.151 ppb	10.248 ppb	12.112 ppb
Concentration per Run 1	9.992 ppb	10.097 ppb	9.883 ppb	10.907 ppb	989.242 ppb	9.989 ppb	10.141 ppb	10.075 ppb	12.277 ppb
Concentration per Run 2	10.347 ppb	9.612 ppb	10.039 ppb	10.702 ppb	1,010.387 ppb	9.893 ppb	10.359 ppb	10.284 ppb	11.884 ppb
Concentration per Run 3	9.703 ppb	9.203 ppb	9.631 ppb	10.866 ppb	975.847 ppb	9.849 ppb	9.951 ppb	10.385 ppb	12.177 ppb
Concentration RSD	3.2 %	4.6 %	2.1 %	1.0 %	1.8 %	0.7 %	2.0 %	1.5 %	1.7 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	94.471 %	10.235 ppb	10.248 ppb	9.773 ppb	8.504 ppb	93.674 %	9.861 ppb	9.976 ppb	94.993 %
Concentration per Run 1	95.159 %	10.318 ppb	10.166 ppb	9.701 ppb	8.734 ppb	94.757 %	9.817 ppb	9.967 ppb	95.194 %
Concentration per Run 2	94.857 %	10.172 ppb	9.931 ppb	9.720 ppb	8.737 ppb	93.032 %	9.862 ppb	9.981 ppb	95.170 %
Concentration per Run 3	93.398 %	10.215 ppb	10.647 ppb	9.898 ppb	8.041 ppb	93.233 %	9.905 ppb	9.981 ppb	94.616 %
Concentration RSD	1.0 %	0.7 %	3.6 %	1.1 %	4.7 %	1.0 %	0.4 %	0.1 %	0.3 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	9.405 ppb	9.896 ppb	9.823 ppb	96.801 %	98.314 %	9.299 ppb	9.336 ppb	9.566 ppb	96.794 %
Concentration per Run 1	9.389 ppb	9.805 ppb	9.412 ppb	98.702 %	99.874 %	9.478 ppb	9.434 ppb	9.657 ppb	96.638 %
Concentration per Run 2	9.470 ppb	9.910 ppb	9.868 ppb	96.164 %	96.986 %	9.357 ppb	9.280 ppb	9.608 ppb	95.440 %
Concentration per Run 3	9.355 ppb	9.973 ppb	10.190 ppb	95.536 %	98.082 %	9.061 ppb	9.295 ppb	9.433 ppb	98.305 %
Concentration RSD	0.6 %	0.9 %	4.0 %	1.7 %	1.5 %	2.3 %	0.9 %	1.2 %	1.5 %

Alpha ICPMSQ Full

3/31/2020 2:08:38 PM

Analysis index: 7
Analysis label: 60/6000 Cal
Analysis started at: 3/31/2020 10:27:35 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	80.157 %	88.541 %	60.785 ppb	6,000.799 ppb	5,974.279 ppb	62.544 ppb	6,021.446 ppb	5,994.308 ppb	96.742 %
Concentration per Run 1	80.599 %	87.105 %	60.138 ppb	6,135.631 ppb	6,178.137 ppb	63.924 ppb	5,929.171 ppb	5,928.810 ppb	96.688 %
Concentration per Run 2	80.380 %	85.558 %	60.529 ppb	6,075.974 ppb	5,942.886 ppb	63.163 ppb	6,198.448 ppb	6,157.360 ppb	97.128 %
Concentration per Run 3	79.493 %	92.960 %	61.687 ppb	5,790.793 ppb	5,801.814 ppb	60.546 ppb	5,936.717 ppb	5,896.754 ppb	96.410 %
Concentration RSD	0.7 %	4.4 %	1.3 %	3.1 %	3.2 %	2.8 %	2.5 %	2.4 %	0.4 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	58.326 ppb	58.943 ppb	59.057 ppb	59.595 ppb	5,889.264 ppb	59.452 ppb	60.826 ppb	60.172 ppb	61.139 ppb
Concentration per Run 1	57.073 ppb	58.965 ppb	59.625 ppb	60.146 ppb	5,871.422 ppb	59.921 ppb	61.537 ppb	60.640 ppb	61.705 ppb
Concentration per Run 2	59.926 ppb	60.169 ppb	59.588 ppb	60.493 ppb	5,958.075 ppb	59.283 ppb	61.450 ppb	60.168 ppb	61.150 ppb
Concentration per Run 3	57.978 ppb	57.697 ppb	57.957 ppb	58.147 ppb	5,838.293 ppb	59.151 ppb	59.493 ppb	59.709 ppb	60.562 ppb
Concentration RSD	2.5 %	2.1 %	1.6 %	2.1 %	1.1 %	0.7 %	1.9 %	0.8 %	0.9 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	93.463 %	59.746 ppb	60.119 ppb	58.759 ppb	54.587 ppb	91.690 %	58.861 ppb	60.467 ppb	93.859 %
Concentration per Run 1	93.020 %	60.547 ppb	60.711 ppb	58.520 ppb	55.101 ppb	93.217 %	58.767 ppb	59.921 ppb	94.651 %
Concentration per Run 2	93.889 %	59.974 ppb	59.652 ppb	59.261 ppb	54.943 ppb	91.326 %	59.222 ppb	61.313 ppb	92.804 %
Concentration per Run 3	93.479 %	58.717 ppb	59.995 ppb	58.497 ppb	53.717 ppb	90.528 %	58.593 ppb	60.167 ppb	94.121 %
Concentration RSD	0.5 %	1.6 %	0.9 %	0.7 %	1.4 %	1.5 %	0.6 %	1.2 %	1.0 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	58.043 ppb	59.619 ppb	59.425 ppb	96.587 %	97.164 %	60.119 ppb	60.113 ppb	58.295 ppb	96.947 %
Concentration per Run 1	57.057 ppb	58.520 ppb	58.608 ppb	96.847 %	97.298 %	61.137 ppb	59.824 ppb	58.095 ppb	98.076 %
Concentration per Run 2	58.723 ppb	60.885 ppb	60.365 ppb	96.112 %	97.466 %	60.106 ppb	60.407 ppb	58.464 ppb	96.692 %
Concentration per Run 3	58.348 ppb	59.451 ppb	59.301 ppb	96.803 %	96.729 %	59.113 ppb	60.109 ppb	58.325 ppb	96.072 %
Concentration RSD	1.5 %	2.0 %	1.5 %	0.4 %	0.4 %	1.7 %	0.5 %	0.3 %	1.1 %

Alpha ICPMSQ Full

3/31/2020 2:08:38 PM

Analysis index: 8
Analysis label: 120/12000 Cal
Analysis started at: 3/31/2020 10:32:41 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	77.283 %	84.415 %	119.636 ppb	14,736.453 ppb	12,014.603 ppb	118.388 ppb	11,988.936 ppb	11,999.825 ppb	96.181 %
Concentration per Run 1	77.684 %	82.756 %	118.122 ppb	14,996.934 ppb	12,371.170 ppb	120.114 ppb	12,122.756 ppb	11,997.378 ppb	96.758 %
Concentration per Run 2	77.452 %	84.596 %	120.187 ppb	14,443.900 ppb	11,798.864 ppb	116.036 ppb	11,613.379 ppb	11,731.622 ppb	96.860 %
Concentration per Run 3	76.712 %	85.893 %	120.599 ppb	14,617.957 ppb	11,873.776 ppb	119.012 ppb	12,230.674 ppb	12,270.475 ppb	94.926 %
Concentration RSD	0.7 %	1.9 %	1.1 %	1.9 %	2.6 %	1.8 %	2.7 %	2.2 %	1.1 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	120.836 ppb	120.558 ppb	120.485 ppb	120.133 ppb	12,056.051 ppb	120.282 ppb	119.573 ppb	119.892 ppb	119.243 ppb
Concentration per Run 1	118.489 ppb	118.590 ppb	119.916 ppb	121.986 ppb	12,119.739 ppb	120.768 ppb	119.293 ppb	119.723 ppb	118.733 ppb
Concentration per Run 2	121.110 ppb	121.274 ppb	120.269 ppb	117.790 ppb	11,970.938 ppb	118.558 ppb	118.306 ppb	118.000 ppb	118.252 ppb
Concentration per Run 3	122.908 ppb	121.811 ppb	121.270 ppb	120.621 ppb	12,077.477 ppb	121.518 ppb	121.121 ppb	121.951 ppb	120.743 ppb
Concentration RSD	1.8 %	1.4 %	0.6 %	1.8 %	0.6 %	1.3 %	1.2 %	1.7 %	1.1 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	88.485 %	120.108 ppb	119.920 ppb	120.639 ppb	122.833 ppb	86.938 %	120.582 ppb	119.769 ppb	89.995 %
Concentration per Run 1	89.816 %	119.179 ppb	117.139 ppb	120.360 ppb	122.284 ppb	87.924 %	121.122 ppb	119.919 ppb	89.858 %
Concentration per Run 2	88.520 %	118.618 ppb	120.885 ppb	119.201 ppb	122.396 ppb	86.835 %	120.245 ppb	120.538 ppb	89.332 %
Concentration per Run 3	87.120 %	122.526 ppb	121.738 ppb	122.357 ppb	123.819 ppb	86.056 %	120.378 ppb	118.850 ppb	90.794 %
Concentration RSD	1.5 %	1.8 %	2.0 %	1.3 %	0.7 %	1.1 %	0.4 %	0.7 %	0.8 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	121.028 ppb	120.200 ppb	120.303 ppb	92.251 %	93.544 %	142.774 ppb	145.751 ppb	120.889 ppb	91.653 %
Concentration per Run 1	121.978 ppb	120.993 ppb	120.935 ppb	92.588 %	94.349 %	133.585 ppb	144.522 ppb	119.776 ppb	92.336 %
Concentration per Run 2	120.546 ppb	120.058 ppb	119.627 ppb	92.297 %	93.575 %	160.628 ppb	145.965 ppb	120.899 ppb	91.698 %
Concentration per Run 3	120.561 ppb	119.547 ppb	120.347 ppb	91.870 %	92.707 %	134.110 ppb	146.887 ppb	121.992 ppb	90.926 %
Concentration RSD	0.7 %	0.6 %	0.5 %	0.4 %	0.9 %	10.8 %	0.8 %	0.9 %	0.8 %

Alpha ICPMSQ Full

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Analysis index: 9
Analysis label: Sr 200ppb
Analysis started at: 3/31/2020 10:37:48 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	71.176 %	82.868 %	0.024 ppb	52.871 ppb	17.239 ppb	25.893 ppb	23.541 ppb	0.017 ppb	77.065 %
Concentration per Run 1	71.382 %	82.004 %	0.019 ppb	48.931 ppb	20.984 ppb	24.743 ppb	28.213 ppb	-13.653 ppb	78.300 %
Concentration per Run 2	71.723 %	82.631 %	0.024 ppb	50.801 ppb	15.887 ppb	25.705 ppb	17.988 ppb	38.953 ppb	77.690 %
Concentration per Run 3	70.421 %	83.969 %	0.029 ppb	58.882 ppb	14.847 ppb	27.231 ppb	24.422 ppb	-25.250 ppb	75.206 %
Concentration RSD	0.9 %	1.2 %	20.3 %	10.0 %	19.1 %	4.8 %	22.0 %	207,343.8 %	2.1 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.948 ppb	-0.171 ppb	0.035 ppb	0.597 ppb	63.422 ppb	0.030 ppb	0.580 ppb	7.660 ppb	34.590 ppb
Concentration per Run 1	0.877 ppb	-0.135 ppb	0.061 ppb	0.644 ppb	69.236 ppb	0.050 ppb	0.573 ppb	7.653 ppb	34.885 ppb
Concentration per Run 2	0.979 ppb	-0.223 ppb	0.033 ppb	0.599 ppb	61.892 ppb	0.023 ppb	0.642 ppb	7.885 ppb	34.127 ppb
Concentration per Run 3	0.989 ppb	-0.156 ppb	0.012 ppb	0.548 ppb	59.137 ppb	0.016 ppb	0.525 ppb	7.443 ppb	34.756 ppb
Concentration RSD	6.5 %	26.6 %	70.1 %	8.1 %	8.2 %	61.0 %	10.1 %	2.9 %	1.2 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	86.345 %	0.231 ppb	0.292 ppb	194.031 ppb	7.803 ppb	86.883 %	0.245 ppb	0.014 ppb	90.097 %
Concentration per Run 1	84.716 %	0.204 ppb	0.251 ppb	193.434 ppb	7.084 ppb	86.511 %	0.247 ppb	0.024 ppb	88.584 %
Concentration per Run 2	85.155 %	0.270 ppb	0.393 ppb	188.415 ppb	8.029 ppb	86.418 %	0.247 ppb	0.010 ppb	89.098 %
Concentration per Run 3	89.164 %	0.218 ppb	0.232 ppb	200.243 ppb	8.296 ppb	87.720 %	0.242 ppb	0.008 ppb	92.609 %
Concentration RSD	2.8 %	15.0 %	30.2 %	3.1 %	8.2 %	0.8 %	1.2 %	59.8 %	2.4 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	2.277 ppb	0.259 ppb	0.198 ppb	92.310 %	94.196 %	7.740 ppb	1.224 ppb	0.161 ppb	93.072 %
Concentration per Run 1	2.251 ppb	0.232 ppb	0.185 ppb	91.449 %	92.665 %	7.228 ppb	1.392 ppb	0.178 ppb	92.538 %
Concentration per Run 2	2.302 ppb	0.240 ppb	0.213 ppb	92.603 %	93.168 %	8.022 ppb	1.229 ppb	0.149 ppb	91.589 %
Concentration per Run 3	2.277 ppb	0.306 ppb	0.195 ppb	92.878 %	96.756 %	7.970 ppb	1.051 ppb	0.156 ppb	95.090 %
Concentration RSD	1.1 %	15.6 %	7.1 %	0.8 %	2.4 %	5.7 %	13.9 %	9.3 %	1.9 %

Alpha ICPMSQ Full

3/31/2020 2:08:38 PM

Analysis index: 10 Analysis started at: 3/31/2020 10:44:37 AM
Analysis label: ICV User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	75.742 %	85.879 %	49.175 ppb	4,823.580 ppb	4,779.510 ppb	46.439 ppb	4,792.668 ppb	4,842.388 ppb	90.652 %
Concentration per Run 1	77.179 %	84.722 %	48.747 ppb	4,874.246 ppb	4,769.101 ppb	46.834 ppb	4,751.204 ppb	4,811.303 ppb	92.239 %
Concentration per Run 2	75.707 %	85.475 %	49.215 ppb	4,812.696 ppb	4,793.878 ppb	46.837 ppb	4,720.568 ppb	4,814.076 ppb	90.257 %
Concentration per Run 3	74.339 %	87.440 %	49.563 ppb	4,783.796 ppb	4,775.551 ppb	45.646 ppb	4,906.233 ppb	4,901.785 ppb	89.462 %
Recovery Percentage 1			98.350 %	96.472 %	95.590 %	92.879 %	95.853 %	96.848 %	
Concentration RSD	1.9 %	1.6 %	0.8 %	1.0 %	0.3 %	1.5 %	2.1 %	1.1 %	1.6 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	47.670 ppb	48.093 ppb	49.198 ppb	48.604 ppb	4,872.138 ppb	49.030 ppb	49.820 ppb	48.992 ppb	47.465 ppb
Concentration per Run 1	47.268 ppb	47.537 ppb	49.470 ppb	48.458 ppb	4,835.776 ppb	49.218 ppb	49.866 ppb	49.236 ppb	46.850 ppb
Concentration per Run 2	47.994 ppb	48.797 ppb	49.340 ppb	49.052 ppb	4,829.933 ppb	48.774 ppb	49.694 ppb	49.108 ppb	47.621 ppb
Concentration per Run 3	47.746 ppb	47.944 ppb	48.785 ppb	48.301 ppb	4,950.704 ppb	49.098 ppb	49.899 ppb	48.631 ppb	47.923 ppb
Recovery Percentage 1	95.340 %	96.185 %	98.397 %	97.208 %	97.443 %	98.060 %	99.640 %	97.984 %	94.929 %
Concentration RSD	0.8 %	1.3 %	0.7 %	0.8 %	1.4 %	0.5 %	0.2 %	0.7 %	1.2 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	87.398 %	47.992 ppb	48.109 ppb	47.376 ppb	49.911 ppb	87.732 %	49.915 ppb	48.753 ppb	90.356 %
Concentration per Run 1	88.505 %	47.240 ppb	48.158 ppb	47.470 ppb	50.092 ppb	88.123 %	50.291 ppb	49.139 ppb	90.042 %
Concentration per Run 2	87.447 %	48.063 ppb	47.211 ppb	46.761 ppb	50.165 ppb	88.265 %	49.463 ppb	48.419 ppb	90.704 %
Concentration per Run 3	86.243 %	48.673 ppb	48.959 ppb	47.897 ppb	49.476 ppb	86.807 %	49.992 ppb	48.703 ppb	90.322 %
Recovery Percentage 1		95.985 %	96.219 %	94.752 %	99.822 %		99.831 %	97.507 %	
Concentration RSD	1.3 %	1.5 %	1.8 %	1.2 %	0.8 %	0.9 %	0.8 %	0.7 %	0.4 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	47.838 ppb	45.223 ppb	47.817 ppb	93.957 %	95.120 %	51.955 ppb	50.872 ppb	48.314 ppb	93.841 %
Concentration per Run 1	48.429 ppb	45.562 ppb	48.004 ppb	93.769 %	94.898 %	52.679 ppb	50.665 ppb	48.215 ppb	94.729 %
Concentration per Run 2	47.389 ppb	44.946 ppb	47.244 ppb	93.777 %	95.399 %	51.619 ppb	50.456 ppb	48.231 ppb	94.331 %
Concentration per Run 3	47.694 ppb	45.161 ppb	48.204 ppb	94.324 %	95.062 %	51.569 ppb	51.495 ppb	48.495 ppb	92.464 %
Recovery Percentage 1	95.675 %	90.446 %	95.635 %			103.911 %	101.744 %	96.627 %	
Concentration RSD	1.1 %	0.7 %	1.1 %	0.3 %	0.3 %	1.2 %	1.1 %	0.3 %	1.3 %

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Analysis index: 11 Analysis started at: 3/31/2020 10:50:59 AM
Analysis label: ICB User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	69.567 %	78.449 %	0.009 ppb	-1.942 ppb	0.217 ppb	-0.192 ppb	-0.882 ppb	1.605 ppb	75.494 %
Concentration per Run 1	69.175 %	77.278 %	0.009 ppb	-6.546 ppb	0.129 ppb	-0.291 ppb	-3.193 ppb	0.145 ppb	75.326 %
Concentration per Run 2	70.548 %	78.783 %	0.006 ppb	-0.752 ppb	0.402 ppb	-0.167 ppb	-1.359 ppb	3.834 ppb	76.574 %
Concentration per Run 3	68.977 %	79.285 %	0.010 ppb	1.471 ppb	0.120 ppb	-0.117 ppb	1.906 ppb	0.836 ppb	74.583 %
Recovery Percentage 1			1.756 %	-1.942 %	0.310 %	-1.916 %	-0.882 %	1.605 %	
Concentration RSD	1.2 %	1.3 %	23.9 %	213.1 %	74.0 %	46.6 %	292.7 %	122.2 %	1.3 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.213 ppb	-0.204 ppb	-0.043 ppb	-0.033 ppb	21.934 ppb	-0.002 ppb	-0.014 ppb	-0.018 ppb	-0.303 ppb
Concentration per Run 1	0.247 ppb	-0.195 ppb	-0.058 ppb	-0.020 ppb	21.255 ppb	-0.003 ppb	0.002 ppb	-0.019 ppb	-0.366 ppb
Concentration per Run 2	0.181 ppb	-0.214 ppb	-0.038 ppb	-0.044 ppb	23.241 ppb	-0.001 ppb	-0.005 ppb	-0.041 ppb	-0.250 ppb
Concentration per Run 3	0.211 ppb	-0.202 ppb	-0.032 ppb	-0.033 ppb	21.307 ppb	-0.003 ppb	-0.037 ppb	0.005 ppb	-0.294 ppb
Recovery Percentage 1	42.556 %	-4.073 %	-4.264 %	-3.264 %	43.869 %	-0.432 %	-0.684 %	-1.836 %	-3.034 %
Concentration RSD	15.6 %	4.7 %	32.0 %	36.6 %	5.2 %	41.7 %	152.4 %	124.8 %	19.2 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	82.483 %	0.047 ppb	0.110 ppb	0.000 ppb	3.465 ppb	83.954 %	0.002 ppb	0.000 ppb	86.602 %
Concentration per Run 1	82.064 %	0.022 ppb	0.136 ppb	0.000 ppb	3.041 ppb	85.033 %	0.004 ppb	0.000 ppb	88.086 %
Concentration per Run 2	82.288 %	0.058 ppb	0.136 ppb	0.002 ppb	3.409 ppb	83.594 %	0.003 ppb	0.001 ppb	85.933 %
Concentration per Run 3	83.096 %	0.062 ppb	0.058 ppb	-0.001 ppb	3.945 ppb	83.235 %	0.001 ppb	0.000 ppb	85.786 %
Recovery Percentage 1		9.431 %	2.206 %	0.048 %	173.256 %		0.589 %	0.164 %	
Concentration RSD	0.7 %	46.4 %	40.9 %	677.5 %	13.1 %	1.1 %	58.7 %	176.4 %	1.5 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.922 ppb	0.280 ppb	-0.009 ppb	89.188 %	86.585 %	3.382 ppb	0.463 ppb	0.009 ppb	89.814 %
Concentration per Run 1	0.825 ppb	0.215 ppb	-0.011 ppb	89.421 %	90.068 %	2.934 ppb	0.473 ppb	0.009 ppb	89.922 %
Concentration per Run 2	0.905 ppb	0.295 ppb	-0.011 ppb	88.889 %	90.688 %	3.321 ppb	0.473 ppb	0.009 ppb	89.969 %
Concentration per Run 3	1.036 ppb	0.329 ppb	-0.006 ppb	89.254 %	78.999 %	3.889 ppb	0.442 ppb	0.010 ppb	89.550 %
Recovery Percentage 1	30.733 %	6.997 %	-1.861 %			169.077 %	92.559 %	0.922 %	
Concentration RSD	11.5 %	20.9 %	34.7 %	0.3 %	7.6 %	14.2 %	3.8 %	10.9 %	0.3 %

Alpha ICPMSQ Full

3/31/2020 2:08:38 PM

Analysis index: 12 Analysis started at: 3/31/2020 10:57:41 AM
Analysis label: LLCCV User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	71.191 %	81.725 %	0.308 ppb	85.483 ppb	67.142 ppb	9.501 ppb	99.279 ppb	86.092 ppb	82.234 %
Concentration per Run 1	72.974 %	79.202 %	0.310 ppb	80.809 ppb	64.068 ppb	9.576 ppb	95.677 ppb	87.206 ppb	83.291 %
Concentration per Run 2	70.792 %	79.954 %	0.283 ppb	89.628 ppb	69.481 ppb	9.631 ppb	100.305 ppb	92.555 ppb	82.397 %
Concentration per Run 3	69.807 %	86.018 %	0.329 ppb	86.013 ppb	67.878 ppb	9.295 ppb	101.855 ppb	78.515 ppb	81.014 %
Recovery Percentage 1			61.534 %	85.483 %	95.917 %	95.008 %	99.279 %	86.092 %	
Concentration RSD	2.3 %	4.6 %	7.5 %	5.2 %	4.1 %	1.9 %	3.2 %	8.2 %	1.4 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.723 ppb	5.583 ppb	1.436 ppb	1.069 ppb	79.957 ppb	0.505 ppb	2.401 ppb	1.041 ppb	9.381 ppb
Concentration per Run 1	0.772 ppb	5.652 ppb	1.375 ppb	1.059 ppb	83.019 ppb	0.482 ppb	2.508 ppb	1.157 ppb	9.433 ppb
Concentration per Run 2	0.734 ppb	5.468 ppb	1.470 ppb	1.048 ppb	79.415 ppb	0.498 ppb	2.382 ppb	1.021 ppb	9.341 ppb
Concentration per Run 3	0.663 ppb	5.629 ppb	1.464 ppb	1.100 ppb	77.439 ppb	0.537 ppb	2.313 ppb	0.944 ppb	9.370 ppb
Recovery Percentage 1	144.622 %	111.653 %	287.236 %	106.925 %	159.915 %	101.095 %	120.052 %	104.101 %	93.811 %
Concentration RSD	7.7 %	1.8 %	3.7 %	2.5 %	3.5 %	5.6 %	4.1 %	10.4 %	0.5 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	82.652 %	0.522 ppb	4.937 ppb	0.509 ppb	3.618 ppb	85.297 %	0.413 ppb	0.196 ppb	87.202 %
Concentration per Run 1	80.826 %	0.538 ppb	4.785 ppb	0.503 ppb	3.428 ppb	85.952 %	0.428 ppb	0.205 ppb	85.757 %
Concentration per Run 2	83.151 %	0.465 ppb	5.217 ppb	0.525 ppb	3.598 ppb	84.407 %	0.400 ppb	0.200 ppb	88.299 %
Concentration per Run 3	83.980 %	0.563 ppb	4.810 ppb	0.499 ppb	3.828 ppb	85.533 %	0.411 ppb	0.184 ppb	87.551 %
Recovery Percentage 1		104.396 %	98.744 %	101.787 %	180.890 %		103.294 %	98.206 %	
Concentration RSD	2.0 %	9.8 %	4.9 %	2.7 %	5.5 %	0.9 %	3.5 %	5.5 %	1.5 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	3.592 ppb	2.000 ppb	0.526 ppb	90.181 %	92.166 %	3.044 ppb	0.667 ppb	0.508 ppb	91.606 %
Concentration per Run 1	3.510 ppb	1.971 ppb	0.530 ppb	90.613 %	92.362 %	2.826 ppb	0.641 ppb	0.500 ppb	91.853 %
Concentration per Run 2	3.629 ppb	1.961 ppb	0.507 ppb	90.390 %	92.664 %	3.109 ppb	0.688 ppb	0.514 ppb	91.731 %
Concentration per Run 3	3.637 ppb	2.068 ppb	0.542 ppb	89.541 %	91.472 %	3.198 ppb	0.671 ppb	0.510 ppb	91.235 %
Recovery Percentage 1	119.742 %	50.001 %	105.247 %			152.222 %	133.321 %	101.543 %	
Concentration RSD	2.0 %	3.0 %	3.4 %	0.6 %	0.7 %	6.4 %	3.6 %	1.4 %	0.4 %

Alpha ICPMSQ Full

3/31/2020 2:08:38 PM

Analysis index: 13 Analysis started at: 3/31/2020 11:02:50 AM
Analysis label: ICSA User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	69.941 %	78.337 %	0.011 ppb	57,731.561 ppb	18,862.186 ppb	16,476.273 ppb	19,316.807 ppb	58,910.985 ppb	80.761 %
Concentration per Run 1	71.346 %	76.232 %	0.017 ppb	58,344.381 ppb	18,947.559 ppb	16,488.458 ppb	19,259.280 ppb	58,664.370 ppb	81.765 %
Concentration per Run 2	69.553 %	78.783 %	0.009 ppb	57,140.193 ppb	18,767.509 ppb	16,482.320 ppb	19,292.826 ppb	58,980.464 ppb	80.960 %
Concentration per Run 3	68.926 %	79.996 %	0.008 ppb	57,710.108 ppb	18,871.489 ppb	16,458.041 ppb	19,398.315 ppb	59,088.120 ppb	79.558 %
Recovery Percentage 1				115.463 %	94.311 %	82.381 %	96.584 %	98.185 %	
Concentration RSD	1.8 %	2.5 %	38.8 %	1.0 %	0.5 %	0.1 %	0.4 %	0.4 %	1.4 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	409.739 ppb	-0.247 ppb	0.037 ppb	0.547 ppb	56,158.218 ppb	0.261 ppb	0.240 ppb	0.150 ppb	0.024 ppb
Concentration per Run 1	408.777 ppb	-0.262 ppb	0.031 ppb	0.610 ppb	56,942.823 ppb	0.298 ppb	0.267 ppb	0.143 ppb	-0.023 ppb
Concentration per Run 2	408.178 ppb	-0.227 ppb	0.034 ppb	0.420 ppb	55,613.743 ppb	0.256 ppb	0.240 ppb	0.154 ppb	0.104 ppb
Concentration per Run 3	412.263 ppb	-0.250 ppb	0.046 ppb	0.610 ppb	55,918.088 ppb	0.230 ppb	0.212 ppb	0.153 ppb	-0.010 ppb
Recovery Percentage 1	102.435 %				112.316 %				
Concentration RSD	0.5 %	7.2 %	21.9 %	20.1 %	1.2 %	13.1 %	11.5 %	4.3 %	297.6 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	82.145 %	0.183 ppb	0.008 ppb	2.257 ppb	405.899 ppb	80.387 %	0.012 ppb	0.073 ppb	85.213 %
Concentration per Run 1	82.009 %	0.154 ppb	-0.011 ppb	2.278 ppb	409.379 ppb	80.577 %	0.013 ppb	0.062 ppb	84.534 %
Concentration per Run 2	82.054 %	0.201 ppb	-0.027 ppb	2.247 ppb	403.078 ppb	79.788 %	0.010 ppb	0.084 ppb	85.639 %
Concentration per Run 3	82.372 %	0.192 ppb	0.063 ppb	2.246 ppb	405.241 ppb	80.794 %	0.013 ppb	0.072 ppb	85.468 %
Recovery Percentage 1					101.475 %				
Concentration RSD	0.2 %	13.5 %	565.9 %	0.8 %	0.8 %	0.7 %	11.9 %	14.9 %	0.7 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.328 ppb	0.142 ppb	0.211 ppb	76.799 %	66.159 %	2.131 ppb	0.197 ppb	0.165 ppb	74.471 %
Concentration per Run 1	0.237 ppb	0.079 ppb	0.202 ppb	77.558 %	66.694 %	1.799 ppb	0.194 ppb	0.167 ppb	74.323 %
Concentration per Run 2	0.369 ppb	0.148 ppb	0.203 ppb	75.926 %	65.619 %	2.170 ppb	0.196 ppb	0.163 ppb	74.455 %
Concentration per Run 3	0.379 ppb	0.199 ppb	0.228 ppb	76.913 %	66.164 %	2.423 ppb	0.201 ppb	0.165 ppb	74.635 %
Recovery Percentage 1									
Concentration RSD	24.1 %	42.2 %	7.1 %	1.1 %	0.8 %	14.7 %	1.7 %	1.2 %	0.2 %

Alpha ICPMSQ Full

3/31/2020 2:08:38 PM

Analysis index: 14 Analysis started at: 3/31/2020 11:07:59 AM
Analysis label: Rinse User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	67.202 %	77.961 %	0.007 ppb	-4.480 ppb	0.880 ppb	1.189 ppb	0.231 ppb	4.302 ppb	77.070 %
Concentration per Run 1	67.230 %	75.689 %	0.004 ppb	-6.475 ppb	1.137 ppb	1.246 ppb	2.555 ppb	3.844 ppb	76.918 %
Concentration per Run 2	66.818 %	78.658 %	0.012 ppb	-5.135 ppb	1.105 ppb	1.327 ppb	2.728 ppb	3.037 ppb	77.169 %
Concentration per Run 3	67.559 %	79.536 %	0.006 ppb	-1.829 ppb	0.396 ppb	0.993 ppb	-4.589 ppb	6.026 ppb	77.122 %
Concentration RSD	0.6 %	2.6 %	59.0 %	53.4 %	47.6 %	14.6 %	1,804.1 %	35.9 %	0.2 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	1.630 ppb	-0.236 ppb	-0.022 ppb	0.004 ppb	118.687 ppb	0.002 ppb	0.030 ppb	0.135 ppb	0.414 ppb
Concentration per Run 1	1.796 ppb	-0.223 ppb	-0.034 ppb	-0.009 ppb	121.059 ppb	-0.001 ppb	0.063 ppb	0.148 ppb	0.411 ppb
Concentration per Run 2	1.536 ppb	-0.245 ppb	-0.025 ppb	-0.017 ppb	122.655 ppb	0.002 ppb	0.008 ppb	0.151 ppb	0.350 ppb
Concentration per Run 3	1.559 ppb	-0.242 ppb	-0.007 ppb	0.036 ppb	112.348 ppb	0.005 ppb	0.019 ppb	0.106 ppb	0.480 ppb
Concentration RSD	8.8 %	5.1 %	61.8 %	811.2 %	4.7 %	155.5 %	98.0 %	18.6 %	15.7 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	82.662 %	-0.012 ppb	0.081 ppb	0.005 ppb	22.459 ppb	85.534 %	0.001 ppb	0.003 ppb	86.724 %
Concentration per Run 1	83.328 %	-0.028 ppb	0.129 ppb	0.007 ppb	20.071 ppb	85.908 %	0.002 ppb	-0.001 ppb	86.417 %
Concentration per Run 2	81.792 %	0.009 ppb	0.096 ppb	0.009 ppb	22.814 ppb	85.119 %	-0.001 ppb	0.006 ppb	86.895 %
Concentration per Run 3	82.865 %	-0.018 ppb	0.016 ppb	-0.001 ppb	24.493 ppb	85.575 %	0.001 ppb	0.004 ppb	86.858 %
Concentration RSD	1.0 %	159.6 %	71.9 %	100.6 %	9.9 %	0.5 %	213.1 %	120.8 %	0.3 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.097 ppb	-0.230 ppb	0.005 ppb	91.235 %	93.025 %	0.636 ppb	0.085 ppb	0.007 ppb	92.416 %
Concentration per Run 1	0.046 ppb	-0.261 ppb	-0.008 ppb	90.196 %	92.550 %	0.522 ppb	0.080 ppb	0.006 ppb	92.532 %
Concentration per Run 2	0.093 ppb	-0.192 ppb	0.010 ppb	92.273 %	94.229 %	0.652 ppb	0.086 ppb	0.008 ppb	92.887 %
Concentration per Run 3	0.153 ppb	-0.237 ppb	0.013 ppb	91.234 %	92.296 %	0.735 ppb	0.089 ppb	0.006 ppb	91.828 %
Concentration RSD	55.2 %	15.3 %	233.5 %	1.1 %	1.1 %	16.9 %	5.3 %	17.3 %	0.6 %

Alpha ICPMSQ Full

3/31/2020 2:08:38 PM

Analysis index: 15 Analysis started at: 3/31/2020 11:13:03 AM
Analysis label: CCV User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	69.569 %	79.146 %	58.719 ppb	5,722.150 ppb	5,720.779 ppb	54.111 ppb	5,772.237 ppb	5,797.203 ppb	83.141 %
Concentration per Run 1	70.757 %	76.483 %	59.352 ppb	5,864.994 ppb	5,807.481 ppb	53.761 ppb	5,929.833 ppb	5,988.115 ppb	84.116 %
Concentration per Run 2	70.006 %	80.498 %	57.921 ppb	5,676.367 ppb	5,697.645 ppb	54.233 ppb	5,799.174 ppb	5,832.667 ppb	84.231 %
Concentration per Run 3	67.944 %	80.456 %	58.884 ppb	5,625.090 ppb	5,657.212 ppb	54.341 ppb	5,587.703 ppb	5,570.826 ppb	81.076 %
Recovery Percentage 1			97.865 %	95.369 %	95.346 %	90.186 %	96.204 %	96.620 %	
Concentration RSD	2.1 %	2.9 %	1.2 %	2.2 %	1.4 %	0.6 %	3.0 %	3.6 %	2.2 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	57.719 ppb	57.701 ppb	57.968 ppb	57.362 ppb	5,771.695 ppb	58.094 ppb	58.842 ppb	58.661 ppb	55.675 ppb
Concentration per Run 1	57.189 ppb	57.275 ppb	58.104 ppb	57.005 ppb	5,784.876 ppb	58.381 ppb	59.340 ppb	58.844 ppb	55.264 ppb
Concentration per Run 2	58.548 ppb	58.639 ppb	58.195 ppb	58.219 ppb	5,852.833 ppb	58.663 ppb	59.213 ppb	59.323 ppb	56.033 ppb
Concentration per Run 3	57.419 ppb	57.190 ppb	57.604 ppb	56.862 ppb	5,677.376 ppb	57.237 ppb	57.972 ppb	57.816 ppb	55.728 ppb
Recovery Percentage 1	96.198 %	96.169 %	96.613 %	95.603 %	96.195 %	96.823 %	98.070 %	97.768 %	92.792 %
Concentration RSD	1.3 %	1.4 %	0.5 %	1.3 %	1.5 %	1.3 %	1.3 %	1.3 %	0.7 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	83.252 %	55.375 ppb	54.092 ppb	56.459 ppb	65.587 ppb	86.104 %	58.348 ppb	55.874 ppb	89.521 %
Concentration per Run 1	84.164 %	54.189 ppb	53.752 ppb	56.456 ppb	66.407 ppb	87.017 %	58.347 ppb	55.407 ppb	90.249 %
Concentration per Run 2	81.864 %	56.265 ppb	54.843 ppb	56.667 ppb	65.840 ppb	86.170 %	58.804 ppb	56.235 ppb	88.755 %
Concentration per Run 3	83.726 %	55.672 ppb	53.682 ppb	56.254 ppb	64.512 ppb	85.126 %	57.895 ppb	55.979 ppb	89.559 %
Recovery Percentage 1		92.292 %	90.154 %	94.098 %	109.311 %		97.247 %	93.123 %	
Concentration RSD	1.5 %	1.9 %	1.2 %	0.4 %	1.5 %	1.1 %	0.8 %	0.8 %	0.8 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	55.080 ppb	55.438 ppb	56.708 ppb	92.923 %	94.385 %	62.705 ppb	63.525 ppb	59.962 ppb	87.659 %
Concentration per Run 1	54.992 ppb	57.396 ppb	56.470 ppb	92.997 %	93.459 %	65.308 ppb	69.246 ppb	66.192 ppb	78.823 %
Concentration per Run 2	55.582 ppb	54.828 ppb	56.733 ppb	93.031 %	95.343 %	62.018 ppb	60.896 ppb	57.052 ppb	92.153 %
Concentration per Run 3	54.664 ppb	54.090 ppb	56.921 ppb	92.742 %	94.353 %	60.788 ppb	60.432 ppb	56.641 ppb	92.001 %
Recovery Percentage 1	91.799 %	92.397 %	94.513 %			104.508 %	105.874 %	99.936 %	
Concentration RSD	0.8 %	3.1 %	0.4 %	0.2 %	1.0 %	3.7 %	7.8 %	9.0 %	8.7 %

Alpha ICPMSQ Full

3/31/2020 2:08:38 PM

Analysis index: 16
Analysis label: CCB
Analysis started at: 3/31/2020 11:18:11 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	65.101 %	77.152 %	0.018 ppb	-13.593 ppb	0.084 ppb	-0.206 ppb	-0.953 ppb	1.236 ppb	70.562 %
Concentration per Run 1	65.804 %	76.525 %	0.014 ppb	-16.493 ppb	-0.153 ppb	-0.240 ppb	1.808 ppb	2.546 ppb	70.983 %
Concentration per Run 2	65.349 %	76.818 %	0.021 ppb	-15.007 ppb	0.134 ppb	-0.142 ppb	-2.080 ppb	1.744 ppb	71.384 %
Concentration per Run 3	64.151 %	78.114 %	0.018 ppb	-9.277 ppb	0.270 ppb	-0.236 ppb	-2.587 ppb	-0.582 ppb	69.319 %
Recovery Percentage 1			3.521 %	-13.593 %	0.120 %	-2.060 %	-0.953 %	1.236 %	
Concentration RSD	1.3 %	1.1 %	20.6 %	28.0 %	257.6 %	27.1 %	252.3 %	131.5 %	1.6 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.502 ppb	-0.226 ppb	-0.052 ppb	-0.031 ppb	50.963 ppb	-0.001 ppb	-0.002 ppb	-0.015 ppb	-0.484 ppb
Concentration per Run 1	0.498 ppb	-0.211 ppb	-0.075 ppb	-0.055 ppb	49.714 ppb	0.001 ppb	0.017 ppb	0.004 ppb	-0.502 ppb
Concentration per Run 2	0.514 ppb	-0.234 ppb	-0.025 ppb	-0.019 ppb	50.135 ppb	-0.001 ppb	-0.008 ppb	-0.049 ppb	-0.466 ppb
Concentration per Run 3	0.493 ppb	-0.235 ppb	-0.056 ppb	-0.019 ppb	53.040 ppb	-0.003 ppb	-0.016 ppb	-0.001 ppb	-0.483 ppb
Recovery Percentage 1	100.343 %	-4.528 %	-5.195 %	-3.107 %	101.926 %	-0.207 %	-0.109 %	-1.541 %	-4.836 %
Concentration RSD	2.2 %	6.0 %	48.4 %	66.4 %	3.6 %	155.5 %	793.0 %	187.3 %	3.7 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	80.101 %	0.032 ppb	0.209 ppb	0.000 ppb	5.569 ppb	82.351 %	0.002 ppb	0.000 ppb	84.838 %
Concentration per Run 1	80.025 %	0.033 ppb	0.132 ppb	-0.002 ppb	4.840 ppb	82.769 %	0.002 ppb	0.000 ppb	84.321 %
Concentration per Run 2	79.969 %	0.051 ppb	0.192 ppb	0.001 ppb	5.730 ppb	82.210 %	0.002 ppb	-0.001 ppb	85.353 %
Concentration per Run 3	80.307 %	0.011 ppb	0.301 ppb	0.000 ppb	6.135 ppb	82.072 %	0.001 ppb	0.002 ppb	84.841 %
Recovery Percentage 1		6.363 %	4.171 %	-0.079 %	278.430 %		0.409 %	0.187 %	
Concentration RSD	0.2 %	63.3 %	41.2 %	356.3 %	11.9 %	0.4 %	58.7 %	407.8 %	0.6 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.879 ppb	-0.290 ppb	-0.008 ppb	88.485 %	91.069 %	2.892 ppb	0.313 ppb	0.009 ppb	90.184 %
Concentration per Run 1	0.769 ppb	-0.323 ppb	-0.014 ppb	88.567 %	91.407 %	2.576 ppb	0.312 ppb	0.011 ppb	90.160 %
Concentration per Run 2	0.891 ppb	-0.284 ppb	0.000 ppb	88.035 %	90.800 %	2.898 ppb	0.311 ppb	0.007 ppb	90.743 %
Concentration per Run 3	0.977 ppb	-0.263 ppb	-0.011 ppb	88.852 %	91.001 %	3.201 ppb	0.317 ppb	0.009 ppb	89.651 %
Recovery Percentage 1	29.294 %	-7.249 %	-1.649 %			144.582 %	62.625 %	0.906 %	
Concentration RSD	11.9 %	10.5 %	89.7 %	0.5 %	0.3 %	10.8 %	1.0 %	20.4 %	0.6 %

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Analysis index: 17
Analysis label: XWG1356665-1 6020TL
Analysis started at: 3/31/2020 11:23:21 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	66.142 %	77.473 %	0.017 ppb	-11.173 ppb	1.309 ppb	0.812 ppb	0.643 ppb	4.127 ppb	71.525 %
Concentration per Run 1	65.931 %	75.731 %	0.007 ppb	-14.534 ppb	1.144 ppb	1.047 ppb	-0.990 ppb	3.912 ppb	71.940 %
Concentration per Run 2	66.896 %	77.320 %	0.011 ppb	-8.293 ppb	1.267 ppb	0.740 ppb	4.250 ppb	4.650 ppb	72.049 %
Concentration per Run 3	65.598 %	79.369 %	0.033 ppb	-10.694 ppb	1.516 ppb	0.650 ppb	-1.331 ppb	3.821 ppb	70.586 %
Concentration RSD	1.0 %	2.4 %	84.2 %	28.2 %	14.5 %	25.6 %	486.7 %	11.0 %	1.1 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.334 ppb	-0.232 ppb	0.672 ppb	0.106 ppb	23.779 ppb	0.004 ppb	0.422 ppb	0.152 ppb	-0.299 ppb
Concentration per Run 1	0.363 ppb	-0.194 ppb	0.678 ppb	0.087 ppb	26.766 ppb	0.004 ppb	0.453 ppb	0.135 ppb	-0.290 ppb
Concentration per Run 2	0.329 ppb	-0.240 ppb	0.681 ppb	0.106 ppb	21.724 ppb	-0.001 ppb	0.370 ppb	0.199 ppb	-0.318 ppb
Concentration per Run 3	0.309 ppb	-0.263 ppb	0.658 ppb	0.124 ppb	22.846 ppb	0.008 ppb	0.443 ppb	0.121 ppb	-0.289 ppb
Concentration RSD	8.2 %	15.2 %	1.9 %	17.7 %	11.1 %	129.4 %	10.7 %	27.4 %	5.4 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	81.564 %	-0.015 ppb	0.095 ppb	0.007 ppb	2.699 ppb	83.928 %	0.001 ppb	0.000 ppb	85.819 %
Concentration per Run 1	81.791 %	-0.017 ppb	-0.003 ppb	0.009 ppb	2.515 ppb	83.414 %	0.000 ppb	0.000 ppb	84.555 %
Concentration per Run 2	81.410 %	-0.016 ppb	0.140 ppb	0.007 ppb	2.735 ppb	84.583 %	0.001 ppb	-0.001 ppb	85.338 %
Concentration per Run 3	81.490 %	-0.014 ppb	0.149 ppb	0.005 ppb	2.846 ppb	83.788 %	0.002 ppb	0.002 ppb	87.564 %
Concentration RSD	0.2 %	10.1 %	89.5 %	27.9 %	6.2 %	0.7 %	62.1 %	443.7 %	1.8 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.044 ppb	-0.465 ppb	0.008 ppb	88.977 %	91.506 %	1.221 ppb	0.132 ppb	0.012 ppb	90.749 %
Concentration per Run 1	0.097 ppb	-0.480 ppb	-0.003 ppb	88.304 %	91.294 %	1.099 ppb	0.128 ppb	0.011 ppb	89.084 %
Concentration per Run 2	0.006 ppb	-0.449 ppb	0.006 ppb	88.868 %	91.253 %	1.199 ppb	0.138 ppb	0.013 ppb	91.080 %
Concentration per Run 3	0.030 ppb	-0.467 ppb	0.022 ppb	89.758 %	91.971 %	1.365 ppb	0.131 ppb	0.013 ppb	92.082 %
Concentration RSD	107.0 %	3.3 %	150.0 %	0.8 %	0.4 %	11.0 %	3.9 %	10.4 %	1.7 %

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Analysis index: 18
Analysis label: XWG1355907-1 6020TL
Analysis started at: 3/31/2020 11:28:25 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	67.487 %	78.226 %	0.006 ppb	-10.336 ppb	1.804 ppb	1.030 ppb	0.263 ppb	10.186 ppb	74.204 %
Concentration per Run 1	67.367 %	76.023 %	0.004 ppb	-12.041 ppb	1.851 ppb	1.112 ppb	2.337 ppb	8.342 ppb	74.272 %
Concentration per Run 2	67.169 %	80.038 %	0.008 ppb	-12.339 ppb	2.182 ppb	0.941 ppb	-2.190 ppb	14.002 ppb	74.141 %
Concentration per Run 3	67.924 %	78.616 %	0.008 ppb	-6.628 ppb	1.379 ppb	1.038 ppb	0.643 ppb	8.215 ppb	74.200 %
Concentration RSD	0.6 %	2.6 %	35.7 %	31.1 %	22.4 %	8.3 %	868.6 %	32.4 %	0.1 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.251 ppb	-0.173 ppb	0.686 ppb	0.216 ppb	22.461 ppb	0.002 ppb	0.784 ppb	0.312 ppb	1.418 ppb
Concentration per Run 1	0.274 ppb	-0.204 ppb	0.666 ppb	0.198 ppb	24.292 ppb	-0.001 ppb	0.878 ppb	0.335 ppb	1.364 ppb
Concentration per Run 2	0.246 ppb	-0.132 ppb	0.713 ppb	0.262 ppb	23.218 ppb	0.005 ppb	0.685 ppb	0.301 ppb	1.421 ppb
Concentration per Run 3	0.233 ppb	-0.184 ppb	0.678 ppb	0.188 ppb	19.873 ppb	0.002 ppb	0.789 ppb	0.299 ppb	1.470 ppb
Concentration RSD	8.4 %	21.6 %	3.6 %	18.7 %	10.3 %	157.0 %	12.3 %	6.5 %	3.7 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	83.079 %	-0.011 ppb	0.030 ppb	0.010 ppb	1.448 ppb	84.622 %	0.000 ppb	-0.001 ppb	86.635 %
Concentration per Run 1	82.870 %	-0.015 ppb	0.008 ppb	0.013 ppb	1.261 ppb	85.912 %	-0.001 ppb	0.000 ppb	86.832 %
Concentration per Run 2	83.314 %	-0.003 ppb	0.057 ppb	0.009 ppb	1.451 ppb	84.314 %	0.000 ppb	-0.001 ppb	87.340 %
Concentration per Run 3	83.052 %	-0.015 ppb	0.025 ppb	0.008 ppb	1.632 ppb	83.640 %	0.000 ppb	-0.002 ppb	85.732 %
Concentration RSD	0.3 %	66.2 %	82.3 %	26.1 %	12.8 %	1.4 %	107.7 %	98.3 %	0.9 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.019 ppb	-0.493 ppb	0.006 ppb	89.883 %	92.155 %	0.692 ppb	0.081 ppb	0.010 ppb	91.084 %
Concentration per Run 1	-0.059 ppb	-0.517 ppb	0.011 ppb	91.289 %	92.395 %	0.601 ppb	0.074 ppb	0.011 ppb	91.470 %
Concentration per Run 2	0.016 ppb	-0.489 ppb	0.016 ppb	89.775 %	92.390 %	0.695 ppb	0.084 ppb	0.009 ppb	92.105 %
Concentration per Run 3	0.099 ppb	-0.474 ppb	-0.008 ppb	88.585 %	91.682 %	0.780 ppb	0.087 ppb	0.010 ppb	89.676 %
Concentration RSD	419.7 %	4.5 %	209.3 %	1.5 %	0.4 %	12.9 %	8.6 %	9.5 %	1.4 %

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Analysis index: 19
Analysis label: XWG1356665-2D10 6020TL
Analysis started at: 3/31/2020 11:33:31 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	68.895 %	77.515 %	4.715 ppb	909.957 ppb	987.382 ppb	184.111 ppb	940.940 ppb	923.859 ppb	78.875 %
Concentration per Run 1	70.172 %	77.822 %	4.803 ppb	904.502 ppb	973.812 ppb	179.333 ppb	932.244 ppb	903.667 ppb	80.220 %
Concentration per Run 2	69.272 %	76.734 %	4.667 ppb	930.151 ppb	1,021.492 ppb	193.340 ppb	984.275 ppb	938.365 ppb	78.910 %
Concentration per Run 3	67.240 %	77.989 %	4.675 ppb	895.216 ppb	966.841 ppb	179.660 ppb	906.302 ppb	929.545 ppb	77.494 %
Concentration RSD	2.2 %	0.9 %	1.6 %	2.0 %	3.0 %	4.3 %	4.2 %	2.0 %	1.7 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	77.536 ppb	47.420 ppb	19.154 ppb	46.803 ppb	109.388 ppb	47.636 ppb	48.427 ppb	23.443 ppb	46.386 ppb
Concentration per Run 1	74.634 ppb	47.104 ppb	18.976 ppb	46.477 ppb	98.992 ppb	48.026 ppb	48.598 ppb	23.460 ppb	45.831 ppb
Concentration per Run 2	80.538 ppb	48.193 ppb	19.316 ppb	47.445 ppb	118.105 ppb	47.600 ppb	48.184 ppb	23.162 ppb	46.822 ppb
Concentration per Run 3	77.436 ppb	46.962 ppb	19.170 ppb	46.487 ppb	111.066 ppb	47.281 ppb	48.500 ppb	23.706 ppb	46.506 ppb
Concentration RSD	3.8 %	1.4 %	0.9 %	1.2 %	8.8 %	0.8 %	0.4 %	1.2 %	1.1 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	85.763 %	10.727 ppb	10.366 ppb	90.164 ppb	80.894 ppb	86.328 %	4.825 ppb	4.975 ppb	88.443 %
Concentration per Run 1	86.452 %	10.705 ppb	10.075 ppb	90.482 ppb	82.034 ppb	87.022 %	4.804 ppb	5.063 ppb	88.916 %
Concentration per Run 2	86.019 %	11.136 ppb	10.823 ppb	92.982 ppb	80.865 ppb	86.888 %	4.808 ppb	4.984 ppb	89.898 %
Concentration per Run 3	84.819 %	10.338 ppb	10.200 ppb	87.029 ppb	79.784 ppb	85.073 %	4.863 ppb	4.878 ppb	86.516 %
Concentration RSD	1.0 %	3.7 %	3.9 %	3.3 %	1.4 %	1.3 %	0.7 %	1.9 %	2.0 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	88.561 ppb	36.679 ppb	188.407 ppb	91.494 %	93.783 %	0.724 ppb	11.981 ppb	50.267 ppb	92.613 %
Concentration per Run 1	89.224 ppb	36.235 ppb	187.488 ppb	92.507 %	95.765 %	0.588 ppb	12.065 ppb	50.597 ppb	93.842 %
Concentration per Run 2	88.780 ppb	36.998 ppb	191.818 ppb	92.118 %	94.614 %	0.738 ppb	11.868 ppb	50.009 ppb	92.831 %
Concentration per Run 3	87.680 ppb	36.803 ppb	185.914 ppb	89.857 %	90.971 %	0.845 ppb	12.011 ppb	50.196 ppb	91.166 %
Concentration RSD	0.9 %	1.1 %	1.6 %	1.6 %	2.7 %	17.8 %	0.8 %	0.6 %	1.5 %

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Analysis index: 20
Analysis label: XWG1355907-2D5 6020TL
Analysis started at: 3/31/2020 11:38:36 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	67.009 %	78.965 %	9.605 ppb	1,873.525 ppb	2,003.271 ppb	364.487 ppb	1,921.898 ppb	1,863.912 ppb	75.694 %
Concentration per Run 1	67.766 %	77.738 %	9.435 ppb	1,954.887 ppb	2,091.401 ppb	384.172 ppb	2,047.335 ppb	1,847.874 ppb	77.226 %
Concentration per Run 2	67.147 %	80.205 %	9.816 ppb	1,793.952 ppb	1,889.983 ppb	346.286 ppb	1,809.432 ppb	1,849.986 ppb	75.328 %
Concentration per Run 3	66.116 %	78.951 %	9.565 ppb	1,871.735 ppb	2,028.431 ppb	363.002 ppb	1,908.926 ppb	1,893.877 ppb	74.530 %
Concentration RSD	1.2 %	1.6 %	2.0 %	4.3 %	5.1 %	5.2 %	6.2 %	1.4 %	1.8 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	157.532 ppb	97.158 ppb	38.715 ppb	94.596 ppb	207.768 ppb	97.470 ppb	97.348 ppb	47.402 ppb	95.020 ppb
Concentration per Run 1	161.874 ppb	98.667 ppb	38.235 ppb	94.521 ppb	208.846 ppb	96.290 ppb	96.524 ppb	47.059 ppb	94.229 ppb
Concentration per Run 2	151.737 ppb	96.459 ppb	38.852 ppb	94.959 ppb	209.243 ppb	99.352 ppb	99.012 ppb	48.409 ppb	96.123 ppb
Concentration per Run 3	158.986 ppb	96.348 ppb	39.057 ppb	94.308 ppb	205.215 ppb	96.769 ppb	96.508 ppb	46.737 ppb	94.708 ppb
Concentration RSD	3.3 %	1.3 %	1.1 %	0.4 %	1.1 %	1.7 %	1.5 %	1.9 %	1.0 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	83.324 %	19.382 ppb	21.922 ppb	188.185 ppb	182.959 ppb	83.983 %	9.978 ppb	10.104 ppb	86.200 %
Concentration per Run 1	86.438 %	19.263 ppb	22.301 ppb	197.707 ppb	184.935 ppb	85.211 %	9.803 ppb	9.961 ppb	89.355 %
Concentration per Run 2	79.186 %	19.645 ppb	21.307 ppb	180.983 ppb	183.098 ppb	82.584 %	10.128 ppb	10.064 ppb	81.735 %
Concentration per Run 3	84.349 %	19.237 ppb	22.157 ppb	185.866 ppb	180.843 ppb	84.153 %	10.002 ppb	10.288 ppb	87.510 %
Concentration RSD	4.5 %	1.2 %	2.5 %	4.6 %	1.1 %	1.6 %	1.6 %	1.7 %	4.6 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	184.449 ppb	76.356 ppb	388.679 ppb	89.840 %	92.195 %	0.580 ppb	25.542 ppb	104.822 ppb	91.878 %
Concentration per Run 1	185.182 ppb	76.403 ppb	394.444 ppb	92.867 %	96.827 %	0.445 ppb	25.622 ppb	104.890 ppb	92.809 %
Concentration per Run 2	186.480 ppb	76.829 ppb	383.497 ppb	87.060 %	88.274 %	0.634 ppb	25.525 ppb	104.175 ppb	91.324 %
Concentration per Run 3	181.685 ppb	75.835 ppb	388.097 ppb	89.594 %	91.484 %	0.661 ppb	25.479 ppb	105.401 ppb	91.500 %
Concentration RSD	1.3 %	0.7 %	1.4 %	3.2 %	4.7 %	20.3 %	0.3 %	0.6 %	0.9 %

Alpha ICPMSQ Full

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Analysis index: 21
Analysis label: XWG1356665-3D10 6020TL
Analysis started at: 3/31/2020 11:43:42 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	65.315 %	75.340 %	5.017 ppb	7,416.283 ppb	3,559.475 ppb	192.265 ppb	1,784.464 ppb	5,754.638 ppb	71.835 %
Concentration per Run 1	65.713 %	71.298 %	5.017 ppb	7,498.315 ppb	3,561.297 ppb	188.216 ppb	1,775.842 ppb	5,671.652 ppb	71.363 %
Concentration per Run 2	66.388 %	77.278 %	4.984 ppb	7,395.565 ppb	3,524.664 ppb	193.691 ppb	1,768.639 ppb	5,806.330 ppb	74.300 %
Concentration per Run 3	63.846 %	77.445 %	5.050 ppb	7,354.968 ppb	3,592.463 ppb	194.887 ppb	1,808.912 ppb	5,785.933 ppb	69.841 %
Concentration RSD	2.0 %	4.6 %	0.7 %	1.0 %	1.0 %	1.9 %	1.2 %	1.3 %	3.2 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	90.730 ppb	52.021 ppb	20.606 ppb	50.422 ppb	185.405 ppb	51.767 ppb	53.938 ppb	25.351 ppb	51.348 ppb
Concentration per Run 1	89.254 ppb	52.318 ppb	20.777 ppb	50.434 ppb	191.794 ppb	53.548 ppb	56.171 ppb	26.290 ppb	52.730 ppb
Concentration per Run 2	89.232 ppb	51.144 ppb	20.337 ppb	49.717 ppb	178.535 ppb	51.016 ppb	52.160 ppb	24.638 ppb	50.443 ppb
Concentration per Run 3	93.704 ppb	52.599 ppb	20.705 ppb	51.114 ppb	185.888 ppb	50.738 ppb	53.483 ppb	25.126 ppb	50.870 ppb
Concentration RSD	2.8 %	1.5 %	1.1 %	1.4 %	3.6 %	3.0 %	3.8 %	3.3 %	2.4 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	80.247 %	11.566 ppb	10.501 ppb	104.077 ppb	107.569 ppb	82.921 %	5.097 ppb	5.334 ppb	84.979 %
Concentration per Run 1	77.148 %	11.682 ppb	10.098 ppb	102.453 ppb	107.236 ppb	82.897 %	5.112 ppb	5.402 ppb	82.265 %
Concentration per Run 2	81.377 %	11.408 ppb	10.583 ppb	104.147 ppb	106.944 ppb	82.326 %	5.038 ppb	5.253 ppb	86.499 %
Concentration per Run 3	82.215 %	11.609 ppb	10.823 ppb	105.632 ppb	108.528 ppb	83.539 %	5.142 ppb	5.347 ppb	86.172 %
Concentration RSD	3.4 %	1.2 %	3.5 %	1.5 %	0.8 %	0.7 %	1.1 %	1.4 %	2.8 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	103.795 ppb	54.484 ppb	206.813 ppb	88.073 %	88.709 %	0.471 ppb	13.134 ppb	54.478 ppb	91.552 %
Concentration per Run 1	104.349 ppb	54.337 ppb	204.904 ppb	87.056 %	86.408 %	0.411 ppb	13.344 ppb	54.898 ppb	91.185 %
Concentration per Run 2	103.572 ppb	54.120 ppb	207.856 ppb	88.355 %	90.519 %	0.451 ppb	12.993 ppb	53.772 ppb	92.218 %
Concentration per Run 3	103.462 ppb	54.995 ppb	207.678 ppb	88.810 %	89.199 %	0.551 ppb	13.064 ppb	54.764 ppb	91.252 %
Concentration RSD	0.5 %	0.8 %	0.8 %	1.0 %	2.4 %	15.3 %	1.4 %	1.1 %	0.6 %

Alpha ICPMSQ Full

3/31/2020 2:08:38 PM

Analysis index: 22
Analysis label: XWG1355907-5D10 6020TL
Analysis started at: 3/31/2020 11:48:47 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	65.208 %	74.727 %	45.483 ppb	27,729.221 ppb	8,775.050 ppb	59.543 ppb	5,545.431 ppb	18,947.416 ppb	75.007 %
Concentration per Run 1	65.591 %	71.423 %	45.017 ppb	28,728.153 ppb	8,983.136 ppb	59.778 ppb	5,714.880 ppb	19,562.855 ppb	74.661 %
Concentration per Run 2	65.276 %	76.985 %	45.667 ppb	27,010.174 ppb	8,568.007 ppb	59.100 ppb	5,461.657 ppb	18,695.795 ppb	75.388 %
Concentration per Run 3	64.757 %	75.772 %	45.763 ppb	27,449.337 ppb	8,774.007 ppb	59.749 ppb	5,459.755 ppb	18,583.597 ppb	74.971 %
Concentration RSD	0.6 %	3.9 %	0.9 %	3.2 %	2.4 %	0.6 %	2.6 %	2.8 %	0.5 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	70.397 ppb	46.778 ppb	47.433 ppb	57.126 ppb	4,731.056 ppb	47.047 ppb	49.838 ppb	46.857 ppb	87.265 ppb
Concentration per Run 1	71.601 ppb	47.364 ppb	48.582 ppb	58.495 ppb	4,850.227 ppb	48.645 ppb	51.138 ppb	48.281 ppb	88.386 ppb
Concentration per Run 2	70.730 ppb	46.647 ppb	47.330 ppb	56.689 ppb	4,754.883 ppb	46.746 ppb	50.052 ppb	47.125 ppb	86.970 ppb
Concentration per Run 3	68.859 ppb	46.323 ppb	46.389 ppb	56.193 ppb	4,588.059 ppb	45.750 ppb	48.323 ppb	45.164 ppb	86.439 ppb
Concentration RSD	2.0 %	1.1 %	2.3 %	2.1 %	2.8 %	3.1 %	2.8 %	3.4 %	1.2 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	79.680 %	44.030 ppb	41.758 ppb	82.633 ppb	59.492 ppb	80.482 %	1.230 ppb	45.044 ppb	84.095 %
Concentration per Run 1	78.471 %	44.259 ppb	42.030 ppb	83.980 ppb	59.404 ppb	80.960 %	1.232 ppb	44.730 ppb	85.134 %
Concentration per Run 2	79.308 %	44.202 ppb	42.580 ppb	82.327 ppb	59.863 ppb	80.095 %	1.264 ppb	45.322 ppb	83.770 %
Concentration per Run 3	81.260 %	43.627 ppb	40.663 ppb	81.593 ppb	59.207 ppb	80.391 %	1.195 ppb	45.080 ppb	83.382 %
Concentration RSD	1.8 %	0.8 %	2.4 %	1.5 %	0.6 %	0.5 %	2.8 %	0.7 %	1.1 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	51.373 ppb	47.159 ppb	53.701 ppb	88.230 %	81.919 %	49.864 ppb	51.728 ppb	50.640 ppb	84.584 %
Concentration per Run 1	50.807 ppb	46.767 ppb	53.143 ppb	89.194 %	79.029 %	52.168 ppb	49.783 ppb	48.677 ppb	88.895 %
Concentration per Run 2	51.510 ppb	47.175 ppb	54.552 ppb	87.296 %	77.423 %	50.819 ppb	49.151 ppb	47.747 ppb	88.603 %
Concentration per Run 3	51.804 ppb	47.535 ppb	53.409 ppb	88.200 %	89.304 %	46.606 ppb	56.251 ppb	55.497 ppb	76.254 %
Concentration RSD	1.0 %	0.8 %	1.4 %	1.1 %	7.9 %	5.8 %	7.6 %	8.4 %	8.5 %

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Analysis index: 23
Analysis label: XWG1356665-5D10 6020TL
Analysis started at: 3/31/2020 11:53:51 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	64.460 %	73.612 %	43.584 ppb	10,760.244 ppb	6,930.722 ppb	45.386 ppb	5,367.210 ppb	9,268.642 ppb	73.030 %
Concentration per Run 1	65.123 %	69.667 %	42.951 ppb	11,075.163 ppb	7,140.067 ppb	45.957 ppb	5,593.885 ppb	9,433.969 ppb	73.745 %
Concentration per Run 2	64.102 %	74.100 %	43.180 ppb	10,863.106 ppb	6,901.575 ppb	45.822 ppb	5,303.559 ppb	9,147.650 ppb	72.910 %
Concentration per Run 3	64.155 %	77.069 %	44.623 ppb	10,342.464 ppb	6,750.525 ppb	44.380 ppb	5,204.187 ppb	9,224.305 ppb	72.435 %
Concentration RSD	0.9 %	5.1 %	2.1 %	3.5 %	2.8 %	1.9 %	3.8 %	1.6 %	0.9 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	53.334 ppb	45.837 ppb	46.202 ppb	45.509 ppb	4,640.408 ppb	46.247 ppb	47.837 ppb	45.564 ppb	43.828 ppb
Concentration per Run 1	53.426 ppb	45.684 ppb	46.443 ppb	45.945 ppb	4,651.734 ppb	46.593 ppb	47.395 ppb	46.345 ppb	44.193 ppb
Concentration per Run 2	53.482 ppb	46.761 ppb	46.288 ppb	44.913 ppb	4,628.352 ppb	45.577 ppb	48.320 ppb	44.871 ppb	43.245 ppb
Concentration per Run 3	53.094 ppb	45.067 ppb	45.875 ppb	45.668 ppb	4,641.138 ppb	46.569 ppb	47.798 ppb	45.477 ppb	44.047 ppb
Concentration RSD	0.4 %	1.9 %	0.6 %	1.2 %	0.3 %	1.3 %	1.0 %	1.6 %	1.2 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	79.039 %	42.937 ppb	40.414 ppb	54.182 ppb	51.054 ppb	78.847 %	1.359 ppb	44.899 ppb	82.552 %
Concentration per Run 1	79.804 %	42.567 ppb	39.610 ppb	54.770 ppb	50.455 ppb	79.478 %	1.370 ppb	45.535 ppb	82.733 %
Concentration per Run 2	78.596 %	43.060 ppb	40.648 ppb	53.210 ppb	50.878 ppb	78.569 %	1.399 ppb	44.494 ppb	81.733 %
Concentration per Run 3	78.716 %	43.184 ppb	40.983 ppb	54.566 ppb	51.828 ppb	78.494 %	1.308 ppb	44.668 ppb	83.191 %
Concentration RSD	0.8 %	0.8 %	1.8 %	1.6 %	1.4 %	0.7 %	3.4 %	1.2 %	0.9 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	49.265 ppb	45.262 ppb	47.930 ppb	87.102 %	81.688 %	51.418 ppb	50.046 ppb	47.452 ppb	89.299 %
Concentration per Run 1	49.055 ppb	45.033 ppb	47.341 ppb	88.745 %	90.292 %	48.581 ppb	49.022 ppb	46.902 ppb	91.213 %
Concentration per Run 2	49.250 ppb	45.419 ppb	47.937 ppb	86.396 %	76.876 %	53.171 ppb	50.768 ppb	47.869 ppb	87.732 %
Concentration per Run 3	49.491 ppb	45.335 ppb	48.512 ppb	86.166 %	77.895 %	52.503 ppb	50.349 ppb	47.584 ppb	88.951 %
Concentration RSD	0.4 %	0.4 %	1.2 %	1.6 %	9.1 %	4.8 %	1.8 %	1.0 %	2.0 %

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Analysis index: 24
Analysis label: XWG1356665-4 6020TL
Analysis started at: 3/31/2020 11:58:56 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	65.049 %	75.257 %	0.111 ppb	75,532.469 ppb	24,384.469 ppb	38.169 ppb	8,134.767 ppb	47,790.179 ppb	64.409 %
Concentration per Run 1	65.470 %	73.347 %	0.101 ppb	76,411.119 ppb	24,663.481 ppb	37.196 ppb	8,238.898 ppb	48,371.518 ppb	64.907 %
Concentration per Run 2	65.485 %	76.860 %	0.107 ppb	74,618.783 ppb	24,301.374 ppb	39.305 ppb	8,079.406 ppb	47,096.287 ppb	65.385 %
Concentration per Run 3	64.193 %	75.563 %	0.126 ppb	75,567.504 ppb	24,188.552 ppb	38.007 ppb	8,085.996 ppb	47,902.731 ppb	62.935 %
Concentration RSD	1.1 %	2.4 %	11.8 %	1.2 %	1.0 %	2.8 %	1.1 %	1.3 %	2.0 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	81.468 ppb	0.983 ppb	0.748 ppb	3.673 ppb	704.605 ppb	0.751 ppb	21.939 ppb	2.417 ppb	17.069 ppb
Concentration per Run 1	82.324 ppb	0.960 ppb	0.733 ppb	3.731 ppb	718.889 ppb	0.796 ppb	22.528 ppb	2.412 ppb	17.150 ppb
Concentration per Run 2	80.740 ppb	1.017 ppb	0.789 ppb	3.805 ppb	691.934 ppb	0.733 ppb	21.557 ppb	2.457 ppb	17.184 ppb
Concentration per Run 3	81.340 ppb	0.971 ppb	0.722 ppb	3.482 ppb	702.991 ppb	0.722 ppb	21.733 ppb	2.382 ppb	16.874 ppb
Concentration RSD	1.0 %	3.1 %	4.8 %	4.6 %	1.9 %	5.3 %	2.4 %	1.6 %	1.0 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	78.534 %	1.153 ppb	0.567 ppb	73.763 ppb	8.277 ppb	77.485 %	0.004 ppb	0.016 ppb	82.581 %
Concentration per Run 1	79.425 %	1.113 ppb	0.693 ppb	73.819 ppb	7.223 ppb	77.896 %	0.003 ppb	0.017 ppb	82.545 %
Concentration per Run 2	77.605 %	1.217 ppb	0.565 ppb	73.557 ppb	8.771 ppb	77.500 %	0.005 ppb	0.025 ppb	83.196 %
Concentration per Run 3	78.574 %	1.129 ppb	0.442 ppb	73.915 ppb	8.836 ppb	77.061 %	0.003 ppb	0.005 ppb	82.000 %
Concentration RSD	1.2 %	4.9 %	22.2 %	0.3 %	11.0 %	0.5 %	24.9 %	62.7 %	0.7 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	2.277 ppb	0.548 ppb	10.904 ppb	78.397 %	69.136 %	6.603 ppb	0.982 ppb	1.013 ppb	73.600 %
Concentration per Run 1	2.071 ppb	0.454 ppb	10.604 ppb	79.358 %	69.962 %	5.933 ppb	1.039 ppb	1.008 ppb	73.771 %
Concentration per Run 2	2.284 ppb	0.543 ppb	11.040 ppb	77.946 %	68.735 %	6.665 ppb	1.003 ppb	1.005 ppb	73.572 %
Concentration per Run 3	2.476 ppb	0.646 ppb	11.069 ppb	77.886 %	68.710 %	7.211 ppb	0.904 ppb	1.026 ppb	73.455 %
Concentration RSD	8.9 %	17.5 %	2.4 %	1.1 %	1.0 %	9.7 %	7.1 %	1.1 %	0.2 %

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Analysis index: 25
Analysis label: XL2013805-01 6020TL
Analysis started at: 3/31/2020 12:04:01 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	65.336 %	76.483 %	0.115 ppb	73,706.645 ppb	23,853.013 ppb	36.566 ppb	7,968.338 ppb	46,179.477 ppb	55.977 %
Concentration per Run 1	66.017 %	74.811 %	0.124 ppb	75,526.719 ppb	24,244.368 ppb	37.577 ppb	8,014.592 ppb	46,216.621 ppb	57.199 %
Concentration per Run 2	65.246 %	77.278 %	0.108 ppb	73,155.884 ppb	23,789.887 ppb	36.616 ppb	7,838.543 ppb	45,777.508 ppb	55.622 %
Concentration per Run 3	64.746 %	77.362 %	0.111 ppb	72,437.330 ppb	23,524.785 ppb	35.505 ppb	8,051.881 ppb	46,544.301 ppb	55.111 %
Concentration RSD	1.0 %	1.9 %	7.5 %	2.2 %	1.5 %	2.8 %	1.4 %	0.8 %	1.9 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	78.562 ppb	0.986 ppb	-0.044 ppb	3.611 ppb	638.158 ppb	0.708 ppb	21.391 ppb	2.395 ppb	17.919 ppb
Concentration per Run 1	78.872 ppb	0.916 ppb	-0.045 ppb	3.625 ppb	634.369 ppb	0.654 ppb	21.503 ppb	2.314 ppb	17.504 ppb
Concentration per Run 2	79.681 ppb	1.142 ppb	-0.045 ppb	3.536 ppb	642.555 ppb	0.716 ppb	21.476 ppb	2.378 ppb	18.100 ppb
Concentration per Run 3	77.132 ppb	0.899 ppb	-0.044 ppb	3.672 ppb	637.551 ppb	0.754 ppb	21.194 ppb	2.494 ppb	18.151 ppb
Concentration RSD	1.7 %	13.7 %	0.3 %	1.9 %	0.6 %	7.1 %	0.8 %	3.8 %	2.0 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	77.521 %	1.063 ppb	0.466 ppb	72.680 ppb	2.253 ppb	77.243 %	0.001 ppb	0.014 ppb	82.853 %
Concentration per Run 1	77.579 %	1.014 ppb	0.511 ppb	73.503 ppb	2.053 ppb	77.928 %	-0.001 ppb	0.016 ppb	82.199 %
Concentration per Run 2	77.176 %	1.117 ppb	0.419 ppb	72.368 ppb	2.292 ppb	76.859 %	0.003 ppb	0.018 ppb	83.332 %
Concentration per Run 3	77.807 %	1.058 ppb	0.467 ppb	72.170 ppb	2.414 ppb	76.942 %	0.001 ppb	0.008 ppb	83.027 %
Concentration RSD	0.4 %	4.8 %	9.9 %	1.0 %	8.1 %	0.8 %	220.7 %	35.1 %	0.7 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.499 ppb	0.124 ppb	10.897 ppb	79.380 %	70.323 %	2.141 ppb	0.223 ppb	0.952 ppb	78.849 %
Concentration per Run 1	0.409 ppb	0.077 ppb	11.255 ppb	78.923 %	69.884 %	2.092 ppb	0.200 ppb	0.985 ppb	75.384 %
Concentration per Run 2	0.482 ppb	0.121 ppb	10.592 ppb	79.391 %	70.805 %	2.144 ppb	0.243 ppb	0.994 ppb	74.294 %
Concentration per Run 3	0.606 ppb	0.175 ppb	10.843 ppb	79.826 %	70.281 %	2.185 ppb	0.225 ppb	0.877 ppb	86.867 %
Concentration RSD	20.0 %	39.3 %	3.1 %	0.6 %	0.7 %	2.2 %	9.6 %	6.9 %	8.8 %

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Analysis index: 26
Analysis label: XWG1356665-6D5 6020TL
Analysis started at: 3/31/2020 12:09:07 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	65.846 %	76.330 %	0.028 ppb	14,995.886 ppb	4,866.907 ppb	8.567 ppb	1,600.160 ppb	9,546.968 ppb	67.597 %
Concentration per Run 1	66.131 %	77.111 %	0.040 ppb	15,028.207 ppb	4,825.385 ppb	8.259 ppb	1,587.277 ppb	9,316.808 ppb	68.256 %
Concentration per Run 2	65.406 %	73.974 %	0.022 ppb	15,177.611 ppb	5,036.985 ppb	9.330 ppb	1,608.107 ppb	9,772.614 ppb	67.106 %
Concentration per Run 3	66.002 %	77.905 %	0.020 ppb	14,781.840 ppb	4,738.351 ppb	8.112 ppb	1,605.098 ppb	9,551.481 ppb	67.430 %
Concentration RSD	0.6 %	2.7 %	40.2 %	1.3 %	3.2 %	7.8 %	0.7 %	2.4 %	0.9 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	16.781 ppb	0.238 ppb	0.029 ppb	0.804 ppb	164.455 ppb	0.160 ppb	4.430 ppb	0.572 ppb	4.216 ppb
Concentration per Run 1	16.251 ppb	0.280 ppb	0.028 ppb	0.787 ppb	154.740 ppb	0.160 ppb	4.300 ppb	0.604 ppb	4.059 ppb
Concentration per Run 2	16.476 ppb	0.248 ppb	0.049 ppb	0.914 ppb	169.308 ppb	0.155 ppb	4.593 ppb	0.555 ppb	4.337 ppb
Concentration per Run 3	17.616 ppb	0.187 ppb	0.009 ppb	0.710 ppb	169.316 ppb	0.165 ppb	4.398 ppb	0.556 ppb	4.251 ppb
Concentration RSD	4.4 %	19.8 %	70.4 %	12.8 %	5.1 %	3.1 %	3.4 %	4.9 %	3.4 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	78.379 %	0.192 ppb	0.082 ppb	14.500 ppb	2.728 ppb	80.645 %	-0.001 ppb	0.003 ppb	83.884 %
Concentration per Run 1	79.256 %	0.192 ppb	0.068 ppb	14.498 ppb	2.282 ppb	81.146 %	-0.002 ppb	0.000 ppb	83.905 %
Concentration per Run 2	77.989 %	0.148 ppb	0.119 ppb	14.378 ppb	2.584 ppb	80.338 %	-0.001 ppb	0.003 ppb	83.899 %
Concentration per Run 3	77.893 %	0.238 ppb	0.058 ppb	14.624 ppb	3.318 ppb	80.450 %	0.001 ppb	0.005 ppb	83.847 %
Concentration RSD	1.0 %	23.4 %	39.9 %	0.8 %	19.5 %	0.5 %	163.5 %	92.1 %	0.0 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	1.130 ppb	0.011 ppb	2.070 ppb	87.724 %	85.782 %	1.511 ppb	0.182 ppb	0.188 ppb	91.684 %
Concentration per Run 1	0.980 ppb	-0.032 ppb	2.091 ppb	87.218 %	89.627 %	1.186 ppb	0.165 ppb	0.189 ppb	92.777 %
Concentration per Run 2	1.089 ppb	0.001 ppb	1.935 ppb	87.518 %	78.228 %	1.635 ppb	0.192 ppb	0.194 ppb	91.185 %
Concentration per Run 3	1.322 ppb	0.063 ppb	2.184 ppb	88.434 %	89.492 %	1.711 ppb	0.190 ppb	0.183 ppb	91.089 %
Concentration RSD	15.5 %	455.5 %	6.1 %	0.7 %	7.6 %	18.8 %	8.0 %	2.9 %	1.0 %

Analysis index:	27	Analysis started at:	3/31/2020 12:14:13 PM
Analysis label:	XCCV	User name:	ALPHALAB\metals-instrument

Analysis index:	28	Analysis started at:	3/31/2020 12:19:22 PM
Analysis label:	XCCB	User name:	ALPHALAB\metals-instrument

Alpha ICPMSQ Full

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Analysis index: 29 Analysis started at: 3/31/2020 12:39:57 PM
Analysis label: CCV User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	58.195 %	68.510 %	54.297 ppb	5,729.203 ppb	5,625.483 ppb	55.126 ppb	5,766.748 ppb	5,924.386 ppb	64.943 %
Concentration per Run 1	58.738 %	67.952 %	53.736 ppb	5,722.965 ppb	5,579.645 ppb	54.835 ppb	5,606.950 ppb	5,679.467 ppb	65.562 %
Concentration per Run 2	59.133 %	70.043 %	54.249 ppb	5,690.698 ppb	5,606.988 ppb	55.479 ppb	5,875.422 ppb	5,935.441 ppb	66.478 %
Concentration per Run 3	56.714 %	67.534 %	54.906 ppb	5,773.944 ppb	5,689.817 ppb	55.064 ppb	5,817.872 ppb	6,158.250 ppb	62.789 %
Recovery Percentage 1			90.495 %	95.487 %	93.758 %	91.876 %	96.112 %	98.740 %	
Concentration RSD	2.2 %	2.0 %	1.1 %	0.7 %	1.0 %	0.6 %	2.5 %	4.0 %	3.0 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	58.582 ppb	58.428 ppb	59.354 ppb	58.884 ppb	5,842.541 ppb	58.616 ppb	58.776 ppb	58.891 ppb	52.092 ppb
Concentration per Run 1	55.772 ppb	58.074 ppb	59.282 ppb	59.206 ppb	5,845.874 ppb	59.314 ppb	58.699 ppb	59.818 ppb	52.583 ppb
Concentration per Run 2	59.332 ppb	58.704 ppb	58.718 ppb	57.884 ppb	5,787.218 ppb	58.329 ppb	58.575 ppb	58.228 ppb	51.516 ppb
Concentration per Run 3	60.641 ppb	58.505 ppb	60.063 ppb	59.562 ppb	5,894.533 ppb	58.206 ppb	59.055 ppb	58.626 ppb	52.176 ppb
Recovery Percentage 1	97.636 %	97.379 %	98.924 %	98.140 %	97.376 %	97.694 %	97.960 %	98.151 %	86.820 %
Concentration RSD	4.3 %	0.6 %	1.1 %	1.5 %	0.9 %	1.0 %	0.4 %	1.4 %	1.0 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	68.882 %	52.498 ppb	47.941 ppb	60.695 ppb	64.738 ppb	72.653 %	60.564 ppb	55.585 ppb	76.440 %
Concentration per Run 1	68.758 %	52.438 ppb	47.880 ppb	60.801 ppb	64.543 ppb	72.776 %	60.504 ppb	55.528 ppb	76.717 %
Concentration per Run 2	69.475 %	52.592 ppb	47.586 ppb	60.059 ppb	64.881 ppb	72.619 %	60.531 ppb	55.727 ppb	75.789 %
Concentration per Run 3	68.412 %	52.464 ppb	48.358 ppb	61.226 ppb	64.791 ppb	72.564 %	60.657 ppb	55.500 ppb	76.814 %
Recovery Percentage 1		87.497 %	79.902 %	101.159 %	107.897 %		100.940 %	92.642 %	
Concentration RSD	0.8 %	0.2 %	0.8 %	1.0 %	0.3 %	0.2 %	0.1 %	0.2 %	0.7 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	59.700 ppb	53.816 ppb	58.517 ppb	84.313 %	83.777 %	71.030 ppb	63.454 ppb	59.663 ppb	86.251 %
Concentration per Run 1	59.194 ppb	53.233 ppb	58.320 ppb	84.908 %	87.888 %	69.062 ppb	62.821 ppb	59.573 ppb	87.228 %
Concentration per Run 2	59.953 ppb	54.528 ppb	58.698 ppb	83.675 %	76.006 %	75.913 ppb	64.485 ppb	59.981 ppb	85.523 %
Concentration per Run 3	59.951 ppb	53.685 ppb	58.533 ppb	84.356 %	87.439 %	68.114 ppb	63.056 ppb	59.436 ppb	86.000 %
Recovery Percentage 1	99.499 %	89.693 %	97.528 %			118.383 %	105.757 %	99.439 %	
Concentration RSD	0.7 %	1.2 %	0.3 %	0.7 %	8.0 %	6.0 %	1.4 %	0.5 %	1.0 %

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Analysis index: 30 Analysis started at: 3/31/2020 12:47:07 PM
Analysis label: CCB User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	55.295 %	63.589 %	0.014 ppb	-13.156 ppb	0.286 ppb	-0.208 ppb	-1.244 ppb	1.026 ppb	55.610 %
Concentration per Run 1	55.615 %	62.140 %	0.003 ppb	-17.605 ppb	0.593 ppb	-0.173 ppb	-1.202 ppb	0.201 ppb	56.833 %
Concentration per Run 2	55.969 %	68.998 %	0.018 ppb	-12.939 ppb	0.191 ppb	-0.255 ppb	-0.698 ppb	3.481 ppb	56.163 %
Concentration per Run 3	54.301 %	59.630 %	0.021 ppb	-8.926 ppb	0.073 ppb	-0.197 ppb	-1.831 ppb	-0.602 ppb	53.833 %
Recovery Percentage 1			2.808 %	-13.156 %	0.408 %	-2.082 %	-1.244 %	1.026 %	
Concentration RSD	1.6 %	7.6 %	66.5 %	33.0 %	95.4 %	20.1 %	45.7 %	210.8 %	2.8 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.300 ppb	-0.199 ppb	-0.029 ppb	-0.039 ppb	34.276 ppb	0.003 ppb	0.032 ppb	-0.020 ppb	-0.610 ppb
Concentration per Run 1	0.322 ppb	-0.181 ppb	-0.023 ppb	-0.050 ppb	31.538 ppb	0.004 ppb	0.020 ppb	-0.032 ppb	-0.581 ppb
Concentration per Run 2	0.279 ppb	-0.180 ppb	-0.042 ppb	-0.029 ppb	33.462 ppb	0.003 ppb	0.019 ppb	-0.019 ppb	-0.643 ppb
Concentration per Run 3	0.298 ppb	-0.236 ppb	-0.023 ppb	-0.038 ppb	37.828 ppb	0.002 ppb	0.058 ppb	-0.009 ppb	-0.605 ppb
Recovery Percentage 1	59.908 %	-3.984 %	-2.897 %	-3.926 %	68.551 %	0.599 %	1.624 %	-2.009 %	-6.098 %
Concentration RSD	7.2 %	15.9 %	38.3 %	26.3 %	9.4 %	31.5 %	67.2 %	58.5 %	5.1 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	64.452 %	0.025 ppb	0.091 ppb	-0.003 ppb	4.654 ppb	69.523 %	0.005 ppb	0.002 ppb	72.984 %
Concentration per Run 1	63.941 %	0.040 ppb	0.016 ppb	-0.001 ppb	4.352 ppb	69.942 %	0.001 ppb	0.002 ppb	72.964 %
Concentration per Run 2	67.134 %	0.018 ppb	0.152 ppb	0.001 ppb	4.610 ppb	70.983 %	0.009 ppb	0.005 ppb	76.747 %
Concentration per Run 3	62.281 %	0.016 ppb	0.103 ppb	-0.007 ppb	4.999 ppb	67.644 %	0.004 ppb	-0.001 ppb	69.240 %
Recovery Percentage 1		4.955 %	1.810 %	-0.520 %	232.689 %		1.193 %	0.924 %	
Concentration RSD	3.8 %	53.2 %	76.1 %	158.4 %	7.0 %	2.5 %	79.4 %	148.9 %	5.1 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	1.460 ppb	-0.187 ppb	-0.007 ppb	79.682 %	75.856 %	3.759 ppb	0.744 ppb	0.012 ppb	74.669 %
Concentration per Run 1	1.400 ppb	-0.194 ppb	-0.010 ppb	79.570 %	72.170 %	3.530 ppb	0.857 ppb	0.013 ppb	70.537 %
Concentration per Run 2	1.405 ppb	-0.212 ppb	-0.001 ppb	81.729 %	85.927 %	3.363 ppb	0.665 ppb	0.011 ppb	84.028 %
Concentration per Run 3	1.575 ppb	-0.155 ppb	-0.010 ppb	77.747 %	69.469 %	4.384 ppb	0.710 ppb	0.011 ppb	69.443 %
Recovery Percentage 1	48.671 %	-4.669 %	-1.367 %			187.958 %	148.772 %	1.198 %	
Concentration RSD	6.8 %	15.5 %	73.0 %	2.5 %	11.6 %	14.6 %	13.5 %	10.4 %	10.9 %

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Analysis index: 31
Analysis label: WG1356717-1D2 A2-6020T
Analysis started at: 3/31/2020 12:52:27 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	57.377 %	66.865 %	0.051 ppb	33,746.154 ppb	1,482.176 ppb	827.224 ppb	1,070.818 ppb	3,746.555 ppb	59.379 %
Concentration per Run 1	57.464 %	66.280 %	0.051 ppb	34,351.549 ppb	1,546.600 ppb	865.676 ppb	1,178.192 ppb	4,004.406 ppb	59.637 %
Concentration per Run 2	57.938 %	64.858 %	0.061 ppb	33,165.546 ppb	1,447.393 ppb	800.996 ppb	990.993 ppb	3,479.235 ppb	59.604 %
Concentration per Run 3	56.728 %	69.458 %	0.041 ppb	33,721.365 ppb	1,452.535 ppb	815.000 ppb	1,043.268 ppb	3,756.025 ppb	58.896 %
Concentration RSD	1.1 %	3.5 %	19.6 %	1.8 %	3.8 %	4.1 %	9.0 %	7.0 %	0.7 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	21.802 ppb	-0.013 ppb	1.393 ppb	1.392 ppb	59.665 ppb	0.047 ppb	0.546 ppb	2.904 ppb	17.504 ppb
Concentration per Run 1	21.426 ppb	0.018 ppb	1.365 ppb	1.333 ppb	57.601 ppb	0.043 ppb	0.524 ppb	2.851 ppb	17.380 ppb
Concentration per Run 2	21.780 ppb	0.024 ppb	1.401 ppb	1.400 ppb	57.757 ppb	0.054 ppb	0.506 ppb	2.976 ppb	17.554 ppb
Concentration per Run 3	22.200 ppb	-0.081 ppb	1.412 ppb	1.444 ppb	63.638 ppb	0.043 ppb	0.607 ppb	2.883 ppb	17.578 ppb
Concentration RSD	1.8 %	462.2 %	1.8 %	4.0 %	5.8 %	12.8 %	9.9 %	2.2 %	0.6 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	69.618 %	0.035 ppb	0.034 ppb	7.342 ppb	2.784 ppb	71.512 %	0.159 ppb	0.005 ppb	76.125 %
Concentration per Run 1	70.032 %	0.017 ppb	0.162 ppb	7.530 ppb	2.305 ppb	72.643 %	0.165 ppb	0.005 ppb	78.188 %
Concentration per Run 2	68.921 %	0.015 ppb	-0.057 ppb	7.116 ppb	2.940 ppb	70.940 %	0.155 ppb	0.001 ppb	74.246 %
Concentration per Run 3	69.899 %	0.072 ppb	-0.002 ppb	7.378 ppb	3.107 ppb	70.952 %	0.155 ppb	0.008 ppb	75.941 %
Concentration RSD	0.9 %	92.6 %	330.8 %	2.8 %	15.2 %	1.4 %	3.5 %	70.4 %	2.6 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	1.466 ppb	-0.412 ppb	15.728 ppb	81.825 %	76.327 %	2.388 ppb	0.321 ppb	0.941 ppb	80.664 %
Concentration per Run 1	1.383 ppb	-0.465 ppb	15.805 ppb	83.193 %	84.403 %	1.810 ppb	0.275 ppb	0.949 ppb	85.633 %
Concentration per Run 2	1.459 ppb	-0.400 ppb	15.415 ppb	80.076 %	71.027 %	2.463 ppb	0.312 ppb	0.943 ppb	83.770 %
Concentration per Run 3	1.555 ppb	-0.373 ppb	15.963 ppb	82.207 %	73.552 %	2.891 ppb	0.376 ppb	0.930 ppb	72.589 %
Concentration RSD	5.9 %	11.5 %	1.8 %	1.9 %	9.3 %	22.8 %	16.0 %	1.0 %	8.7 %

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Analysis index: 32
Analysis label: WG1356717-2D10 A2-6020T
Analysis started at: 3/31/2020 12:57:31 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	59.060 %	68.621 %	0.029 ppb	11,878.667 ppb	586.990 ppb	338.154 ppb	385.797 ppb	1,402.930 ppb	63.857 %
Concentration per Run 1	59.912 %	67.158 %	0.028 ppb	11,158.332 ppb	588.732 ppb	328.402 ppb	384.823 ppb	1,347.600 ppb	64.841 %
Concentration per Run 2	58.827 %	70.294 %	0.036 ppb	13,052.560 ppb	568.895 ppb	339.097 ppb	369.575 ppb	1,442.449 ppb	63.687 %
Concentration per Run 3	58.442 %	68.412 %	0.024 ppb	11,425.110 ppb	603.343 ppb	346.964 ppb	402.992 ppb	1,418.742 ppb	63.045 %
Concentration RSD	1.3 %	2.3 %	21.6 %	8.6 %	2.9 %	2.8 %	4.3 %	3.5 %	1.4 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	8.862 ppb	0.061 ppb	1.170 ppb	1.335 ppb	34.616 ppb	0.048 ppb	0.442 ppb	1.023 ppb	7.366 ppb
Concentration per Run 1	8.188 ppb	0.024 ppb	1.184 ppb	1.310 ppb	34.476 ppb	0.063 ppb	0.414 ppb	1.011 ppb	7.191 ppb
Concentration per Run 2	9.065 ppb	0.114 ppb	1.141 ppb	1.357 ppb	33.344 ppb	0.046 ppb	0.530 ppb	1.043 ppb	7.421 ppb
Concentration per Run 3	9.332 ppb	0.046 ppb	1.184 ppb	1.338 ppb	36.027 ppb	0.034 ppb	0.381 ppb	1.014 ppb	7.485 ppb
Concentration RSD	6.8 %	76.8 %	2.1 %	1.8 %	3.9 %	30.2 %	17.7 %	1.7 %	2.1 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	70.412 %	13.628 ppb	18.226 ppb	2.796 ppb	1.715 ppb	74.645 %	0.060 ppb	0.537 ppb	77.935 %
Concentration per Run 1	70.929 %	13.930 ppb	17.369 ppb	2.754 ppb	1.256 ppb	74.528 %	0.061 ppb	0.555 ppb	77.601 %
Concentration per Run 2	70.225 %	13.382 ppb	18.019 ppb	2.818 ppb	1.863 ppb	74.672 %	0.061 ppb	0.520 ppb	77.573 %
Concentration per Run 3	70.083 %	13.571 ppb	19.290 ppb	2.816 ppb	2.025 ppb	74.736 %	0.056 ppb	0.535 ppb	78.632 %
Concentration RSD	0.6 %	2.0 %	5.4 %	1.3 %	23.6 %	0.1 %	4.6 %	3.3 %	0.8 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	1.040 ppb	-0.351 ppb	6.204 ppb	83.883 %	79.118 %	1.440 ppb	28.396 ppb	116.934 ppb	73.382 %
Concentration per Run 1	0.907 ppb	-0.373 ppb	6.153 ppb	84.351 %	86.276 %	1.107 ppb	28.124 ppb	115.925 ppb	73.732 %
Concentration per Run 2	1.083 ppb	-0.354 ppb	6.033 ppb	83.529 %	75.549 %	1.488 ppb	28.318 ppb	117.208 ppb	73.941 %
Concentration per Run 3	1.130 ppb	-0.327 ppb	6.426 ppb	83.768 %	75.529 %	1.727 ppb	28.745 ppb	117.670 ppb	72.475 %
Concentration RSD	11.3 %	6.5 %	3.2 %	0.5 %	7.8 %	21.7 %	1.1 %	0.8 %	1.1 %

Alpha ICPMSQ Full

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Analysis index: 33
Analysis label: WG1356717-3D10 A2-6020T
Analysis started at: 3/31/2020 1:02:35 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	60.032 %	72.399 %	0.027 ppb	11,029.174 ppb	224.355 ppb	1,627.987 ppb	3,769.264 ppb	1,633.044 ppb	62.795 %
Concentration per Run 1	60.388 %	72.134 %	0.030 ppb	12,237.052 ppb	229.308 ppb	1,596.316 ppb	3,656.149 ppb	1,491.217 ppb	63.500 %
Concentration per Run 2	60.615 %	69.249 %	0.021 ppb	10,793.468 ppb	225.752 ppb	1,683.610 ppb	3,928.038 ppb	1,726.149 ppb	64.152 %
Concentration per Run 3	59.093 %	75.814 %	0.029 ppb	10,057.001 ppb	218.006 ppb	1,604.036 ppb	3,723.604 ppb	1,681.766 ppb	60.734 %
Concentration RSD	1.4 %	4.5 %	19.0 %	10.1 %	2.6 %	3.0 %	3.8 %	7.6 %	2.9 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	5.236 ppb	0.044 ppb	1.481 ppb	3.052 ppb	112.230 ppb	0.035 ppb	0.295 ppb	18.174 ppb	4,063.652 ppb
Concentration per Run 1	5.159 ppb	0.024 ppb	1.456 ppb	2.986 ppb	115.146 ppb	0.039 ppb	0.331 ppb	17.837 ppb	4,015.709 ppb
Concentration per Run 2	5.432 ppb	0.055 ppb	1.523 ppb	3.183 ppb	112.481 ppb	0.027 ppb	0.270 ppb	18.489 ppb	4,109.470 ppb
Concentration per Run 3	5.117 ppb	0.053 ppb	1.463 ppb	2.987 ppb	109.063 ppb	0.040 ppb	0.284 ppb	18.196 ppb	4,065.777 ppb
Concentration RSD	3.3 %	39.1 %	2.5 %	3.7 %	2.7 %	21.0 %	10.8 %	1.8 %	1.2 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	71.566 %	15.023 ppb	18.044 ppb	74.254 ppb	1.664 ppb	75.051 %	0.014 ppb	0.582 ppb	78.425 %
Concentration per Run 1	73.044 %	15.154 ppb	17.705 ppb	73.960 ppb	1.519 ppb	75.893 %	0.017 ppb	0.600 ppb	78.327 %
Concentration per Run 2	70.080 %	14.820 ppb	18.102 ppb	74.879 ppb	1.693 ppb	74.625 %	0.016 ppb	0.583 ppb	77.764 %
Concentration per Run 3	71.573 %	15.095 ppb	18.324 ppb	73.922 ppb	1.781 ppb	74.636 %	0.011 ppb	0.561 ppb	79.185 %
Concentration RSD	2.1 %	1.2 %	1.7 %	0.7 %	8.0 %	1.0 %	21.3 %	3.3 %	0.9 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.942 ppb	-0.209 ppb	6,481.043 ppb	83.630 %	81.070 %	1.193 ppb	26.205 ppb	109.519 ppb	81.159 %
Concentration per Run 1	0.838 ppb	-0.239 ppb	6,478.347 ppb	84.536 %	74.822 %	1.056 ppb	25.263 ppb	104.505 ppb	86.234 %
Concentration per Run 2	0.965 ppb	-0.189 ppb	6,499.840 ppb	82.921 %	83.538 %	1.195 ppb	28.272 ppb	119.463 ppb	72.992 %
Concentration per Run 3	1.022 ppb	-0.200 ppb	6,464.941 ppb	83.432 %	84.851 %	1.328 ppb	25.079 ppb	104.588 ppb	84.252 %
Concentration RSD	10.0 %	12.6 %	0.3 %	1.0 %	6.7 %	11.4 %	6.8 %	7.9 %	8.8 %

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Analysis index: 34
Analysis label: WG1356717-5D10 A2-6020T
Analysis started at: 3/31/2020 1:07:40 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	58.863 %	69.263 %	43.013 ppb	18,547.370 ppb	4,782.667 ppb	1,803.526 ppb	8,757.581 ppb	6,454.172 ppb	64.045 %
Concentration per Run 1	59.298 %	68.203 %	43.104 ppb	18,601.514 ppb	4,771.564 ppb	1,783.354 ppb	8,630.549 ppb	6,444.108 ppb	64.296 %
Concentration per Run 2	59.100 %	68.872 %	42.544 ppb	18,578.648 ppb	4,862.214 ppb	1,819.752 ppb	8,735.507 ppb	6,337.089 ppb	64.336 %
Concentration per Run 3	58.189 %	70.712 %	43.391 ppb	18,461.949 ppb	4,714.222 ppb	1,807.471 ppb	8,906.687 ppb	6,581.319 ppb	63.504 %
Concentration RSD	1.0 %	1.9 %	1.0 %	0.4 %	1.6 %	1.0 %	1.6 %	1.9 %	0.7 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	52.302 ppb	46.724 ppb	48.303 ppb	49.758 ppb	4,792.160 ppb	46.815 ppb	46.493 ppb	63.929 ppb	4,262.223 ppb
Concentration per Run 1	50.763 ppb	47.066 ppb	48.030 ppb	49.381 ppb	4,817.154 ppb	46.930 ppb	47.020 ppb	64.536 ppb	4,225.899 ppb
Concentration per Run 2	52.389 ppb	46.120 ppb	48.418 ppb	50.346 ppb	4,765.418 ppb	46.483 ppb	45.181 ppb	63.878 ppb	4,262.470 ppb
Concentration per Run 3	53.756 ppb	46.988 ppb	48.462 ppb	49.546 ppb	4,793.907 ppb	47.030 ppb	47.277 ppb	63.373 ppb	4,298.301 ppb
Concentration RSD	2.9 %	1.1 %	0.5 %	1.0 %	0.5 %	0.6 %	2.5 %	0.9 %	0.8 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	71.549 %	40.726 ppb	36.104 ppb	126.986 ppb	43.040 ppb	73.444 %	1.299 ppb	43.463 ppb	77.287 %
Concentration per Run 1	72.147 %	40.532 ppb	35.442 ppb	125.509 ppb	43.417 ppb	74.374 %	1.306 ppb	42.957 ppb	77.644 %
Concentration per Run 2	71.192 %	40.504 ppb	36.020 ppb	126.840 ppb	42.481 ppb	73.234 %	1.320 ppb	43.525 ppb	77.012 %
Concentration per Run 3	71.308 %	41.142 ppb	36.849 ppb	128.609 ppb	43.222 ppb	72.723 %	1.273 ppb	43.906 ppb	77.205 %
Concentration RSD	0.7 %	0.9 %	2.0 %	1.2 %	1.1 %	1.2 %	1.9 %	1.1 %	0.4 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	46.105 ppb	42.613 ppb	7,020.341 ppb	81.840 %	72.988 %	52.751 ppb	58.718 ppb	59.328 ppb	73.230 %
Concentration per Run 1	46.185 ppb	42.420 ppb	7,044.733 ppb	82.130 %	73.995 %	53.301 ppb	58.500 ppb	59.773 ppb	73.077 %
Concentration per Run 2	46.238 ppb	42.758 ppb	7,030.905 ppb	81.779 %	72.017 %	52.965 ppb	57.992 ppb	58.665 ppb	73.873 %
Concentration per Run 3	45.894 ppb	42.660 ppb	6,985.384 ppb	81.609 %	72.952 %	51.987 ppb	59.662 ppb	59.544 ppb	72.739 %
Concentration RSD	0.4 %	0.4 %	0.4 %	0.3 %	1.4 %	1.3 %	1.5 %	1.0 %	0.8 %

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Analysis index: 35
Analysis label: WG1356717-4D10 A2-6020T
Analysis started at: 3/31/2020 1:12:45 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	59.622 %	70.308 %	0.032 ppb	10,144.411 ppb	228.910 ppb	1,572.789 ppb	3,658.722 ppb	1,652.318 ppb	63.924 %
Concentration per Run 1	60.134 %	70.671 %	0.035 ppb	10,075.213 ppb	233.796 ppb	1,528.913 ppb	3,543.665 ppb	1,605.112 ppb	64.562 %
Concentration per Run 2	59.664 %	69.374 %	0.032 ppb	10,147.114 ppb	222.666 ppb	1,604.321 ppb	3,694.417 ppb	1,664.735 ppb	64.163 %
Concentration per Run 3	59.068 %	70.880 %	0.028 ppb	10,210.905 ppb	230.268 ppb	1,585.133 ppb	3,738.084 ppb	1,687.108 ppb	63.048 %
Concentration RSD	0.9 %	1.2 %	11.4 %	0.7 %	2.5 %	2.5 %	2.8 %	2.6 %	1.2 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	6.098 ppb	0.060 ppb	1.523 ppb	3.248 ppb	178.185 ppb	0.051 ppb	0.412 ppb	19.161 ppb	3,849.701 ppb
Concentration per Run 1	6.214 ppb	0.073 ppb	1.433 ppb	3.253 ppb	176.623 ppb	0.046 ppb	0.342 ppb	19.409 ppb	3,813.891 ppb
Concentration per Run 2	6.067 ppb	0.007 ppb	1.624 ppb	3.213 ppb	175.474 ppb	0.070 ppb	0.392 ppb	19.185 ppb	3,908.312 ppb
Concentration per Run 3	6.013 ppb	0.101 ppb	1.513 ppb	3.279 ppb	182.459 ppb	0.038 ppb	0.502 ppb	18.890 ppb	3,826.899 ppb
Concentration RSD	1.7 %	80.4 %	6.3 %	1.0 %	2.1 %	32.3 %	19.9 %	1.4 %	1.3 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	71.196 %	0.436 ppb	0.235 ppb	70.776 ppb	5.711 ppb	75.004 %	0.017 ppb	0.068 ppb	78.958 %
Concentration per Run 1	71.327 %	0.446 ppb	0.228 ppb	72.393 ppb	5.433 ppb	75.213 %	0.016 ppb	0.071 ppb	79.285 %
Concentration per Run 2	70.343 %	0.468 ppb	0.254 ppb	69.674 ppb	5.830 ppb	74.970 %	0.018 ppb	0.059 ppb	79.051 %
Concentration per Run 3	71.919 %	0.395 ppb	0.224 ppb	70.259 ppb	5.871 ppb	74.828 %	0.016 ppb	0.074 ppb	78.537 %
Concentration RSD	1.1 %	8.7 %	7.0 %	2.0 %	4.2 %	0.3 %	7.1 %	11.2 %	0.5 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	1.681 ppb	0.072 ppb	6,193.051 ppb	84.476 %	79.316 %	4.721 ppb	0.814 ppb	3.566 ppb	74.171 %
Concentration per Run 1	1.448 ppb	-0.007 ppb	6,101.268 ppb	85.237 %	87.424 %	3.900 ppb	0.854 ppb	3.553 ppb	74.772 %
Concentration per Run 2	1.774 ppb	0.093 ppb	6,221.469 ppb	83.614 %	75.079 %	4.869 ppb	0.816 ppb	3.551 ppb	74.420 %
Concentration per Run 3	1.820 ppb	0.130 ppb	6,256.416 ppb	84.578 %	75.444 %	5.395 ppb	0.773 ppb	3.595 ppb	73.322 %
Concentration RSD	12.1 %	98.3 %	1.3 %	1.0 %	8.9 %	16.1 %	5.0 %	0.7 %	1.0 %

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Analysis index: 36
Analysis label: L2013788-01D10 A2-6020T
Analysis started at: 3/31/2020 1:17:51 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	59.775 %	70.921 %	0.035 ppb	12,063.162 ppb	240.713 ppb	1,848.406 ppb	4,163.859 ppb	1,807.888 ppb	63.709 %
Concentration per Run 1	60.267 %	71.005 %	0.034 ppb	11,346.699 ppb	251.989 ppb	1,831.974 ppb	4,206.532 ppb	1,907.862 ppb	63.823 %
Concentration per Run 2	59.755 %	71.967 %	0.032 ppb	11,027.421 ppb	229.339 ppb	1,817.469 ppb	4,042.817 ppb	1,714.043 ppb	63.613 %
Concentration per Run 3	59.303 %	69.792 %	0.038 ppb	13,815.366 ppb	240.810 ppb	1,895.776 ppb	4,242.228 ppb	1,801.760 ppb	63.692 %
Concentration RSD	0.8 %	1.5 %	8.6 %	12.6 %	4.7 %	2.3 %	2.6 %	5.4 %	0.2 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	6.208 ppb	0.060 ppb	1.543 ppb	3.425 ppb	146.231 ppb	0.048 ppb	0.427 ppb	19.293 ppb	4,344.890 ppb
Concentration per Run 1	6.088 ppb	0.023 ppb	1.439 ppb	3.513 ppb	150.146 ppb	0.049 ppb	0.442 ppb	19.053 ppb	4,340.131 ppb
Concentration per Run 2	6.277 ppb	0.060 ppb	1.553 ppb	3.388 ppb	140.509 ppb	0.052 ppb	0.493 ppb	18.745 ppb	4,310.559 ppb
Concentration per Run 3	6.259 ppb	0.096 ppb	1.636 ppb	3.372 ppb	148.037 ppb	0.044 ppb	0.344 ppb	20.080 ppb	4,383.980 ppb
Concentration RSD	1.7 %	61.8 %	6.4 %	2.3 %	3.5 %	7.8 %	17.7 %	3.6 %	0.9 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	72.146 %	0.417 ppb	0.083 ppb	80.407 ppb	2.572 ppb	75.686 %	0.010 ppb	0.049 ppb	79.918 %
Concentration per Run 1	72.470 %	0.403 ppb	0.069 ppb	80.752 ppb	2.107 ppb	75.342 %	0.012 ppb	0.046 ppb	79.579 %
Concentration per Run 2	72.920 %	0.388 ppb	0.132 ppb	79.413 ppb	2.620 ppb	75.791 %	0.011 ppb	0.050 ppb	79.704 %
Concentration per Run 3	71.049 %	0.460 ppb	0.047 ppb	81.057 ppb	2.990 ppb	75.926 %	0.009 ppb	0.052 ppb	80.470 %
Concentration RSD	1.4 %	9.1 %	53.1 %	1.1 %	17.2 %	0.4 %	13.8 %	6.1 %	0.6 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.894 ppb	-0.151 ppb	7,067.738 ppb	83.916 %	74.723 %	2.053 ppb	0.324 ppb	3.038 ppb	74.484 %
Concentration per Run 1	0.804 ppb	-0.166 ppb	7,134.582 ppb	84.353 %	75.627 %	1.742 ppb	0.314 ppb	3.041 ppb	75.363 %
Concentration per Run 2	0.927 ppb	-0.185 ppb	7,041.064 ppb	83.778 %	74.547 %	2.041 ppb	0.330 ppb	3.081 ppb	73.590 %
Concentration per Run 3	0.952 ppb	-0.103 ppb	7,027.567 ppb	83.616 %	73.996 %	2.376 ppb	0.328 ppb	2.992 ppb	74.499 %
Concentration RSD	8.9 %	28.5 %	0.8 %	0.5 %	1.1 %	15.5 %	2.8 %	1.5 %	1.2 %

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Analysis index: 37
Analysis label: L2013788-02D10 A2-6020T
Analysis started at: 3/31/2020 1:22:56 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	59.680 %	70.977 %	0.030 ppb	10,583.027 ppb	249.244 ppb	1,761.615 ppb	3,993.259 ppb	1,749.723 ppb	63.813 %
Concentration per Run 1	60.337 %	70.963 %	0.033 ppb	10,327.057 ppb	242.670 ppb	1,694.938 ppb	3,881.262 ppb	1,640.779 ppb	64.155 %
Concentration per Run 2	59.265 %	69.876 %	0.030 ppb	10,742.561 ppb	253.521 ppb	1,746.295 ppb	3,889.338 ppb	1,809.454 ppb	63.428 %
Concentration per Run 3	59.437 %	72.092 %	0.028 ppb	10,679.462 ppb	251.541 ppb	1,843.613 ppb	4,209.177 ppb	1,798.937 ppb	63.855 %
Concentration RSD	1.0 %	1.6 %	8.5 %	2.1 %	2.3 %	4.3 %	4.7 %	5.4 %	0.6 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	6.533 ppb	0.133 ppb	5.592 ppb	3.976 ppb	172.400 ppb	0.065 ppb	0.403 ppb	36.069 ppb	4,071.992 ppb
Concentration per Run 1	6.325 ppb	0.108 ppb	1.475 ppb	3.912 ppb	161.108 ppb	0.070 ppb	0.314 ppb	36.305 ppb	4,052.044 ppb
Concentration per Run 2	6.415 ppb	0.117 ppb	1.554 ppb	4.099 ppb	181.513 ppb	0.073 ppb	0.480 ppb	36.360 ppb	4,079.942 ppb
Concentration per Run 3	6.858 ppb	0.172 ppb	13.748 ppb	3.918 ppb	174.578 ppb	0.052 ppb	0.414 ppb	35.541 ppb	4,083.990 ppb
Concentration RSD	4.4 %	26.1 %	126.3 %	2.7 %	6.0 %	16.8 %	20.8 %	1.3 %	0.4 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	73.430 %	0.408 ppb	0.158 ppb	76.709 ppb	2.261 ppb	75.457 %	0.022 ppb	0.050 ppb	80.291 %
Concentration per Run 1	72.528 %	0.367 ppb	0.210 ppb	75.411 ppb	2.059 ppb	75.610 %	0.020 ppb	0.050 ppb	78.718 %
Concentration per Run 2	73.315 %	0.426 ppb	0.150 ppb	75.155 ppb	2.232 ppb	74.720 %	0.022 ppb	0.042 ppb	79.641 %
Concentration per Run 3	74.447 %	0.430 ppb	0.114 ppb	79.561 ppb	2.492 ppb	76.042 %	0.023 ppb	0.057 ppb	82.514 %
Concentration RSD	1.3 %	8.6 %	30.6 %	3.2 %	9.6 %	0.9 %	6.1 %	15.5 %	2.5 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.532 ppb	-0.182 ppb	6,721.761 ppb	84.310 %	78.752 %	1.198 ppb	0.203 ppb	2.341 ppb	77.680 %
Concentration per Run 1	0.379 ppb	-0.202 ppb	6,705.070 ppb	83.141 %	74.857 %	1.037 ppb	0.173 ppb	2.110 ppb	86.254 %
Concentration per Run 2	0.622 ppb	-0.188 ppb	6,733.666 ppb	84.291 %	75.102 %	1.251 ppb	0.229 ppb	2.440 ppb	73.878 %
Concentration per Run 3	0.593 ppb	-0.157 ppb	6,726.547 ppb	85.498 %	86.297 %	1.307 ppb	0.207 ppb	2.472 ppb	72.908 %
Concentration RSD	24.9 %	12.6 %	0.2 %	1.4 %	8.3 %	11.9 %	13.7 %	8.6 %	9.6 %

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Analysis index: 38
Analysis label: XWG1356406-4 2008TL
Analysis started at: 3/31/2020 1:28:03 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	59.238 %	68.663 %	0.027 ppb	117,847.247 ppb	3,979.975 ppb	266.167 ppb	10,104.224 ppb	26,263.639 ppb	61.881 %
Concentration per Run 1	59.137 %	65.527 %	0.025 ppb	119,890.758 ppb	4,046.605 ppb	266.845 ppb	10,511.602 ppb	27,762.655 ppb	61.963 %
Concentration per Run 2	59.926 %	71.131 %	0.029 ppb	117,413.064 ppb	4,033.718 ppb	270.467 ppb	10,043.214 ppb	26,154.099 ppb	62.748 %
Concentration per Run 3	58.651 %	69.332 %	0.028 ppb	116,237.919 ppb	3,859.601 ppb	261.187 ppb	9,757.856 ppb	24,874.163 ppb	60.932 %
Concentration RSD	1.1 %	4.2 %	8.3 %	1.6 %	2.6 %	1.8 %	3.8 %	5.5 %	1.5 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	68.980 ppb	0.634 ppb	3.087 ppb	100.907 ppb	960.816 ppb	0.645 ppb	4.738 ppb	31.996 ppb	51.324 ppb
Concentration per Run 1	54.658 ppb	0.746 ppb	3.007 ppb	103.527 ppb	978.025 ppb	0.672 ppb	4.949 ppb	32.415 ppb	52.305 ppb
Concentration per Run 2	72.547 ppb	0.654 ppb	3.030 ppb	101.554 ppb	978.213 ppb	0.666 ppb	4.800 ppb	32.287 ppb	51.090 ppb
Concentration per Run 3	79.734 ppb	0.503 ppb	3.224 ppb	97.639 ppb	926.210 ppb	0.597 ppb	4.465 ppb	31.285 ppb	50.579 ppb
Concentration RSD	18.7 %	19.4 %	3.9 %	3.0 %	3.1 %	6.4 %	5.2 %	1.9 %	1.7 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	70.246 %	2.776 ppb	0.470 ppb	156.829 ppb	3.631 ppb	71.867 %	0.106 ppb	0.184 ppb	76.233 %
Concentration per Run 1	68.932 %	2.990 ppb	0.458 ppb	158.254 ppb	3.320 ppb	71.263 %	0.095 ppb	0.187 ppb	74.928 %
Concentration per Run 2	71.246 %	2.724 ppb	0.464 ppb	160.742 ppb	3.798 ppb	71.055 %	0.123 ppb	0.181 ppb	76.909 %
Concentration per Run 3	70.560 %	2.615 ppb	0.487 ppb	151.490 ppb	3.774 ppb	73.282 %	0.101 ppb	0.183 ppb	76.863 %
Concentration RSD	1.7 %	7.0 %	3.3 %	3.1 %	7.4 %	1.7 %	13.9 %	1.8 %	1.5 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	1.870 ppb	0.075 ppb	39.226 ppb	81.215 %	78.989 %	5.528 ppb	0.240 ppb	7.583 ppb	69.440 %
Concentration per Run 1	2.024 ppb	0.080 ppb	39.955 ppb	80.322 %	72.384 %	4.450 ppb	0.223 ppb	7.848 ppb	68.101 %
Concentration per Run 2	1.787 ppb	0.074 ppb	39.869 ppb	80.714 %	81.379 %	7.389 ppb	0.249 ppb	7.655 ppb	69.152 %
Concentration per Run 3	1.799 ppb	0.070 ppb	37.853 ppb	82.610 %	83.204 %	4.745 ppb	0.249 ppb	7.246 ppb	71.067 %
Concentration RSD	7.1 %	6.6 %	3.0 %	1.5 %	7.3 %	29.3 %	6.1 %	4.1 %	2.2 %

Alpha ICPMSQ Full

3/31/2020 2:08:38 PM

Analysis index: 39
Analysis label: XL2013614-01 2008TL
Analysis started at: 3/31/2020 1:33:09 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	59.901 %	68.872 %	0.020 ppb	116,450.089 ppb	3,929.768 ppb	247.775 ppb	9,816.926 ppb	25,835.893 ppb	60.873 %
Concentration per Run 1	60.412 %	67.325 %	0.019 ppb	118,757.056 ppb	4,016.089 ppb	251.356 ppb	10,141.558 ppb	26,180.961 ppb	61.562 %
Concentration per Run 2	59.393 %	68.329 %	0.019 ppb	116,183.972 ppb	3,900.058 ppb	247.112 ppb	9,677.715 ppb	25,558.216 ppb	60.517 %
Concentration per Run 3	59.898 %	70.963 %	0.023 ppb	114,409.238 ppb	3,873.157 ppb	244.858 ppb	9,631.503 ppb	25,768.503 ppb	60.542 %
Concentration RSD	0.9 %	2.7 %	12.8 %	1.9 %	1.9 %	1.3 %	2.9 %	1.2 %	1.0 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	69.710 ppb	0.591 ppb	3.132 ppb	97.310 ppb	968.762 ppb	0.610 ppb	4.545 ppb	31.011 ppb	50.497 ppb
Concentration per Run 1	67.674 ppb	0.507 ppb	3.023 ppb	98.183 ppb	952.867 ppb	0.658 ppb	4.567 ppb	31.246 ppb	50.937 ppb
Concentration per Run 2	54.455 ppb	0.647 ppb	3.414 ppb	97.371 ppb	975.446 ppb	0.541 ppb	4.483 ppb	30.151 ppb	50.860 ppb
Concentration per Run 3	87.002 ppb	0.619 ppb	2.959 ppb	96.375 ppb	977.974 ppb	0.631 ppb	4.584 ppb	31.635 ppb	49.693 ppb
Concentration RSD	23.5 %	12.5 %	7.9 %	0.9 %	1.4 %	10.1 %	1.2 %	2.5 %	1.4 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	69.857 %	2.706 ppb	0.523 ppb	154.663 ppb	3.323 ppb	70.099 %	0.097 ppb	0.188 ppb	74.499 %
Concentration per Run 1	67.785 %	2.638 ppb	0.572 ppb	154.576 ppb	3.153 ppb	70.051 %	0.087 ppb	0.189 ppb	73.719 %
Concentration per Run 2	70.605 %	2.665 ppb	0.569 ppb	153.297 ppb	3.096 ppb	70.354 %	0.107 ppb	0.205 ppb	74.567 %
Concentration per Run 3	71.180 %	2.814 ppb	0.428 ppb	156.117 ppb	3.720 ppb	69.893 %	0.098 ppb	0.171 ppb	75.212 %
Concentration RSD	2.6 %	3.5 %	15.7 %	0.9 %	10.4 %	0.3 %	9.9 %	9.0 %	1.0 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	1.539 ppb	0.042 ppb	38.154 ppb	78.917 %	70.120 %	4.198 ppb	0.195 ppb	7.759 ppb	67.586 %
Concentration per Run 1	1.310 ppb	-0.022 ppb	37.661 ppb	78.620 %	69.659 %	3.778 ppb	0.183 ppb	7.799 ppb	67.097 %
Concentration per Run 2	1.548 ppb	0.053 ppb	38.249 ppb	79.050 %	70.157 %	4.175 ppb	0.200 ppb	7.813 ppb	67.561 %
Concentration per Run 3	1.759 ppb	0.095 ppb	38.551 ppb	79.081 %	70.545 %	4.641 ppb	0.201 ppb	7.666 ppb	68.101 %
Concentration RSD	14.6 %	141.7 %	1.2 %	0.3 %	0.6 %	10.3 %	5.1 %	1.0 %	0.7 %

Alpha ICPMSQ Full

3/31/2020 2:08:38 PM

Analysis index: 40
Analysis label: WG1356717-6D50 A2-6020T
Analysis started at: 3/31/2020 1:38:16 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	60.899 %	69.974 %	0.011 ppb	2,458.353 ppb	48.476 ppb	366.508 ppb	824.127 ppb	354.764 ppb	61.633 %
Concentration per Run 1	61.464 %	65.820 %	0.013 ppb	2,984.185 ppb	52.395 ppb	377.042 ppb	856.784 ppb	400.778 ppb	62.240 %
Concentration per Run 2	61.151 %	72.929 %	0.015 ppb	2,147.048 ppb	46.028 ppb	360.222 ppb	801.230 ppb	361.180 ppb	61.525 %
Concentration per Run 3	60.084 %	71.172 %	0.005 ppb	2,243.826 ppb	47.006 ppb	362.261 ppb	814.368 ppb	302.334 ppb	61.134 %
Concentration RSD	1.2 %	5.3 %	46.0 %	18.6 %	7.1 %	2.5 %	3.5 %	14.0 %	0.9 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	1.179 ppb	-0.094 ppb	0.322 ppb	0.660 ppb	36.265 ppb	0.007 ppb	0.125 ppb	3.679 ppb	751.743 ppb
Concentration per Run 1	1.224 ppb	-0.032 ppb	0.287 ppb	0.764 ppb	38.051 ppb	0.008 ppb	0.167 ppb	3.814 ppb	765.127 ppb
Concentration per Run 2	1.143 ppb	-0.126 ppb	0.363 ppb	0.605 ppb	34.369 ppb	0.006 ppb	0.121 ppb	3.697 ppb	752.556 ppb
Concentration per Run 3	1.171 ppb	-0.124 ppb	0.315 ppb	0.610 ppb	36.376 ppb	0.006 ppb	0.087 ppb	3.525 ppb	737.545 ppb
Concentration RSD	3.5 %	57.1 %	12.0 %	13.7 %	5.1 %	18.2 %	32.1 %	4.0 %	1.8 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	72.243 %	0.057 ppb	0.142 ppb	15.724 ppb	0.611 ppb	76.360 %	0.001 ppb	0.009 ppb	79.546 %
Concentration per Run 1	71.196 %	0.072 ppb	0.161 ppb	16.020 ppb	0.571 ppb	76.392 %	0.002 ppb	0.008 ppb	79.374 %
Concentration per Run 2	72.729 %	0.042 ppb	0.199 ppb	15.488 ppb	0.551 ppb	75.734 %	0.001 ppb	0.010 ppb	78.585 %
Concentration per Run 3	72.805 %	0.056 ppb	0.066 ppb	15.665 ppb	0.710 ppb	76.953 %	0.001 ppb	0.010 ppb	80.678 %
Concentration RSD	1.3 %	26.0 %	48.1 %	1.7 %	14.2 %	0.8 %	37.8 %	13.5 %	1.3 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.033 ppb	-0.372 ppb	1,190.690 ppb	86.116 %	84.638 %	0.539 ppb	0.107 ppb	0.573 ppb	77.796 %
Concentration per Run 1	-0.044 ppb	-0.388 ppb	1,186.139 ppb	86.492 %	87.784 %	0.454 ppb	0.090 ppb	0.587 ppb	74.675 %
Concentration per Run 2	0.035 ppb	-0.382 ppb	1,202.033 ppb	85.833 %	88.216 %	0.506 ppb	0.099 ppb	0.525 ppb	85.245 %
Concentration per Run 3	0.108 ppb	-0.347 ppb	1,183.897 ppb	86.024 %	77.914 %	0.656 ppb	0.130 ppb	0.606 ppb	73.468 %
Concentration RSD	230.5 %	6.0 %	0.8 %	0.4 %	6.9 %	19.5 %	19.9 %	7.4 %	8.3 %

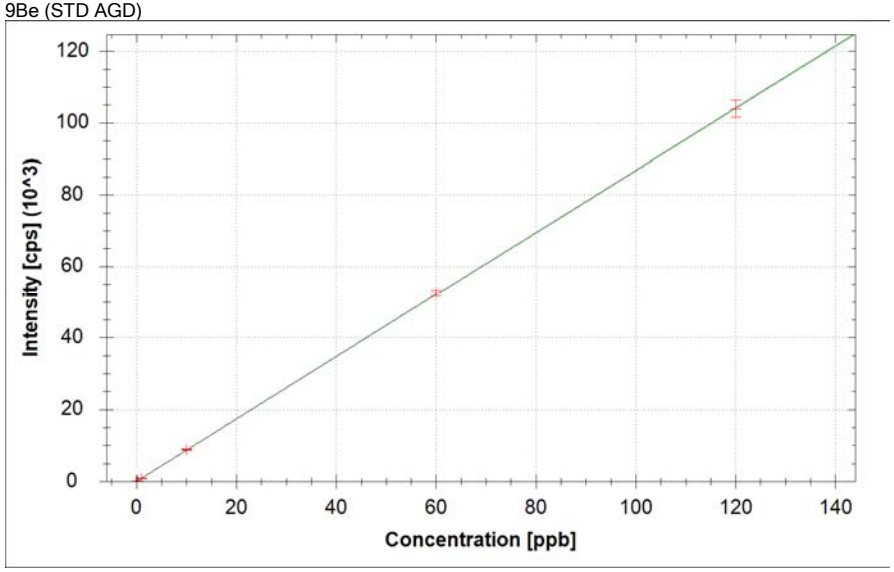
Analysis index:	41	Analysis started at:	3/31/2020 1:46:11 PM
Analysis label:	CCV	User name:	ALPHALAB\metals-instrument

Analysis index:	42	Analysis started at:	3/31/2020 1:54:02 PM
Analysis label:	CCB	User name:	ALPHALAB\metals-instrument

Analysis index:	43	Analysis started at:	3/31/2020 2:01:27 PM
Analysis label:	ABORT	User name:	ALPHALAB\metals-instrument

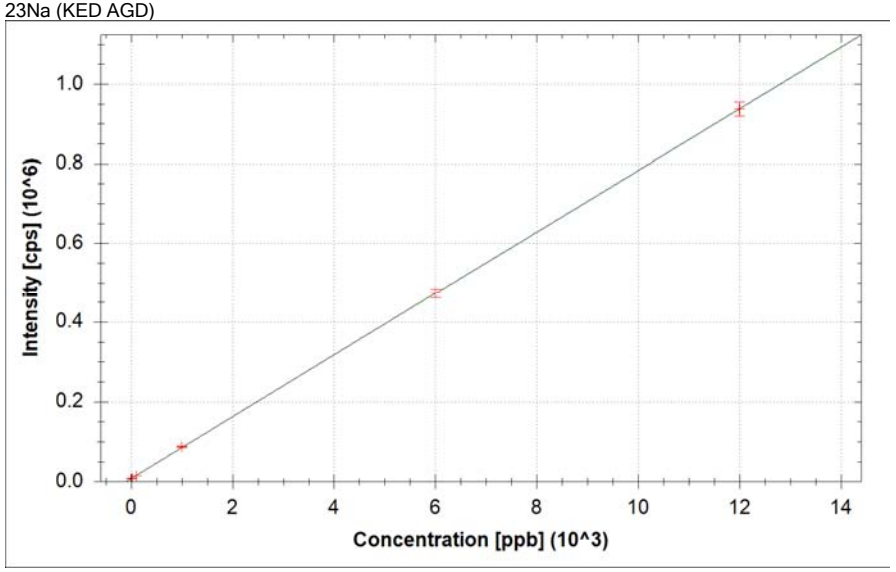
Calibration Curves:

9Be (STD AGD)



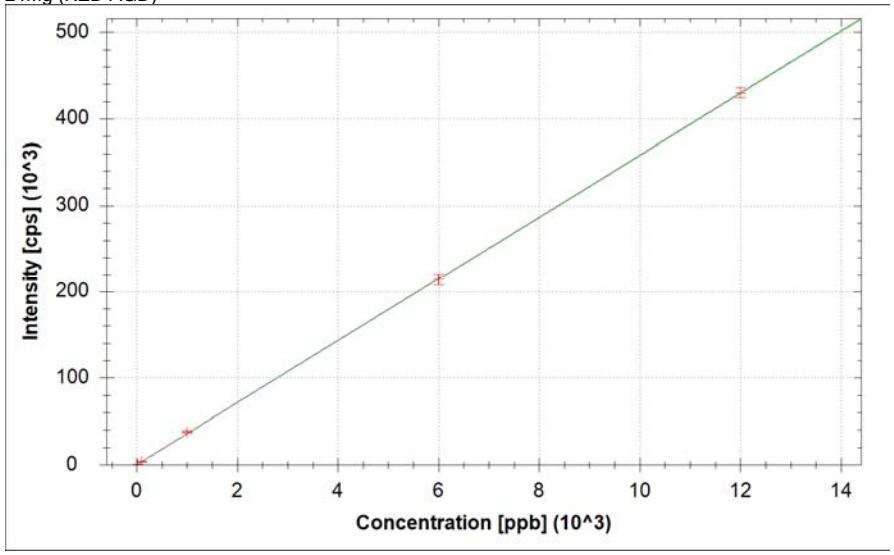
f(x) = 867.5061*x + 7.0958
R² = 1.0000
BEC = 0.008 ppb
LoD = 0.0218 ppb

23Na (KED AGD)



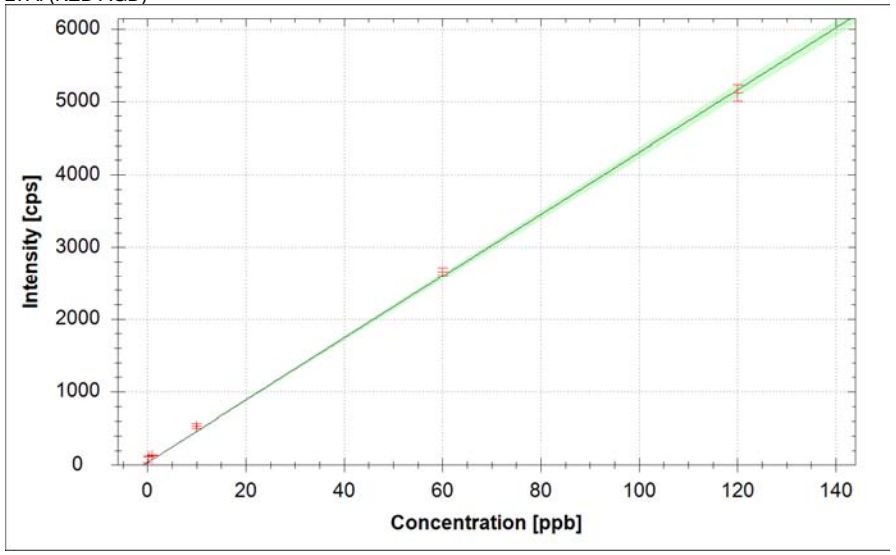
f(x) = 77.5154*x + 7367.8962
R² = 1.0000
BEC = 95.051 ppb
LoD = 9.1138 ppb

24Mg (KED AGD)



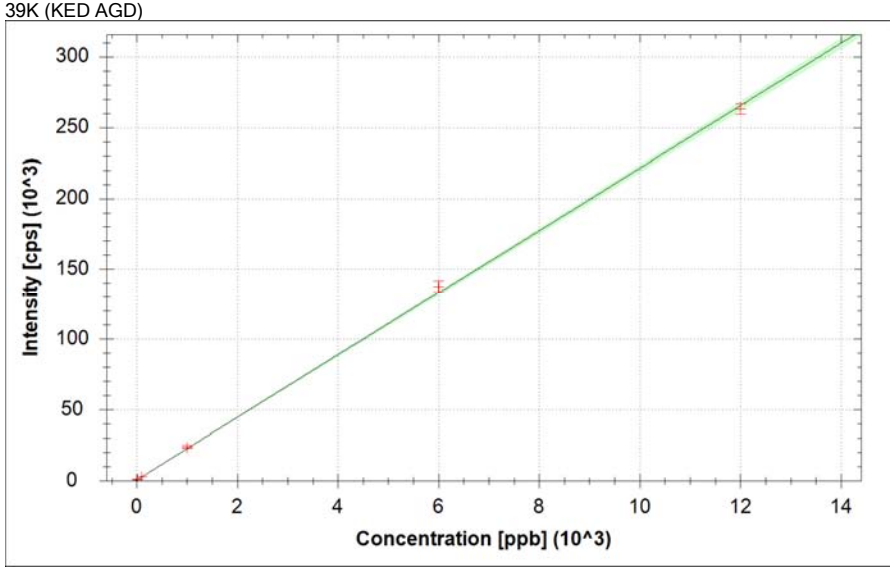
f(x) = 35.7954*x + 24.4219
R² = 1.0000
BEC = 0.682 ppb
LoD = 0.8439 ppb

27Al (KED AGD)



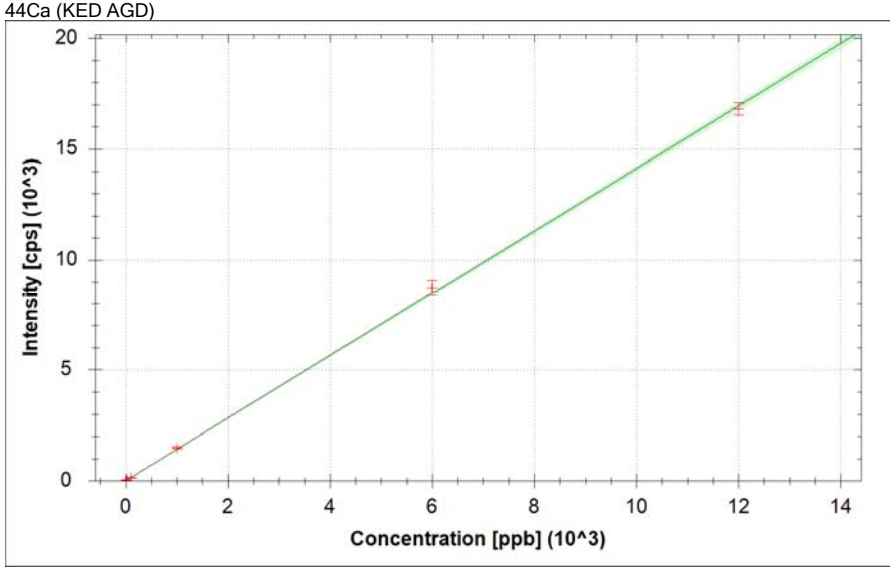
f(x) = 42.7199*x + 31.3348
R² = 0.9990
BEC = 0.733 ppb
LoD = 0.0828 ppb

39K (KED AGD)



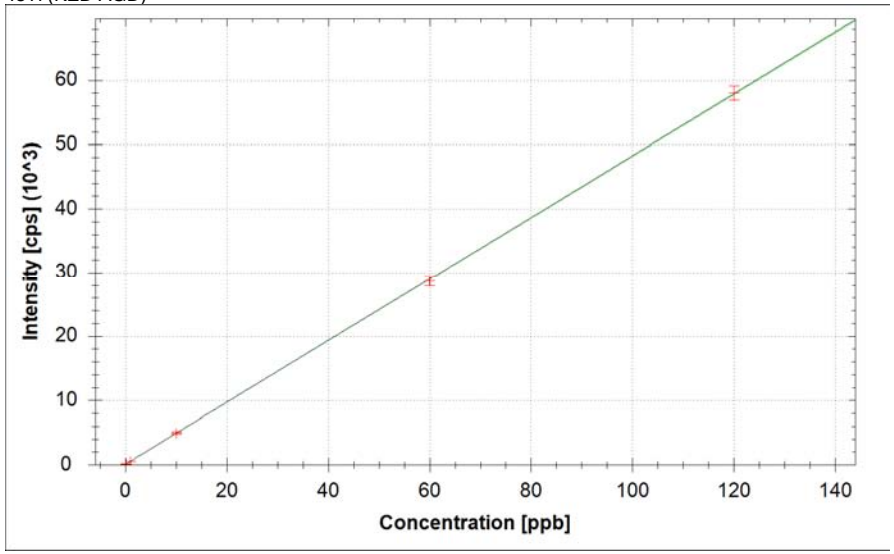
f(x) = 22.0633*x + 615.7046
R² = 0.9995
BEC = 27.906 ppb
LoD = 9.7082 ppb

44Ca (KED AGD)



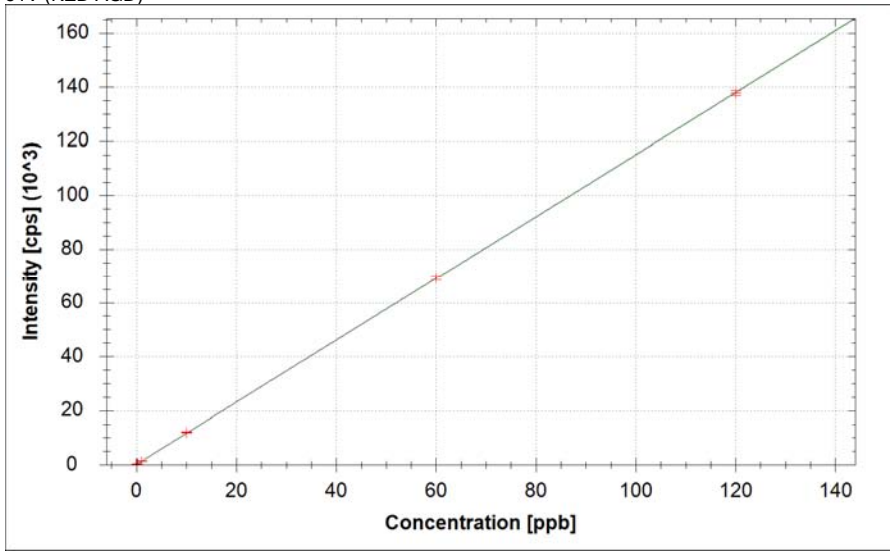
f(x) = 1.4111*x + 5.0411
R² = 0.9996
BEC = 3.572 ppb
LoD = 5.5989 ppb

48Ti (KED AGD)



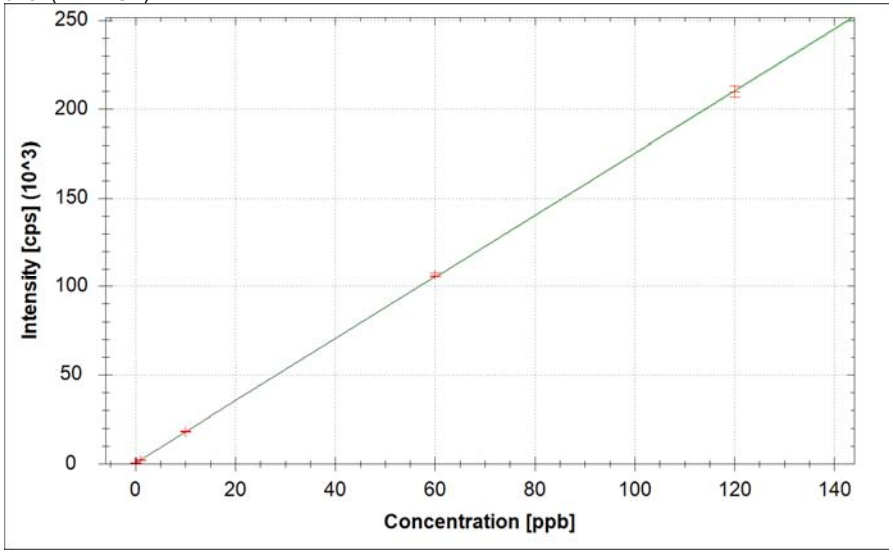
f(x) = 481.1615*x + 101.0153
R² = 1.0000
BEC = 0.210 ppb
LoD = 0.1905 ppb

51V (KED AGD)



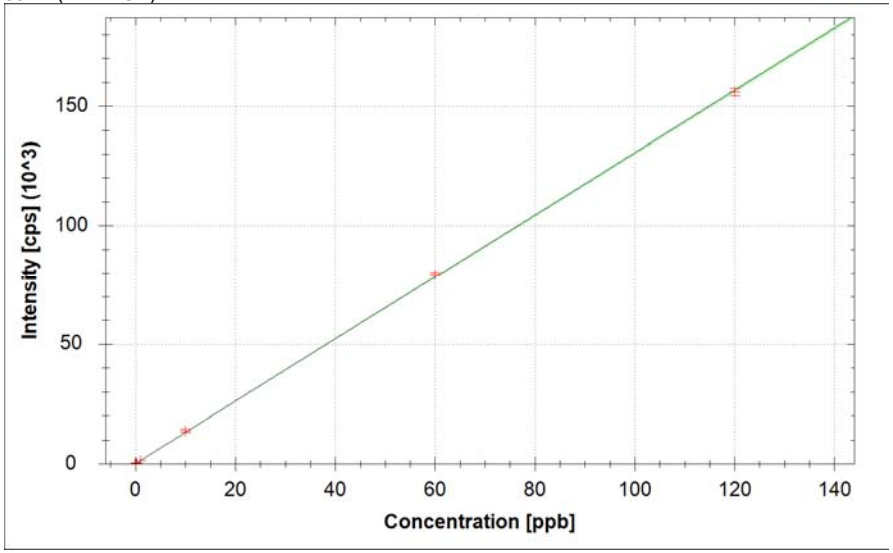
f(x) = 1148.3797*x + 162.2368
R² = 1.0000
BEC = 0.141 ppb
LoD = 0.0119 ppb

52Cr (KED AGD)



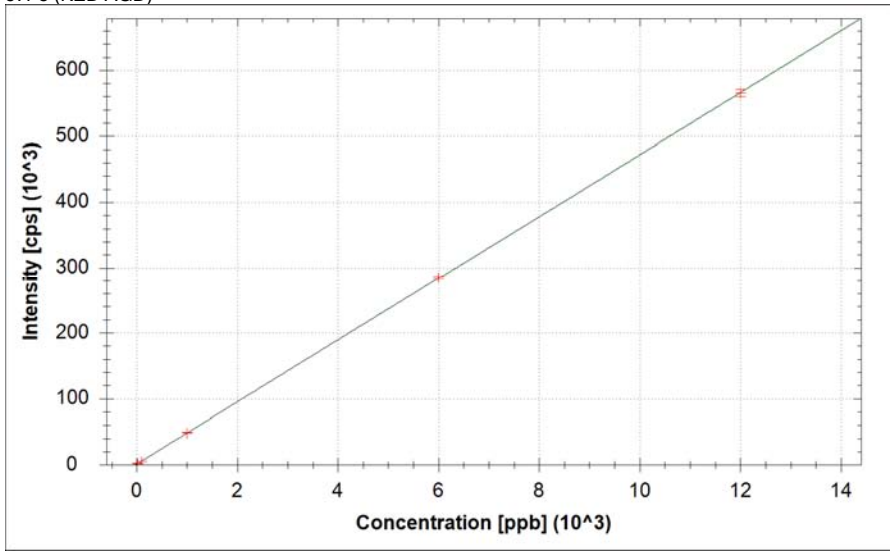
f(x) = 1748.5652*x + 428.7820
R² = 1.0000
BEC = 0.245 ppb
LoD = 0.0753 ppb

55Mn (KED AGD)



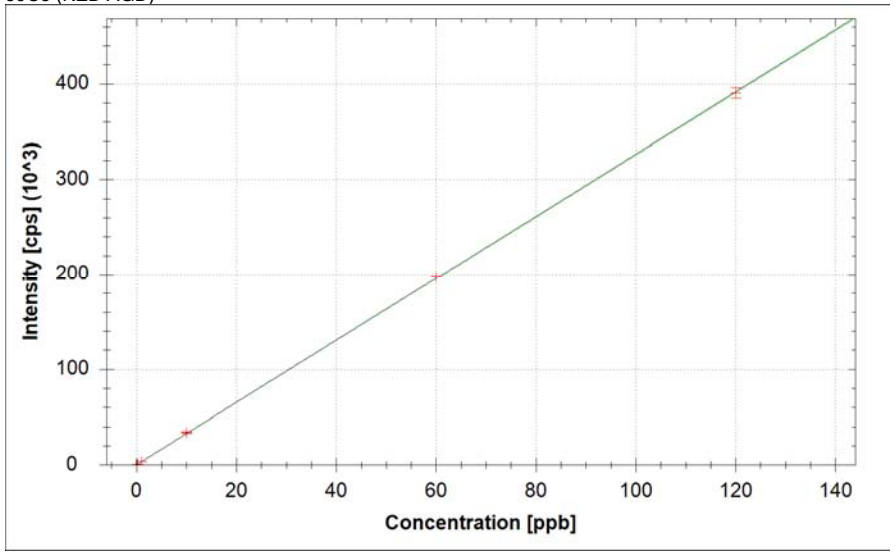
f(x) = 1303.4117*x + 95.5798
R² = 0.9999
BEC = 0.073 ppb
LoD = 0.0583 ppb

57Fe (KED AGD)



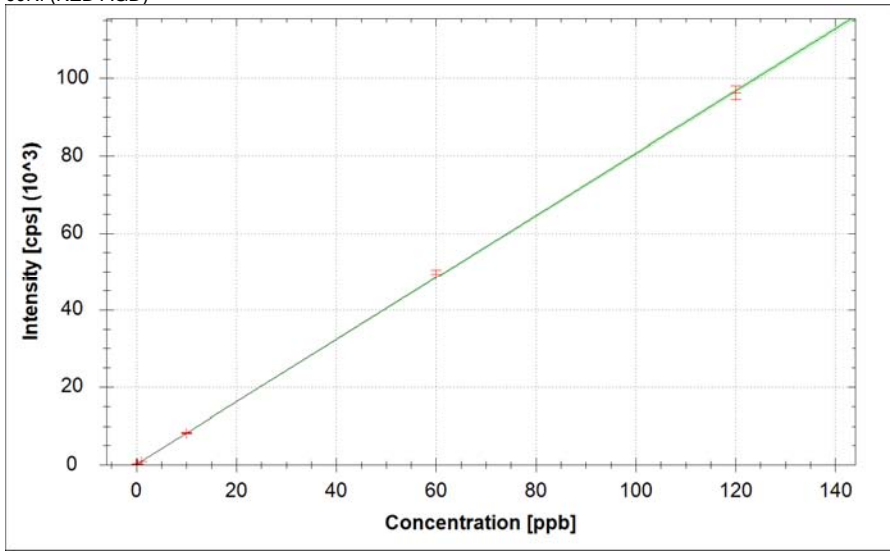
f(x) = 47.0791*x + 1122.2578
R² = 1.0000
BEC = 23.838 ppb
LoD = 0.9080 ppb

59Co (KED AGD)



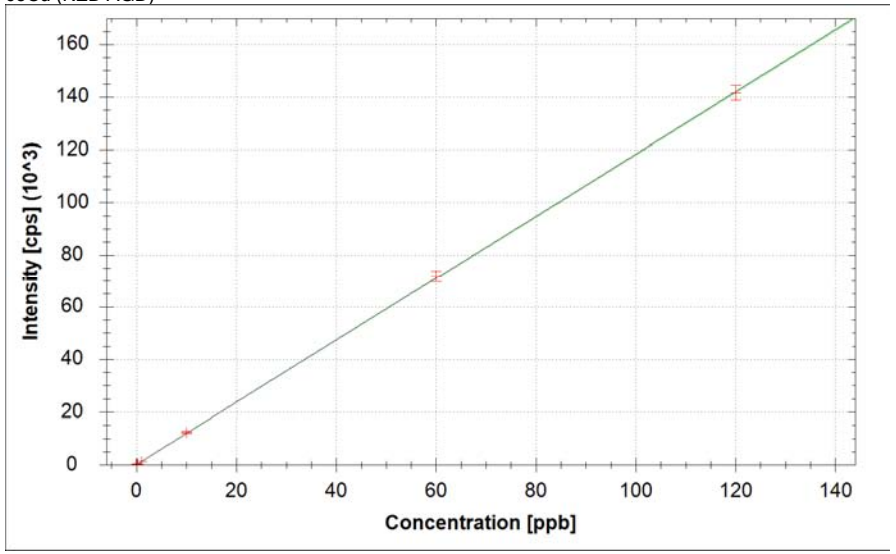
f(x) = 3260.1229*x + 6.6634
R² = 1.0000
BEC = 0.002 ppb
LoD = 0.0061 ppb

60Ni (KED AGD)



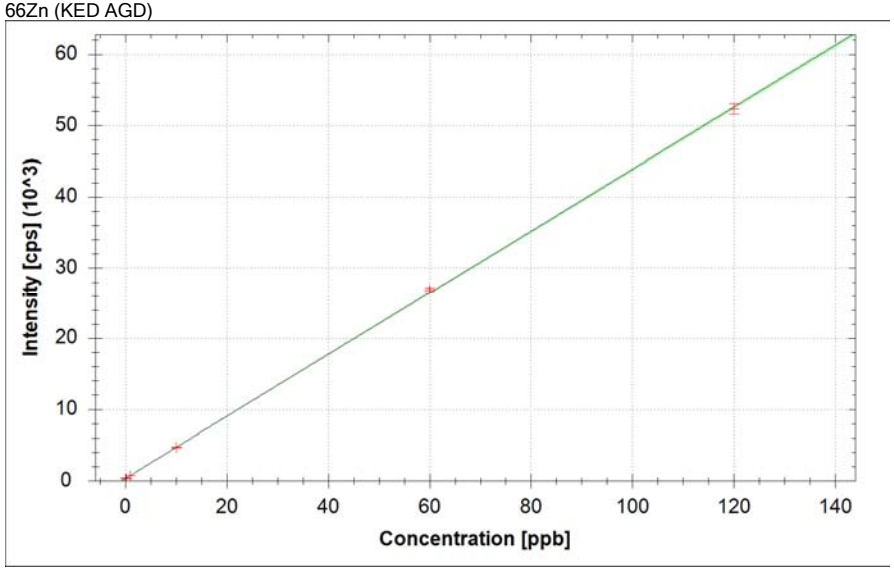
f(x) = 804.8109*x + 119.9379
R² = 0.9998
BEC = 0.149 ppb
LoD = 0.1126 ppb

65Cu (KED AGD)



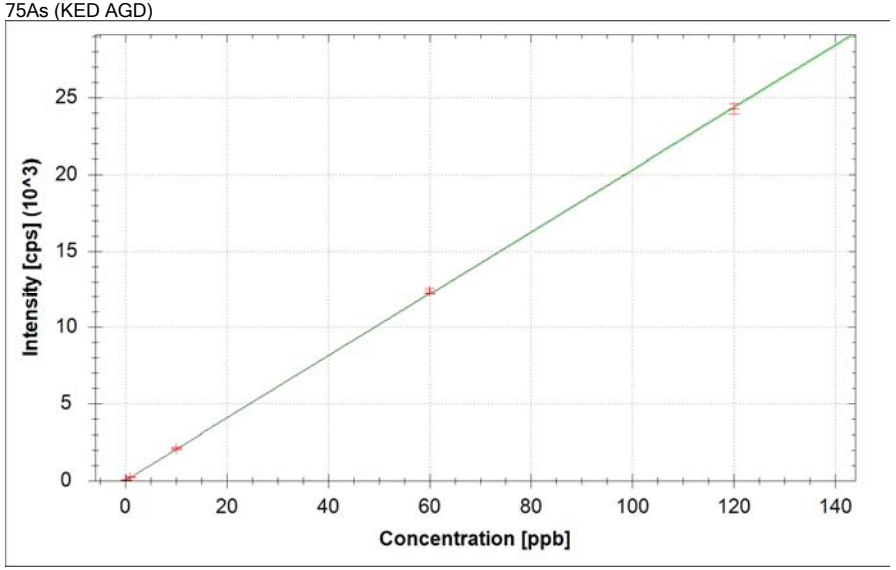
f(x) = 1181.6142*x + 102.1960
R² = 0.9999
BEC = 0.086 ppb
LoD = 0.0383 ppb

66Zn (KED AGD)



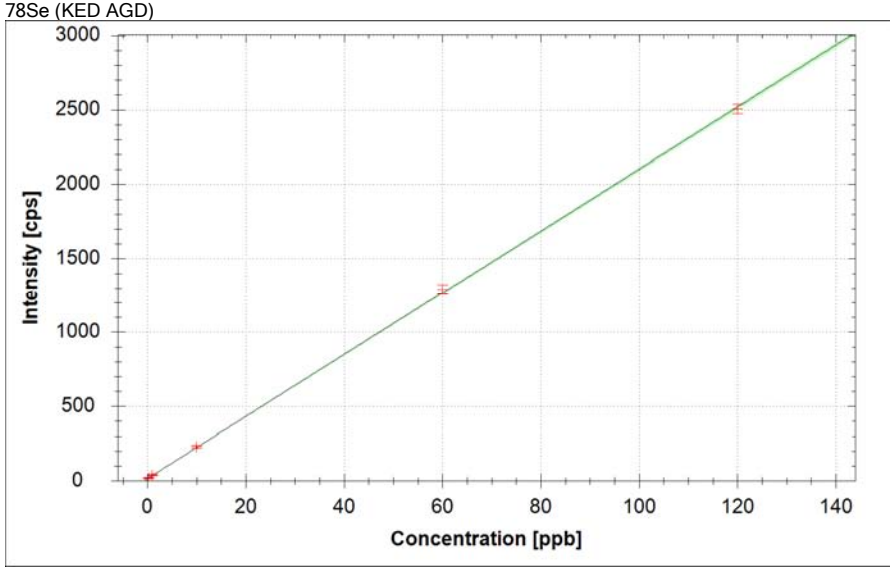
f(x) = 434.9639*x + 348.4722
R² = 0.9999
BEC = 0.801 ppb
LoD = 0.2554 ppb

75As (KED AGD)



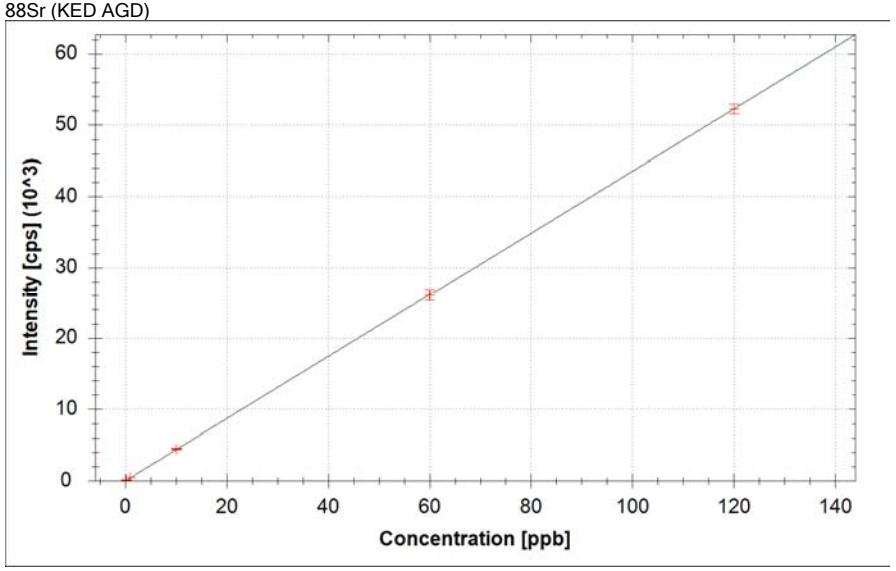
f(x) = 202.8979*x + 22.7852
R² = 0.9999
BEC = 0.112 ppb
LoD = 0.0591 ppb

78Se (KED AGD)



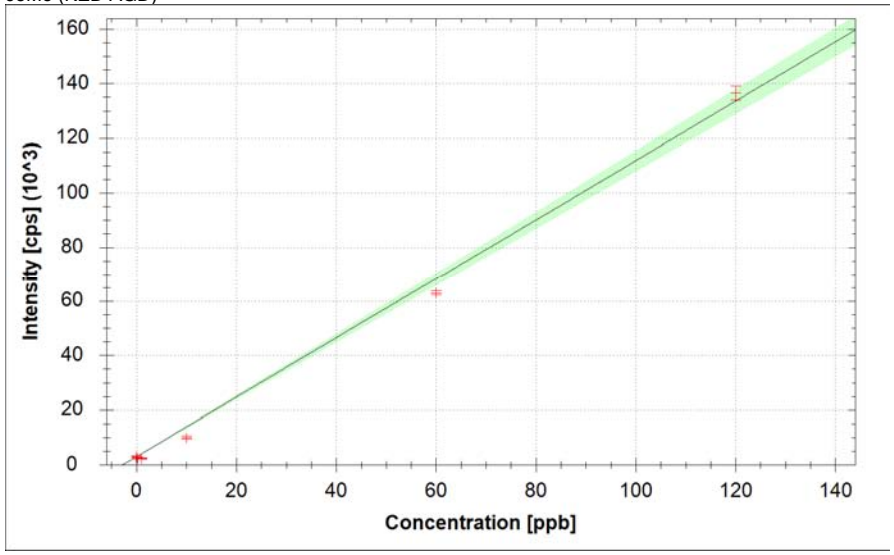
f(x) = 20.8539*x + 14.7749
R² = 0.9998
BEC = 0.708 ppb
LoD = 0.2679 ppb

88Sr (KED AGD)



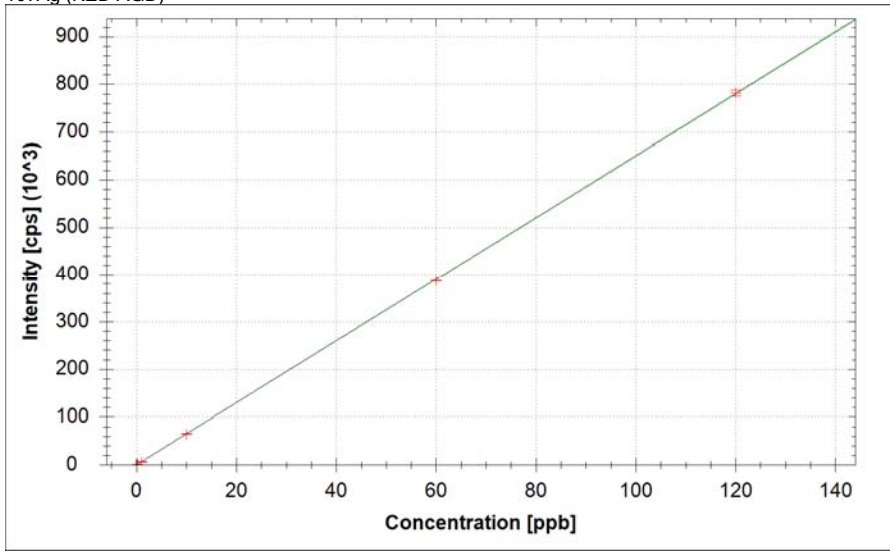
f(x) = 435.2246*x + 11.9106
R² = 1.0000
BEC = 0.027 ppb
LoD = 0.0070 ppb

95Mo (KED AGD)



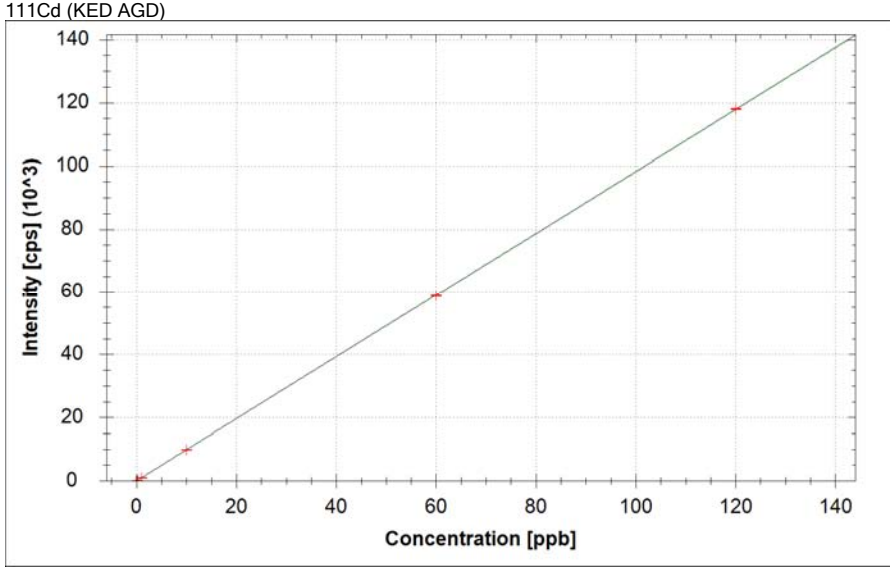
f(x) = 1087.9190*x + 2996.2733
R² = 0.9962
BEC = 2.754 ppb
LoD = 0.9359 ppb

107Ag (KED AGD)



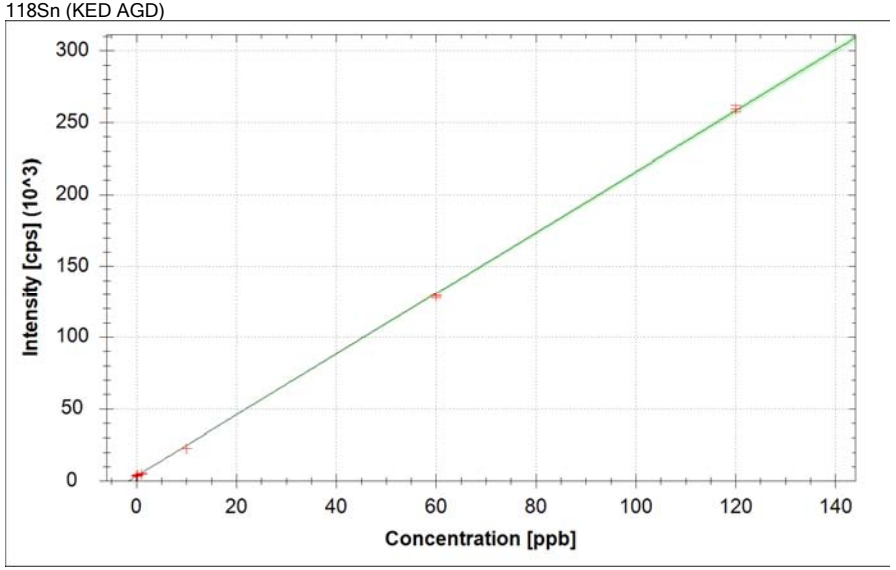
f(x) = 6499.0720*x + 23.3304
R² = 1.0000
BEC = 0.004 ppb
LoD = 0.0015 ppb

111Cd (KED AGD)



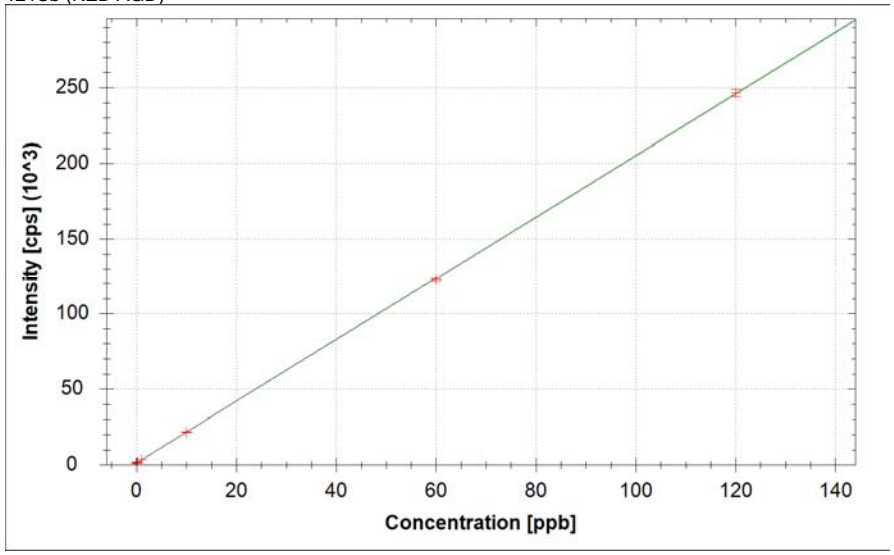
f(x) = 982.1589*x + 0.4453
R² = 1.0000
BEC = 0.000 ppb
LoD = 0.0024 ppb

118Sn (KED AGD)



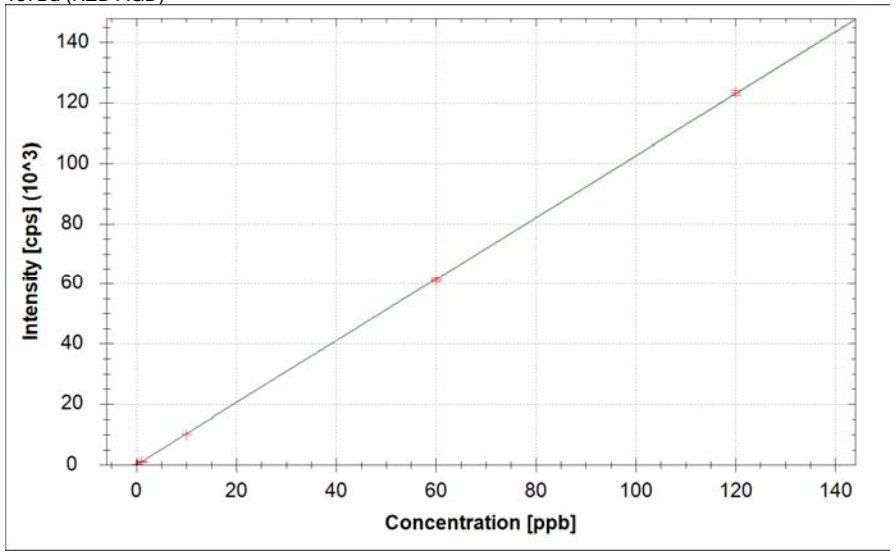
f(x) = 2122.1868*x + 3358.5107
R² = 0.9998
BEC = 1.583 ppb
LoD = 0.3093 ppb

121Sb (KED AGD)



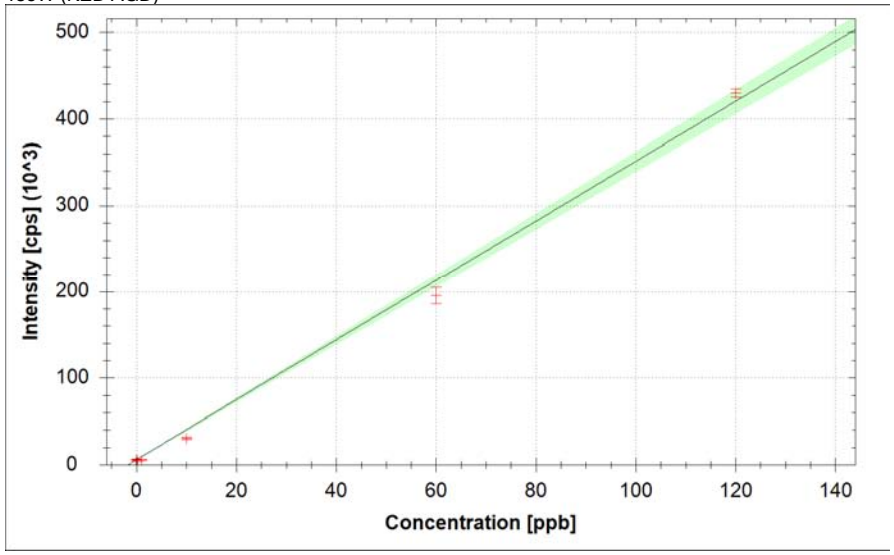
f(x) = 2038.0842*x + 1247.2133
R² = 1.0000
BEC = 0.612 ppb
LoD = 0.0223 ppb

137Ba (KED AGD)



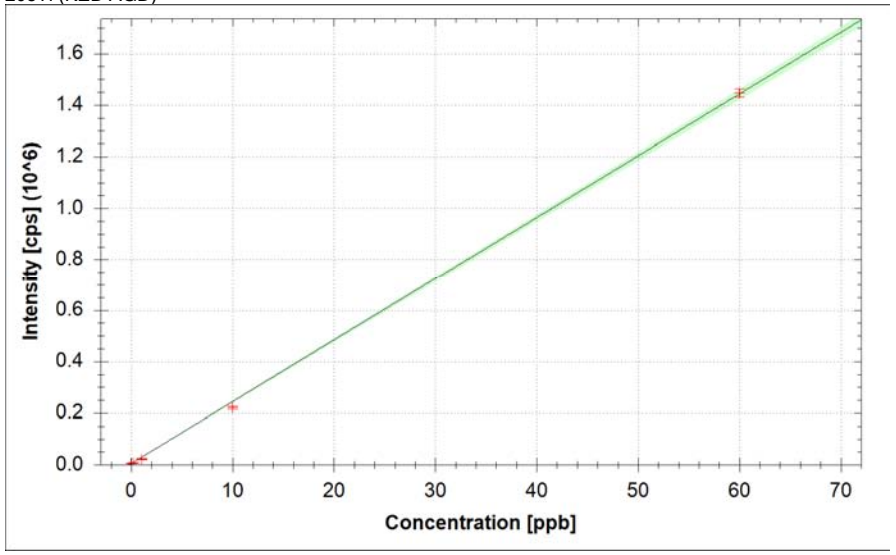
f(x) = 1024.3333*x + 28.9074
R² = 1.0000
BEC = 0.028 ppb
LoD = 0.0206 ppb

183W (KED AGD)



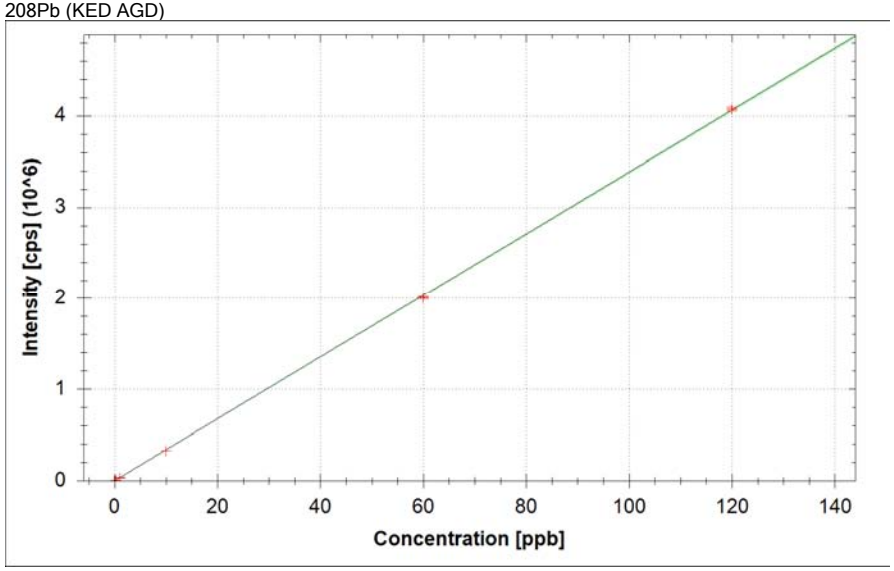
f(x) = 3451.9043*x + 5910.6493
R² = 0.9965
BEC = 1.712 ppb
LoD = 0.8165 ppb

205TI (KED AGD)



f(x) = 23962.6048*x + 5084.4350
R² = 0.9996
BEC = 0.212 ppb
LoD = 0.0073 ppb

208Pb (KED AGD)



f(x) = 33839.1933*x + 523.5863
R^2 = 0.9999
BEC = 0.015 ppb
LoD = 0.0085 ppb

Standards:

Analysis Index: 2
Analysis Name: 0.2/20 Cal
Analysis Type: STD
Analysis Started at: 3/31/2020 2:17:40 PM
Standard (Stock): Calibration Standard 6020/2008
Standard DF: 50000

Category	Concentration average	Concentration RSD	Standard Concentration
6Li (STD AGD)	101.974 %	0.6 %	
6Li (KED AGD)	98.545 %	5.3 %	
9Be (STD AGD)	0.181 ppb	6.1 %	0.200 ppb
23Na (KED AGD)	12.897 ppb	4.8 %	20.000 ppb
24Mg (KED AGD)	20.136 ppb	4.3 %	20.000 ppb
27Al (KED AGD)	2.009 ppb	5.6 %	0.200 ppb
39K (KED AGD)	21.029 ppb	18.5 %	20.000 ppb
44Ca (KED AGD)	20.786 ppb	5.0 %	20.000 ppb
45Sc (STD AGD)	107.402 %	0.7 %	
48Ti (KED AGD)	0.182 ppb	8.8 %	0.200 ppb
51V (KED AGD)	0.247 ppb	10.3 %	0.200 ppb
52Cr (KED AGD)	0.075 ppb	57.0 %	0.200 ppb
55Mn (KED AGD)	0.150 ppb	17.5 %	0.200 ppb
57Fe (KED AGD)	15.061 ppb	27.7 %	20.000 ppb
59Co (KED AGD)	0.175 ppb	5.4 %	0.200 ppb
60Ni (KED AGD)	0.102 ppb	31.3 %	0.200 ppb
65Cu (KED AGD)	0.170 ppb	22.8 %	0.200 ppb
66Zn (KED AGD)	-0.018 ppb	196.0 %	0.200 ppb
74Ge (KED AGD)	99.264 %	1.4 %	
75As (KED AGD)	0.125 ppb	20.6 %	0.200 ppb
78Se (KED AGD)	0.203 ppb	40.2 %	0.200 ppb
88Sr (KED AGD)	0.208 ppb	6.1 %	0.200 ppb
95Mo (KED AGD)	-0.519 ppb	66.6 %	0.200 ppb
103Rh (KED AGD)	100.114 %	1.0 %	
107Ag (KED AGD)	0.179 ppb	7.9 %	0.200 ppb
111Cd (KED AGD)	0.196 ppb	3.7 %	0.200 ppb
115In (KED AGD)	99.519 %	1.0 %	
118Sn (KED AGD)	0.308 ppb	34.3 %	0.200 ppb
121Sb (KED AGD)	0.269 ppb	16.8 %	0.200 ppb
137Ba (KED AGD)	0.177 ppb	4.5 %	0.200 ppb
159Tb (KED AGD)	99.446 %	1.1 %	
175Lu (KED AGD)	99.921 %	8.5 %	
183W (KED AGD)	-0.272 ppb	93.7 %	0.200 ppb
205Tl (KED AGD)	0.087 ppb	48.1 %	0.200 ppb
208Pb (KED AGD)	0.166 ppb	13.3 %	0.200 ppb
209Bi (KED AGD)	100.096 %	9.7 %	

Standards:

Analysis Index: 3
Analysis Name: 1/100 Cal
Analysis Type: STD
Analysis Started at: 3/31/2020 2:22:44 PM
Standard (Stock): Calibration Standard 6020/2008
Standard DF: 10000

Category	Concentration average	Concentration RSD	Standard Concentration
6Li (STD AGD)	101.519 %	0.8 %	
6Li (KED AGD)	99.072 %	1.9 %	
9Be (STD AGD)	0.989 ppb	3.5 %	1.000 ppb
23Na (KED AGD)	92.638 ppb	7.9 %	100.000 ppb
24Mg (KED AGD)	101.030 ppb	3.3 %	100.000 ppb
27Al (KED AGD)	2.383 ppb	4.3 %	1.000 ppb
39K (KED AGD)	97.384 ppb	6.2 %	100.000 ppb
44Ca (KED AGD)	101.179 ppb	7.5 %	100.000 ppb
45Sc (STD AGD)	105.219 %	1.7 %	
48Ti (KED AGD)	0.840 ppb	5.1 %	1.000 ppb
51V (KED AGD)	0.988 ppb	8.8 %	1.000 ppb
52Cr (KED AGD)	0.884 ppb	7.2 %	1.000 ppb
55Mn (KED AGD)	1.000 ppb	3.5 %	1.000 ppb
57Fe (KED AGD)	90.152 ppb	1.6 %	100.000 ppb
59Co (KED AGD)	1.005 ppb	1.0 %	1.000 ppb
60Ni (KED AGD)	0.938 ppb	9.2 %	1.000 ppb
65Cu (KED AGD)	1.000 ppb	5.5 %	1.000 ppb
66Zn (KED AGD)	0.870 ppb	3.1 %	1.000 ppb
74Ge (KED AGD)	98.935 %	3.2 %	
75As (KED AGD)	1.047 ppb	2.9 %	1.000 ppb
78Se (KED AGD)	1.184 ppb	25.2 %	1.000 ppb
88Sr (KED AGD)	1.017 ppb	3.0 %	1.000 ppb
95Mo (KED AGD)	-0.584 ppb	34.4 %	1.000 ppb
103Rh (KED AGD)	98.832 %	0.8 %	
107Ag (KED AGD)	0.984 ppb	2.0 %	1.000 ppb
111Cd (KED AGD)	1.002 ppb	1.4 %	1.000 ppb
115In (KED AGD)	99.738 %	2.2 %	
118Sn (KED AGD)	0.754 ppb	11.3 %	1.000 ppb
121Sb (KED AGD)	1.029 ppb	5.9 %	1.000 ppb
137Ba (KED AGD)	0.968 ppb	3.4 %	1.000 ppb
159Tb (KED AGD)	99.261 %	0.6 %	
175Lu (KED AGD)	104.097 %	8.1 %	
183W (KED AGD)	-0.100 ppb	22.3 %	1.000 ppb
205Tl (KED AGD)	0.734 ppb	12.2 %	1.000 ppb
208Pb (KED AGD)	0.912 ppb	9.9 %	1.000 ppb
209Bi (KED AGD)	93.075 %	11.0 %	

Standards:

Analysis Index: 4
Analysis Name: 10/1000 Cal
Analysis Type: STD
Analysis Started at: 3/31/2020 2:27:49 PM
Standard (Stock): Calibration Standard 6020/2008
Standard DF: 1000

Category	Concentration average	Concentration RSD	Standard Concentration
6Li (STD AGD)	101.270 %	1.4 %	
6Li (KED AGD)	98.397 %	2.0 %	
9Be (STD AGD)	10.198 ppb	1.3 %	10.000 ppb
23Na (KED AGD)	1,021.110 ppb	3.2 %	1,000.000 ppb
24Mg (KED AGD)	1,063.988 ppb	4.0 %	1,000.000 ppb
27Al (KED AGD)	11.708 ppb	6.7 %	10.000 ppb
39K (KED AGD)	1,051.624 ppb	4.9 %	1,000.000 ppb
44Ca (KED AGD)	1,049.339 ppb	4.1 %	1,000.000 ppb
45Sc (STD AGD)	105.877 %	2.0 %	
48Ti (KED AGD)	10.014 ppb	3.5 %	10.000 ppb
51V (KED AGD)	10.239 ppb	1.8 %	10.000 ppb
52Cr (KED AGD)	10.100 ppb	1.6 %	10.000 ppb
55Mn (KED AGD)	10.495 ppb	4.9 %	10.000 ppb
57Fe (KED AGD)	1,002.770 ppb	0.8 %	1,000.000 ppb
59Co (KED AGD)	10.358 ppb	2.7 %	10.000 ppb
60Ni (KED AGD)	10.042 ppb	2.6 %	10.000 ppb
65Cu (KED AGD)	10.368 ppb	3.9 %	10.000 ppb
66Zn (KED AGD)	9.917 ppb	0.1 %	10.000 ppb
74Ge (KED AGD)	98.983 %	1.8 %	
75As (KED AGD)	10.224 ppb	3.5 %	10.000 ppb
78Se (KED AGD)	10.195 ppb	5.2 %	10.000 ppb
88Sr (KED AGD)	10.109 ppb	1.9 %	10.000 ppb
95Mo (KED AGD)	6.418 ppb	8.1 %	10.000 ppb
103Rh (KED AGD)	100.902 %	0.5 %	
107Ag (KED AGD)	9.886 ppb	0.7 %	10.000 ppb
111Cd (KED AGD)	9.948 ppb	1.1 %	10.000 ppb
115In (KED AGD)	101.091 %	2.0 %	
118Sn (KED AGD)	8.982 ppb	0.4 %	10.000 ppb
121Sb (KED AGD)	9.952 ppb	1.3 %	10.000 ppb
137Ba (KED AGD)	9.802 ppb	0.6 %	10.000 ppb
159Tb (KED AGD)	101.472 %	0.5 %	
175Lu (KED AGD)	106.681 %	7.5 %	
183W (KED AGD)	7.079 ppb	6.4 %	10.000 ppb
205Tl (KED AGD)	9.030 ppb	2.5 %	10.000 ppb
208Pb (KED AGD)	9.696 ppb	0.5 %	10.000 ppb
209Bi (KED AGD)	90.886 %	1.3 %	

Standards:

Analysis Index: 5
Analysis Name: 60/6000 Cal
Analysis Type: STD
Analysis Started at: 3/31/2020 2:32:55 PM
Standard (Stock): Calibration Standard 6020/2008
Standard DF: 166.6666666

Category	Concentration average	Concentration RSD	Standard Concentration
6Li (STD AGD)	100.173 %	1.6 %	
6Li (KED AGD)	100.422 %	2.1 %	
9Be (STD AGD)	60.498 ppb	1.7 %	60.000 ppb
23Na (KED AGD)	6,004.738 ppb	2.3 %	6,000.000 ppb
24Mg (KED AGD)	5,979.401 ppb	3.0 %	6,000.000 ppb
27Al (KED AGD)	61.576 ppb	1.9 %	60.000 ppb
39K (KED AGD)	6,202.697 ppb	3.1 %	6,000.000 ppb
44Ca (KED AGD)	6,184.909 ppb	3.9 %	6,000.000 ppb
45Sc (STD AGD)	110.305 %	1.2 %	
48Ti (KED AGD)	59.339 ppb	2.4 %	60.000 ppb
51V (KED AGD)	60.222 ppb	1.2 %	60.000 ppb
52Cr (KED AGD)	60.638 ppb	1.2 %	60.000 ppb
55Mn (KED AGD)	60.904 ppb	0.8 %	60.000 ppb
57Fe (KED AGD)	6,024.002 ppb	0.7 %	6,000.000 ppb
59Co (KED AGD)	60.526 ppb	0.4 %	60.000 ppb
60Ni (KED AGD)	61.260 ppb	2.1 %	60.000 ppb
65Cu (KED AGD)	60.598 ppb	2.7 %	60.000 ppb
66Zn (KED AGD)	61.101 ppb	0.9 %	60.000 ppb
74Ge (KED AGD)	98.443 %	1.4 %	
75As (KED AGD)	60.931 ppb	1.5 %	60.000 ppb
78Se (KED AGD)	61.167 ppb	2.5 %	60.000 ppb
88Sr (KED AGD)	59.944 ppb	3.1 %	60.000 ppb
95Mo (KED AGD)	55.113 ppb	1.3 %	60.000 ppb
103Rh (KED AGD)	98.792 %	0.5 %	
107Ag (KED AGD)	59.510 ppb	0.2 %	60.000 ppb
111Cd (KED AGD)	59.704 ppb	0.3 %	60.000 ppb
115In (KED AGD)	99.914 %	1.6 %	
118Sn (KED AGD)	58.915 ppb	0.8 %	60.000 ppb
121Sb (KED AGD)	59.435 ppb	0.8 %	60.000 ppb
137Ba (KED AGD)	59.560 ppb	1.0 %	60.000 ppb
159Tb (KED AGD)	99.636 %	1.3 %	
175Lu (KED AGD)	100.124 %	8.9 %	
183W (KED AGD)	54.915 ppb	4.9 %	60.000 ppb
205Tl (KED AGD)	60.167 ppb	1.1 %	60.000 ppb
208Pb (KED AGD)	59.294 ppb	0.5 %	60.000 ppb
209Bi (KED AGD)	88.543 %	0.6 %	

Standards:

Analysis Index: 6
Analysis Name: 120/12000 Cal
Analysis Type: STD
Analysis Started at: 3/31/2020 2:38:02 PM
Standard (Stock): Calibration Standard 6020/2008
Standard DF: 83.33333333

Category	Concentration average	Concentration RSD	Standard Concentration
6Li (STD AGD)	96.865 %	2.0 %	
6Li (KED AGD)	98.460 %	2.4 %	
9Be (STD AGD)	119.734 ppb	2.3 %	120.000 ppb
23Na (KED AGD)	11,995.945 ppb	1.9 %	12,000.000 ppb
24Mg (KED AGD)	12,004.959 ppb	1.3 %	12,000.000 ppb
27Al (KED AGD)	119.055 ppb	2.2 %	120.000 ppb
39K (KED AGD)	11,894.369 ppb	1.4 %	12,000.000 ppb
44Ca (KED AGD)	11,903.423 ppb	1.7 %	12,000.000 ppb
45Sc (STD AGD)	109.061 %	1.1 %	
48Ti (KED AGD)	120.331 ppb	1.9 %	120.000 ppb
51V (KED AGD)	119.869 ppb	0.7 %	120.000 ppb
52Cr (KED AGD)	119.674 ppb	1.5 %	120.000 ppb
55Mn (KED AGD)	119.507 ppb	1.0 %	120.000 ppb
57Fe (KED AGD)	11,987.858 ppb	1.0 %	12,000.000 ppb
59Co (KED AGD)	119.707 ppb	1.4 %	120.000 ppb
60Ni (KED AGD)	119.367 ppb	1.8 %	120.000 ppb
65Cu (KED AGD)	119.670 ppb	2.0 %	120.000 ppb
66Zn (KED AGD)	119.458 ppb	1.4 %	120.000 ppb
74Ge (KED AGD)	98.500 %	1.0 %	
75As (KED AGD)	119.516 ppb	1.4 %	120.000 ppb
78Se (KED AGD)	119.399 ppb	1.3 %	120.000 ppb
88Sr (KED AGD)	120.019 ppb	1.3 %	120.000 ppb
95Mo (KED AGD)	122.756 ppb	1.9 %	120.000 ppb
103Rh (KED AGD)	95.534 %	0.1 %	
107Ag (KED AGD)	120.255 ppb	0.8 %	120.000 ppb
111Cd (KED AGD)	120.152 ppb	0.2 %	120.000 ppb
115In (KED AGD)	96.489 %	1.0 %	
118Sn (KED AGD)	120.629 ppb	0.9 %	120.000 ppb
121Sb (KED AGD)	120.286 ppb	0.9 %	120.000 ppb
137Ba (KED AGD)	120.237 ppb	0.6 %	120.000 ppb
159Tb (KED AGD)	97.558 %	0.7 %	
175Lu (KED AGD)	92.688 %	0.8 %	
183W (KED AGD)	122.796 ppb	1.1 %	120.000 ppb
205Tl (KED AGD)	143.963 ppb	0.3 %	120.000 ppb
208Pb (KED AGD)	120.379 ppb	0.4 %	120.000 ppb
209Bi (KED AGD)	87.027 %	0.8 %	

Alpha ICPMSQ Full

4/1/2020 2:17:09 AM

Analysis index: 1
Analysis label: Blank AM ICPMSQ
Analysis started at: 3/31/2020 2:12:31 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	100.000 %	100.000 %	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	100.000 %
Concentration per Run	100.000 %	100.000 %	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	100.000 %
Concentration RSD	0.0 %	0.0 %	0.9 %	0.0 %	0.4 %	0.0 %	0.1 %	0.5 %	0.0 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb
Concentration per Run	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb
Concentration RSD	0.3 %	0.0 %	0.1 %	0.3 %	0.0 %	1.0 %	0.3 %	0.1 %	0.1 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	100.000 %	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	100.000 %	0.000 ppb	0.000 ppb	100.000 %
Concentration per Run	100.000 %	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	100.000 %	0.000 ppb	0.000 ppb	100.000 %
Concentration RSD	0.0 %	0.2 %	0.1 %	0.1 %	0.1 %	0.0 %	0.1 %	1.7 %	0.0 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.000 ppb	0.000 ppb	0.000 ppb	100.000 %	100.000 %	0.000 ppb	0.000 ppb	0.000 ppb	100.000 %
Concentration per Run	0.000 ppb	0.000 ppb	0.000 ppb	100.000 %	100.000 %	0.000 ppb	0.000 ppb	0.000 ppb	100.000 %
Concentration RSD	0.1 %	0.0 %	0.2 %	0.0 %	0.1 %	0.2 %	0.0 %	0.2 %	0.1 %

Alpha ICPMSQ Full

4/1/2020 2:17:09 AM

Analysis index: 2
Analysis label: 0.2/20 Cal
Analysis started at: 3/31/2020 2:17:40 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	101.974 %	98.545 %	0.181 ppb	12.897 ppb	20.136 ppb	2.009 ppb	21.029 ppb	20.786 ppb	107.402 %
Concentration per Run 1	102.634 %	92.492 %	0.180 ppb	13.565 ppb	20.322 ppb	1.949 ppb	23.809 ppb	20.254 ppb	107.779 %
Concentration per Run 2	101.557 %	101.097 %	0.171 ppb	12.329 ppb	20.891 ppb	1.940 ppb	22.686 ppb	21.972 ppb	106.521 %
Concentration per Run 3	101.730 %	102.046 %	0.193 ppb	12.796 ppb	19.194 ppb	2.139 ppb	16.593 ppb	20.131 ppb	107.904 %
Concentration RSD	0.6 %	5.3 %	6.1 %	4.8 %	4.3 %	5.6 %	18.5 %	5.0 %	0.7 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.182 ppb	0.247 ppb	0.075 ppb	0.150 ppb	15.061 ppb	0.175 ppb	0.102 ppb	0.170 ppb	-0.018 ppb
Concentration per Run 1	0.194 ppb	0.221 ppb	0.123 ppb	0.139 ppb	11.881 ppb	0.186 ppb	0.107 ppb	0.168 ppb	-0.034 ppb
Concentration per Run 2	0.188 ppb	0.250 ppb	0.061 ppb	0.180 ppb	13.512 ppb	0.168 ppb	0.130 ppb	0.132 ppb	0.023 ppb
Concentration per Run 3	0.164 ppb	0.271 ppb	0.041 ppb	0.132 ppb	19.789 ppb	0.170 ppb	0.067 ppb	0.209 ppb	-0.044 ppb
Concentration RSD	8.8 %	10.3 %	57.0 %	17.5 %	27.7 %	5.4 %	31.3 %	22.8 %	196.0 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	99.264 %	0.125 ppb	0.203 ppb	0.208 ppb	-0.519 ppb	100.114 %	0.179 ppb	0.196 ppb	99.519 %
Concentration per Run 1	98.157 %	0.143 ppb	0.297 ppb	0.216 ppb	-0.822 ppb	101.027 %	0.183 ppb	0.195 ppb	100.411 %
Concentration per Run 2	100.776 %	0.136 ppb	0.165 ppb	0.193 ppb	-0.593 ppb	100.212 %	0.164 ppb	0.204 ppb	98.471 %
Concentration per Run 3	98.859 %	0.095 ppb	0.148 ppb	0.213 ppb	-0.143 ppb	99.103 %	0.191 ppb	0.189 ppb	99.675 %
Concentration RSD	1.4 %	20.6 %	40.2 %	6.1 %	66.6 %	1.0 %	7.9 %	3.7 %	1.0 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.308 ppb	0.269 ppb	0.177 ppb	99.446 %	99.921 %	-0.272 ppb	0.087 ppb	0.166 ppb	100.096 %
Concentration per Run 1	0.187 ppb	0.219 ppb	0.185 ppb	100.723 %	95.304 %	-0.439 ppb	0.053 ppb	0.148 ppb	106.863 %
Concentration per Run 2	0.380 ppb	0.280 ppb	0.170 ppb	98.634 %	109.677 %	-0.398 ppb	0.074 ppb	0.160 ppb	104.451 %
Concentration per Run 3	0.357 ppb	0.307 ppb	0.175 ppb	98.981 %	94.784 %	0.021 ppb	0.134 ppb	0.191 ppb	88.975 %
Concentration RSD	34.3 %	16.8 %	4.5 %	1.1 %	8.5 %	93.7 %	48.1 %	13.3 %	9.7 %

Alpha ICPMSQ Full

4/1/2020 2:17:09 AM

Analysis index: 3
Analysis label: 1/100 Cal
Analysis started at: 3/31/2020 2:22:44 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	101.519 %	99.072 %	0.989 ppb	92.638 ppb	101.030 ppb	2.383 ppb	97.384 ppb	101.179 ppb	105.219 %
Concentration per Run 1	102.374 %	97.301 %	0.985 ppb	90.776 ppb	97.219 ppb	2.429 ppb	98.992 ppb	99.753 ppb	105.597 %
Concentration per Run 2	100.675 %	98.882 %	0.956 ppb	86.442 ppb	102.251 ppb	2.455 ppb	90.717 ppb	109.426 ppb	103.302 %
Concentration per Run 3	101.508 %	101.033 %	1.025 ppb	100.696 ppb	103.620 ppb	2.264 ppb	102.443 ppb	94.358 ppb	106.758 %
Concentration RSD	0.8 %	1.9 %	3.5 %	7.9 %	3.3 %	4.3 %	6.2 %	7.5 %	1.7 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.840 ppb	0.988 ppb	0.884 ppb	1.000 ppb	90.152 ppb	1.005 ppb	0.938 ppb	1.000 ppb	0.870 ppb
Concentration per Run 1	0.881 ppb	1.030 ppb	0.813 ppb	1.038 ppb	90.538 ppb	1.016 ppb	0.977 ppb	1.001 ppb	0.841 ppb
Concentration per Run 2	0.795 ppb	1.046 ppb	0.901 ppb	0.969 ppb	91.339 ppb	1.004 ppb	0.997 ppb	0.944 ppb	0.895 ppb
Concentration per Run 3	0.843 ppb	0.888 ppb	0.937 ppb	0.993 ppb	88.578 ppb	0.996 ppb	0.839 ppb	1.055 ppb	0.873 ppb
Concentration RSD	5.1 %	8.8 %	7.2 %	3.5 %	1.6 %	1.0 %	9.2 %	5.5 %	3.1 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	98.935 %	1.047 ppb	1.184 ppb	1.017 ppb	-0.584 ppb	98.832 %	0.984 ppb	1.002 ppb	99.738 %
Concentration per Run 1	97.013 %	1.013 ppb	0.966 ppb	0.993 ppb	-0.816 ppb	99.752 %	1.007 ppb	0.986 ppb	99.583 %
Concentration per Run 2	97.226 %	1.070 ppb	1.523 ppb	1.008 ppb	-0.470 ppb	98.548 %	0.977 ppb	1.013 ppb	97.599 %
Concentration per Run 3	102.564 %	1.059 ppb	1.063 ppb	1.051 ppb	-0.467 ppb	98.197 %	0.969 ppb	1.007 ppb	102.031 %
Concentration RSD	3.2 %	2.9 %	25.2 %	3.0 %	34.4 %	0.8 %	2.0 %	1.4 %	2.2 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.754 ppb	1.029 ppb	0.968 ppb	99.261 %	104.097 %	-0.100 ppb	0.734 ppb	0.912 ppb	93.075 %
Concentration per Run 1	0.656 ppb	0.981 ppb	0.930 ppb	99.395 %	94.373 %	-0.095 ppb	0.633 ppb	0.810 ppb	104.897 %
Concentration per Run 2	0.811 ppb	1.097 ppb	0.984 ppb	99.775 %	107.989 %	-0.124 ppb	0.767 ppb	0.945 ppb	87.190 %
Concentration per Run 3	0.796 ppb	1.010 ppb	0.990 ppb	98.613 %	109.929 %	-0.080 ppb	0.803 ppb	0.981 ppb	87.139 %
Concentration RSD	11.3 %	5.9 %	3.4 %	0.6 %	8.1 %	22.3 %	12.2 %	9.9 %	11.0 %

Alpha ICPMSQ Full

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Analysis index: 4
Analysis label: 10/1000 Cal
Analysis started at: 3/31/2020 2:27:49 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	101.270 %	98.397 %	10.198 ppb	1,021.110 ppb	1,063.988 ppb	11.708 ppb	1,051.624 ppb	1,049.339 ppb	105.877 %
Concentration per Run 1	102.333 %	98.376 %	10.051 ppb	1,005.393 ppb	1,041.898 ppb	11.269 ppb	1,009.793 ppb	1,010.406 ppb	105.724 %
Concentration per Run 2	99.722 %	96.478 %	10.231 ppb	1,058.774 ppb	1,113.393 ppb	12.611 ppb	1,108.848 ppb	1,096.230 ppb	103.846 %
Concentration per Run 3	101.754 %	100.337 %	10.311 ppb	999.163 ppb	1,036.674 ppb	11.243 ppb	1,036.230 ppb	1,041.382 ppb	108.062 %
Concentration RSD	1.4 %	2.0 %	1.3 %	3.2 %	4.0 %	6.7 %	4.9 %	4.1 %	2.0 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	10.014 ppb	10.239 ppb	10.100 ppb	10.495 ppb	1,002.770 ppb	10.358 ppb	10.042 ppb	10.368 ppb	9.917 ppb
Concentration per Run 1	10.422 ppb	10.037 ppb	10.205 ppb	10.043 ppb	994.073 ppb	10.475 ppb	10.217 ppb	10.824 ppb	9.933 ppb
Concentration per Run 2	9.825 ppb	10.413 ppb	10.186 ppb	11.054 ppb	1,010.854 ppb	10.038 ppb	9.743 ppb	10.216 ppb	9.910 ppb
Concentration per Run 3	9.794 ppb	10.267 ppb	9.908 ppb	10.389 ppb	1,003.385 ppb	10.559 ppb	10.166 ppb	10.066 ppb	9.909 ppb
Concentration RSD	3.5 %	1.8 %	1.6 %	4.9 %	0.8 %	2.7 %	2.6 %	3.9 %	0.1 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	98.983 %	10.224 ppb	10.195 ppb	10.109 ppb	6.418 ppb	100.902 %	9.886 ppb	9.948 ppb	101.091 %
Concentration per Run 1	98.110 %	10.560 ppb	10.012 ppb	10.193 ppb	6.963 ppb	101.326 %	9.948 ppb	9.938 ppb	101.639 %
Concentration per Run 2	101.037 %	10.266 ppb	10.793 ppb	10.246 ppb	6.370 ppb	101.059 %	9.808 ppb	9.842 ppb	102.796 %
Concentration per Run 3	97.801 %	9.845 ppb	9.780 ppb	9.887 ppb	5.922 ppb	100.320 %	9.901 ppb	10.065 ppb	98.839 %
Concentration RSD	1.8 %	3.5 %	5.2 %	1.9 %	8.1 %	0.5 %	0.7 %	1.1 %	2.0 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	8.982 ppb	9.952 ppb	9.802 ppb	101.472 %	106.681 %	7.079 ppb	9.030 ppb	9.696 ppb	90.886 %
Concentration per Run 1	8.940 ppb	9.888 ppb	9.779 ppb	102.044 %	110.547 %	7.043 ppb	8.893 ppb	9.642 ppb	92.127 %
Concentration per Run 2	8.997 ppb	9.863 ppb	9.754 ppb	101.403 %	112.002 %	6.648 ppb	8.903 ppb	9.702 ppb	89.866 %
Concentration per Run 3	9.008 ppb	10.106 ppb	9.871 ppb	100.971 %	97.494 %	7.546 ppb	9.293 ppb	9.745 ppb	90.666 %
Concentration RSD	0.4 %	1.3 %	0.6 %	0.5 %	7.5 %	6.4 %	2.5 %	0.5 %	1.3 %

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Analysis index: 5
Analysis label: 60/6000 Cal
Analysis started at: 3/31/2020 2:32:55 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	100.173 %	100.422 %	60.498 ppb	6,004.738 ppb	5,979.401 ppb	61.576 ppb	6,202.697 ppb	6,184.909 ppb	110.305 %
Concentration per Run 1	101.943 %	100.907 %	59.413 ppb	6,114.801 ppb	6,073.143 ppb	62.861 ppb	6,419.486 ppb	6,375.221 ppb	111.838 %
Concentration per Run 2	98.699 %	102.235 %	61.413 ppb	5,848.232 ppb	5,770.591 ppb	61.376 ppb	6,043.157 ppb	5,913.796 ppb	109.414 %
Concentration per Run 3	99.878 %	98.123 %	60.669 ppb	6,051.182 ppb	6,094.468 ppb	60.491 ppb	6,145.449 ppb	6,265.710 ppb	109.664 %
Concentration RSD	1.6 %	2.1 %	1.7 %	2.3 %	3.0 %	1.9 %	3.1 %	3.9 %	1.2 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	59.339 ppb	60.222 ppb	60.638 ppb	60.904 ppb	6,024.002 ppb	60.526 ppb	61.260 ppb	60.598 ppb	61.101 ppb
Concentration per Run 1	59.299 ppb	60.696 ppb	59.772 ppb	61.477 ppb	6,054.047 ppb	60.789 ppb	61.453 ppb	60.708 ppb	60.541 ppb
Concentration per Run 2	57.913 ppb	59.386 ppb	61.066 ppb	60.525 ppb	6,043.060 ppb	60.486 ppb	62.430 ppb	62.166 ppb	61.128 ppb
Concentration per Run 3	60.806 ppb	60.584 ppb	61.078 ppb	60.710 ppb	5,974.899 ppb	60.301 ppb	59.897 ppb	58.921 ppb	61.634 ppb
Concentration RSD	2.4 %	1.2 %	1.2 %	0.8 %	0.7 %	0.4 %	2.1 %	2.7 %	0.9 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	98.443 %	60.931 ppb	61.167 ppb	59.944 ppb	55.113 ppb	98.792 %	59.510 ppb	59.704 ppb	99.914 %
Concentration per Run 1	99.664 %	61.671 ppb	62.898 ppb	62.023 ppb	55.944 ppb	99.343 %	59.503 ppb	59.886 ppb	101.667 %
Concentration per Run 2	96.903 %	61.207 ppb	60.396 ppb	59.232 ppb	54.792 ppb	98.383 %	59.614 ppb	59.593 ppb	98.523 %
Concentration per Run 3	98.763 %	59.915 ppb	60.206 ppb	58.576 ppb	54.604 ppb	98.650 %	59.412 ppb	59.632 ppb	99.553 %
Concentration RSD	1.4 %	1.5 %	2.5 %	3.1 %	1.3 %	0.5 %	0.2 %	0.3 %	1.6 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	58.915 ppb	59.435 ppb	59.560 ppb	99.636 %	100.124 %	54.915 ppb	60.167 ppb	59.294 ppb	88.543 %
Concentration per Run 1	58.497 ppb	58.901 ppb	59.887 ppb	101.103 %	110.413 %	51.824 ppb	59.431 ppb	59.475 ppb	88.376 %
Concentration per Run 2	59.448 ppb	59.639 ppb	58.904 ppb	98.490 %	94.091 %	56.915 ppb	60.373 ppb	58.942 ppb	89.170 %
Concentration per Run 3	58.801 ppb	59.766 ppb	59.890 ppb	99.315 %	95.868 %	56.007 ppb	60.695 ppb	59.466 ppb	88.082 %
Concentration RSD	0.8 %	0.8 %	1.0 %	1.3 %	8.9 %	4.9 %	1.1 %	0.5 %	0.6 %

Alpha ICPMSQ Full

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Analysis index: 6
Analysis label: 120/12000 Cal
Analysis started at: 3/31/2020 2:38:02 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	96.865 %	98.460 %	119.734 ppb	11,995.945 ppb	12,004.959 ppb	119.055 ppb	11,894.369 ppb	11,903.423 ppb	109.061 %
Concentration per Run 1	97.979 %	97.933 %	116.862 ppb	11,991.171 ppb	12,029.995 ppb	118.248 ppb	12,010.568 ppb	12,004.978 ppb	109.041 %
Concentration per Run 2	97.960 %	96.415 %	119.919 ppb	12,227.084 ppb	12,152.152 ppb	122.000 ppb	11,974.606 ppb	12,029.669 ppb	110.306 %
Concentration per Run 3	94.655 %	101.033 %	122.423 ppb	11,769.580 ppb	11,832.729 ppb	116.917 ppb	11,697.934 ppb	11,675.621 ppb	107.835 %
Concentration RSD	2.0 %	2.4 %	2.3 %	1.9 %	1.3 %	2.2 %	1.4 %	1.7 %	1.1 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	120.331 ppb	119.869 ppb	119.674 ppb	119.507 ppb	11,987.858 ppb	119.707 ppb	119.367 ppb	119.670 ppb	119.458 ppb
Concentration per Run 1	118.266 ppb	119.515 ppb	117.998 ppb	118.232 ppb	12,124.378 ppb	120.839 ppb	121.596 ppb	121.715 ppb	121.386 ppb
Concentration per Run 2	122.716 ppb	120.777 ppb	121.549 ppb	120.458 ppb	11,913.264 ppb	120.510 ppb	119.292 ppb	120.270 ppb	118.165 ppb
Concentration per Run 3	120.010 ppb	119.315 ppb	119.475 ppb	119.831 ppb	11,925.933 ppb	117.773 ppb	117.214 ppb	117.026 ppb	118.822 ppb
Concentration RSD	1.9 %	0.7 %	1.5 %	1.0 %	1.0 %	1.4 %	1.8 %	2.0 %	1.4 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	98.500 %	119.516 ppb	119.399 ppb	120.019 ppb	122.756 ppb	95.534 %	120.255 ppb	120.152 ppb	96.489 %
Concentration per Run 1	97.413 %	120.749 ppb	118.094 ppb	121.575 ppb	124.583 ppb	95.609 %	120.763 ppb	120.225 ppb	95.425 %
Concentration per Run 2	98.917 %	120.236 ppb	119.052 ppb	118.535 ppb	123.627 ppb	95.479 %	120.812 ppb	119.929 ppb	97.301 %
Concentration per Run 3	99.169 %	117.562 ppb	121.050 ppb	119.947 ppb	120.058 ppb	95.514 %	119.190 ppb	120.303 ppb	96.739 %
Concentration RSD	1.0 %	1.4 %	1.3 %	1.3 %	1.9 %	0.1 %	0.8 %	0.2 %	1.0 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	120.629 ppb	120.286 ppb	120.237 ppb	97.558 %	92.688 %	122.796 ppb	143.953 ppb	120.379 ppb	87.027 %
Concentration per Run 1	119.788 ppb	121.154 ppb	119.665 ppb	98.323 %	93.488 %	124.080 ppb	143.470 ppb	120.162 ppb	87.785 %
Concentration per Run 2	120.290 ppb	120.692 ppb	119.971 ppb	97.106 %	91.979 %	122.882 ppb	144.391 ppb	120.968 ppb	86.891 %
Concentration per Run 3	121.809 ppb	119.013 ppb	121.073 ppb	97.246 %	92.595 %	121.425 ppb	144.027 ppb	120.007 ppb	86.406 %
Concentration RSD	0.9 %	0.9 %	0.6 %	0.7 %	0.8 %	1.1 %	0.3 %	0.4 %	0.8 %

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Analysis index: 7
Analysis label: Sr 200ppb
Analysis started at: 3/31/2020 2:43:09 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	92.520 %	91.649 %	0.018 ppb	-16.049 ppb	0.593 ppb	3.357 ppb	3.480 ppb	0.049 ppb	92.558 %
Concentration per Run 1	91.618 %	89.392 %	0.015 ppb	-19.596 ppb	0.137 ppb	3.491 ppb	2.870 ppb	-73.395 ppb	92.943 %
Concentration per Run 2	93.554 %	92.809 %	0.023 ppb	-16.343 ppb	1.117 ppb	3.319 ppb	3.795 ppb	28.855 ppb	94.011 %
Concentration per Run 3	92.387 %	92.745 %	0.015 ppb	-12.208 ppb	0.524 ppb	3.261 ppb	3.776 ppb	44.689 ppb	90.719 %
Concentration RSD	1.1 %	2.1 %	25.3 %	23.1 %	83.3 %	3.6 %	15.2 %	129,488.1 %	1.8 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.540 ppb	0.013 ppb	0.095 ppb	0.079 ppb	44.840 ppb	0.013 ppb	0.037 ppb	0.016 ppb	1.736 ppb
Concentration per Run 1	0.542 ppb	0.014 ppb	0.081 ppb	0.063 ppb	45.713 ppb	0.015 ppb	0.018 ppb	-0.015 ppb	1.637 ppb
Concentration per Run 2	0.456 ppb	0.001 ppb	0.085 ppb	0.069 ppb	45.961 ppb	0.015 ppb	0.045 ppb	0.076 ppb	1.693 ppb
Concentration per Run 3	0.622 ppb	0.022 ppb	0.120 ppb	0.104 ppb	42.845 ppb	0.009 ppb	0.048 ppb	-0.013 ppb	1.878 ppb
Concentration RSD	15.3 %	83.5 %	22.5 %	28.1 %	3.9 %	27.7 %	44.5 %	326.1 %	7.3 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	93.895 %	0.171 ppb	0.338 ppb	202.157 ppb	9.673 ppb	94.071 %	0.008 ppb	0.009 ppb	94.388 %
Concentration per Run 1	95.365 %	0.125 ppb	0.113 ppb	202.955 ppb	8.124 ppb	95.516 %	0.006 ppb	0.011 ppb	95.870 %
Concentration per Run 2	94.052 %	0.167 ppb	0.295 ppb	199.260 ppb	9.589 ppb	93.401 %	0.006 ppb	0.004 ppb	93.544 %
Concentration per Run 3	92.268 %	0.221 ppb	0.606 ppb	204.254 ppb	11.307 ppb	93.295 %	0.012 ppb	0.013 ppb	93.751 %
Concentration RSD	1.7 %	28.4 %	73.8 %	1.3 %	16.5 %	1.3 %	49.2 %	50.5 %	1.4 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	1.681 ppb	0.324 ppb	0.047 ppb	95.081 %	91.841 %	8.533 ppb	1.371 ppb	0.031 ppb	86.102 %
Concentration per Run 1	1.502 ppb	0.278 ppb	0.052 ppb	97.892 %	93.148 %	7.456 ppb	1.466 ppb	0.034 ppb	88.361 %
Concentration per Run 2	1.789 ppb	0.298 ppb	0.028 ppb	93.126 %	90.536 %	8.749 ppb	1.366 ppb	0.029 ppb	85.327 %
Concentration per Run 3	1.753 ppb	0.395 ppb	0.062 ppb	94.224 %	91.840 %	9.395 ppb	1.280 ppb	0.029 ppb	84.617 %
Concentration RSD	9.3 %	19.3 %	37.4 %	2.6 %	1.4 %	11.6 %	6.8 %	10.6 %	2.3 %

Alpha ICPMSQ Full

4/1/2020 2:17:09 AM

Analysis index: 8 Analysis started at: 3/31/2020 2:50:02 PM
Analysis label: ICV User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	97.808 %	95.044 %	51.585 ppb	5,308.408 ppb	5,358.457 ppb	54.681 ppb	5,260.959 ppb	5,232.921 ppb	103.483 %
Concentration per Run 1	97.348 %	89.709 %	50.897 ppb	5,538.964 ppb	5,532.278 ppb	55.001 ppb	5,358.043 ppb	5,259.427 ppb	100.459 %
Concentration per Run 2	98.285 %	101.286 %	52.037 ppb	5,283.378 ppb	5,398.541 ppb	57.513 ppb	5,344.547 ppb	5,122.092 ppb	104.893 %
Concentration per Run 3	97.791 %	94.137 %	51.821 ppb	5,102.883 ppb	5,144.553 ppb	51.529 ppb	5,080.286 ppb	5,317.243 ppb	105.097 %
Recovery Percentage 1			103.171 %	106.168 %	107.169 %	109.362 %	105.219 %	104.658 %	
Concentration RSD	0.5 %	6.1 %	1.2 %	4.1 %	3.7 %	5.5 %	3.0 %	1.9 %	2.5 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	51.746 ppb	52.093 ppb	53.728 ppb	53.999 ppb	5,282.007 ppb	53.120 ppb	53.049 ppb	52.206 ppb	51.862 ppb
Concentration per Run 1	51.475 ppb	53.067 ppb	53.370 ppb	54.458 ppb	5,278.763 ppb	53.623 ppb	54.557 ppb	52.170 ppb	51.893 ppb
Concentration per Run 2	51.962 ppb	51.841 ppb	52.942 ppb	53.436 ppb	5,229.277 ppb	51.269 ppb	51.275 ppb	51.610 ppb	51.238 ppb
Concentration per Run 3	51.802 ppb	51.372 ppb	54.874 ppb	54.104 ppb	5,337.980 ppb	54.468 ppb	53.314 ppb	52.836 ppb	52.456 ppb
Recovery Percentage 1	103.492 %	104.186 %	107.457 %	107.998 %	105.640 %	106.240 %	106.098 %	104.411 %	103.725 %
Concentration RSD	0.5 %	1.7 %	1.9 %	1.0 %	1.0 %	3.1 %	3.1 %	1.2 %	1.2 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	94.676 %	50.272 ppb	50.836 ppb	51.359 ppb	49.920 ppb	95.937 %	52.906 ppb	49.936 ppb	97.265 %
Concentration per Run 1	94.278 %	50.829 ppb	51.485 ppb	51.162 ppb	49.941 ppb	96.638 %	52.954 ppb	50.371 ppb	96.920 %
Concentration per Run 2	98.938 %	50.160 ppb	52.188 ppb	53.290 ppb	50.897 ppb	96.749 %	51.938 ppb	49.725 ppb	100.860 %
Concentration per Run 3	90.811 %	49.828 ppb	48.834 ppb	49.626 ppb	48.922 ppb	94.424 %	53.827 ppb	49.711 ppb	94.014 %
Recovery Percentage 1		100.544 %	101.672 %	102.719 %	99.840 %		105.812 %	99.871 %	
Concentration RSD	4.3 %	1.0 %	3.5 %	3.6 %	2.0 %	1.4 %	1.8 %	0.8 %	3.5 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	49.238 ppb	47.340 ppb	50.821 ppb	98.881 %	98.925 %	47.296 ppb	52.196 ppb	50.812 ppb	87.960 %
Concentration per Run 1	49.137 ppb	47.051 ppb	51.014 ppb	100.218 %	94.816 %	49.429 ppb	51.659 ppb	50.292 ppb	89.701 %
Concentration per Run 2	48.851 ppb	47.483 ppb	51.164 ppb	99.353 %	109.819 %	42.706 ppb	51.610 ppb	50.769 ppb	87.558 %
Concentration per Run 3	49.724 ppb	47.487 ppb	50.283 ppb	97.070 %	92.141 %	49.755 ppb	53.319 ppb	51.376 ppb	86.622 %
Recovery Percentage 1	98.475 %	94.680 %	101.641 %			94.593 %	104.392 %	101.625 %	
Concentration RSD	0.9 %	0.5 %	0.9 %	1.6 %	9.6 %	8.4 %	1.9 %	1.1 %	1.8 %

Alpha ICPMSQ Full

4/1/2020 2:17:09 AM

Analysis index: 9 Analysis started at: 3/31/2020 2:55:09 PM
Analysis label: ICB User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	91.504 %	91.290 %	0.017 ppb	-16.255 ppb	-0.406 ppb	-0.152 ppb	5.722 ppb	1.430 ppb	89.376 %
Concentration per Run 1	91.981 %	92.113 %	0.017 ppb	-18.635 ppb	-0.280 ppb	-0.078 ppb	8.408 ppb	3.284 ppb	90.798 %
Concentration per Run 2	91.332 %	87.115 %	0.012 ppb	-18.604 ppb	-0.255 ppb	-0.179 ppb	-0.201 ppb	2.733 ppb	88.710 %
Concentration per Run 3	91.198 %	94.643 %	0.022 ppb	-11.526 ppb	-0.682 ppb	-0.199 ppb	8.960 ppb	-1.727 ppb	88.619 %
Recovery Percentage 1			3.413 %	-16.255 %	-0.580 %	-1.517 %	5.722 %	1.430 %	
Concentration RSD	0.5 %	4.2 %	29.8 %	25.2 %	59.0 %	42.8 %	89.8 %	192.2 %	1.4 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.183 ppb	0.003 ppb	-0.004 ppb	-0.008 ppb	16.254 ppb	0.001 ppb	-0.032 ppb	-0.041 ppb	-0.259 ppb
Concentration per Run 1	0.116 ppb	0.051 ppb	-0.009 ppb	0.025 ppb	14.969 ppb	0.000 ppb	-0.087 ppb	-0.020 ppb	-0.290 ppb
Concentration per Run 2	0.290 ppb	-0.022 ppb	0.002 ppb	-0.038 ppb	14.920 ppb	0.003 ppb	0.012 ppb	-0.041 ppb	-0.306 ppb
Concentration per Run 3	0.144 ppb	-0.021 ppb	-0.004 ppb	-0.012 ppb	18.873 ppb	0.000 ppb	-0.022 ppb	-0.062 ppb	-0.181 ppb
Recovery Percentage 1	36.659 %	0.055 %	-0.396 %	-0.840 %	32.508 %	0.198 %	-1.618 %	-4.116 %	-2.590 %
Concentration RSD	51.0 %	1,527.6 %	133.3 %	377.1 %	14.0 %	144.5 %	156.1 %	50.0 %	26.3 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	90.737 %	0.055 ppb	0.279 ppb	0.001 ppb	3.204 ppb	93.174 %	0.002 ppb	0.004 ppb	94.016 %
Concentration per Run 1	94.344 %	0.036 ppb	0.324 ppb	0.003 ppb	2.656 ppb	94.859 %	0.001 ppb	0.002 ppb	99.241 %
Concentration per Run 2	87.398 %	0.038 ppb	0.255 ppb	-0.002 ppb	3.614 ppb	91.387 %	0.002 ppb	0.003 ppb	90.409 %
Concentration per Run 3	90.471 %	0.092 ppb	0.259 ppb	0.000 ppb	3.342 ppb	93.276 %	0.001 ppb	0.007 ppb	92.400 %
Recovery Percentage 1		11.020 %	5.587 %	0.116 %	160.195 %		0.385 %	1.955 %	
Concentration RSD	3.8 %	57.7 %	13.9 %	466.0 %	15.4 %	1.9 %	28.8 %	65.6 %	4.9 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.686 ppb	0.474 ppb	-0.015 ppb	95.500 %	91.480 %	3.024 ppb	0.570 ppb	0.010 ppb	84.748 %
Concentration per Run 1	0.706 ppb	0.395 ppb	-0.022 ppb	98.752 %	95.077 %	2.380 ppb	0.579 ppb	0.009 ppb	86.737 %
Concentration per Run 2	0.616 ppb	0.472 ppb	-0.010 ppb	93.100 %	88.765 %	3.197 ppb	0.587 ppb	0.012 ppb	84.038 %
Concentration per Run 3	0.736 ppb	0.554 ppb	-0.014 ppb	94.648 %	90.600 %	3.496 ppb	0.543 ppb	0.010 ppb	83.469 %
Recovery Percentage 1	22.867 %	11.845 %	-3.096 %			151.215 %	113.903 %	1.013 %	
Concentration RSD	9.1 %	16.7 %	36.6 %	3.1 %	3.5 %	19.1 %	4.0 %	12.6 %	2.1 %

Alpha ICPMSQ Full

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Analysis index: 10
Analysis label: WG1356406-1 2008TL
Analysis started at: 3/31/2020 3:00:18 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	92.055 %	91.332 %	0.006 ppb	-12.057 ppb	1.062 ppb	1.218 ppb	33.799 ppb	5.279 ppb	88.330 %
Concentration per Run 1	90.980 %	88.000 %	0.000 ppb	-16.310 ppb	0.579 ppb	1.131 ppb	30.411 ppb	5.607 ppb	87.737 %
Concentration per Run 2	92.792 %	92.682 %	0.007 ppb	-12.723 ppb	0.912 ppb	1.251 ppb	30.857 ppb	6.148 ppb	88.453 %
Concentration per Run 3	92.392 %	93.315 %	0.010 ppb	-7.138 ppb	1.695 ppb	1.272 ppb	40.128 ppb	4.082 ppb	88.801 %
Concentration RSD	1.0 %	3.2 %	87.4 %	38.3 %	54.0 %	6.2 %	16.2 %	20.3 %	0.6 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.023 ppb	-0.042 ppb	0.735 ppb	32.089 ppb	-3.422 ppb	0.017 ppb	0.273 ppb	0.111 ppb	0.057 ppb
Concentration per Run 1	-0.016 ppb	-0.063 ppb	0.802 ppb	31.981 ppb	-1.902 ppb	0.007 ppb	0.266 ppb	0.127 ppb	0.040 ppb
Concentration per Run 2	0.047 ppb	-0.068 ppb	0.671 ppb	32.700 ppb	-4.584 ppb	0.022 ppb	0.217 ppb	0.121 ppb	0.039 ppb
Concentration per Run 3	0.038 ppb	0.005 ppb	0.733 ppb	31.585 ppb	-3.779 ppb	0.024 ppb	0.337 ppb	0.085 ppb	0.093 ppb
Concentration RSD	149.5 %	97.6 %	8.9 %	1.8 %	40.2 %	51.9 %	22.1 %	20.6 %	54.3 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	93.967 %	-0.012 ppb	-0.099 ppb	0.015 ppb	-0.142 ppb	96.000 %	0.001 ppb	0.002 ppb	95.462 %
Concentration per Run 1	90.313 %	-0.021 ppb	-0.163 ppb	0.018 ppb	-0.652 ppb	94.453 %	-0.001 ppb	0.001 ppb	91.624 %
Concentration per Run 2	95.612 %	-0.014 ppb	0.027 ppb	0.013 ppb	-0.013 ppb	96.044 %	-0.002 ppb	0.001 ppb	96.899 %
Concentration per Run 3	95.974 %	-0.001 ppb	-0.160 ppb	0.015 ppb	0.238 ppb	97.505 %	0.005 ppb	0.004 ppb	97.864 %
Concentration RSD	3.4 %	85.4 %	109.9 %	17.9 %	322.2 %	1.6 %	473.1 %	83.3 %	3.5 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.456 ppb	0.051 ppb	0.018 ppb	97.273 %	92.760 %	0.419 ppb	0.113 ppb	0.011 ppb	87.175 %
Concentration per Run 1	-0.495 ppb	0.048 ppb	0.003 ppb	96.958 %	91.377 %	0.191 ppb	0.077 ppb	0.011 ppb	86.940 %
Concentration per Run 2	-0.471 ppb	0.048 ppb	0.025 ppb	97.057 %	92.939 %	0.379 ppb	0.122 ppb	0.009 ppb	87.086 %
Concentration per Run 3	-0.401 ppb	0.056 ppb	0.025 ppb	97.805 %	93.965 %	0.688 ppb	0.140 ppb	0.013 ppb	87.499 %
Concentration RSD	10.7 %	9.2 %	72.8 %	0.5 %	1.4 %	59.9 %	28.5 %	14.5 %	0.3 %

Alpha ICPMSQ Full

4/1/2020 2:17:09 AM

Analysis index: 11
Analysis label: WG1356406-2D10 2008TL
Analysis started at: 3/31/2020 3:05:23 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	95.869 %	97.090 %	5.315 ppb	1,009.044 ppb	1,098.559 ppb	217.680 ppb	1,033.515 ppb	1,018.022 ppb	98.532 %
Concentration per Run 1	94.933 %	95.845 %	5.167 ppb	1,006.387 ppb	1,110.002 ppb	211.503 ppb	1,060.029 ppb	993.224 ppb	96.806 %
Concentration per Run 2	96.866 %	100.148 %	5.497 ppb	979.569 ppb	1,073.560 ppb	215.595 ppb	1,006.004 ppb	1,010.243 ppb	99.761 %
Concentration per Run 3	95.809 %	95.276 %	5.281 ppb	1,041.176 ppb	1,112.116 ppb	225.942 ppb	1,034.513 ppb	1,050.600 ppb	99.030 %
Concentration RSD	1.0 %	2.7 %	3.2 %	3.1 %	2.0 %	3.4 %	2.6 %	2.9 %	1.6 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	84.992 ppb	52.711 ppb	21.083 ppb	52.224 ppb	100.503 ppb	53.034 ppb	53.506 ppb	26.014 ppb	54.916 ppb
Concentration per Run 1	84.463 ppb	53.410 ppb	20.773 ppb	51.728 ppb	102.906 ppb	52.861 ppb	53.692 ppb	25.796 ppb	54.869 ppb
Concentration per Run 2	83.902 ppb	51.838 ppb	20.636 ppb	52.617 ppb	98.962 ppb	52.596 ppb	52.397 ppb	25.703 ppb	54.732 ppb
Concentration per Run 3	86.611 ppb	52.885 ppb	21.840 ppb	52.327 ppb	99.641 ppb	53.643 ppb	54.429 ppb	26.542 ppb	55.148 ppb
Concentration RSD	1.7 %	1.5 %	3.1 %	0.9 %	2.1 %	1.0 %	1.9 %	1.8 %	0.4 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	96.328 %	9.951 ppb	12.504 ppb	99.589 ppb	89.902 ppb	96.883 %	5.351 ppb	5.552 ppb	97.728 %
Concentration per Run 1	97.238 %	9.617 ppb	11.819 ppb	98.765 ppb	90.803 ppb	98.105 %	5.374 ppb	5.628 ppb	98.517 %
Concentration per Run 2	95.644 %	10.152 ppb	13.042 ppb	98.826 ppb	90.434 ppb	96.657 %	5.334 ppb	5.570 ppb	96.964 %
Concentration per Run 3	96.100 %	10.082 ppb	12.652 ppb	101.175 ppb	88.471 ppb	95.887 %	5.345 ppb	5.459 ppb	97.704 %
Concentration RSD	0.9 %	2.9 %	5.0 %	1.4 %	1.4 %	1.2 %	0.4 %	1.5 %	0.8 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	97.880 ppb	37.716 ppb	202.151 ppb	99.460 %	99.458 %	0.148 ppb	13.337 ppb	56.135 ppb	87.947 %
Concentration per Run 1	97.886 ppb	37.656 ppb	201.656 ppb	100.026 %	96.218 %	-0.078 ppb	13.238 ppb	55.980 ppb	88.736 %
Concentration per Run 2	98.797 ppb	37.786 ppb	201.282 ppb	98.709 %	93.636 %	0.234 ppb	13.556 ppb	56.398 ppb	87.381 %
Concentration per Run 3	96.956 ppb	37.705 ppb	203.516 ppb	99.643 %	108.519 %	0.287 ppb	13.218 ppb	56.027 ppb	87.722 %
Concentration RSD	0.9 %	0.2 %	0.6 %	0.7 %	8.0 %	133.7 %	1.4 %	0.4 %	0.8 %

Alpha ICPMSQ Full

4/1/2020 2:17:09 AM

Analysis index: 12
Analysis label: WG1356406-3D10 2008TL
Analysis started at: 3/31/2020 3:10:27 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	95.209 %	94.939 %	10.715 ppb	13,533.417 ppb	2,751.160 ppb	472.206 ppb	3,214.493 ppb	5,226.911 ppb	97.138 %
Concentration per Run 1	96.479 %	91.543 %	10.579 ppb	13,983.840 ppb	2,833.781 ppb	481.371 ppb	3,268.766 ppb	5,262.058 ppb	97.285 %
Concentration per Run 2	94.728 %	95.150 %	10.614 ppb	13,346.784 ppb	2,734.108 ppb	465.108 ppb	3,228.260 ppb	5,215.940 ppb	96.902 %
Concentration per Run 3	94.418 %	98.123 %	10.952 ppb	13,269.627 ppb	2,685.592 ppb	470.139 ppb	3,146.455 ppb	5,202.734 ppb	97.228 %
Concentration RSD	1.2 %	3.5 %	1.9 %	2.9 %	2.7 %	1.8 %	1.9 %	0.6 %	0.2 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	171.795 ppb	107.831 ppb	43.168 ppb	118.102 ppb	313.536 ppb	106.952 ppb	106.646 ppb	54.994 ppb	117.711 ppb
Concentration per Run 1	171.467 ppb	108.176 ppb	43.120 ppb	117.575 ppb	327.233 ppb	109.197 ppb	109.371 ppb	55.188 ppb	117.200 ppb
Concentration per Run 2	175.070 ppb	107.259 ppb	43.718 ppb	121.042 ppb	305.184 ppb	106.745 ppb	106.375 ppb	55.353 ppb	118.784 ppb
Concentration per Run 3	168.848 ppb	108.059 ppb	42.666 ppb	115.688 ppb	308.193 ppb	104.915 ppb	104.192 ppb	54.441 ppb	117.148 ppb
Concentration RSD	1.8 %	0.5 %	1.2 %	2.3 %	3.8 %	2.0 %	2.4 %	0.9 %	0.8 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	96.760 %	26.139 ppb	25.431 ppb	221.312 ppb	215.074 ppb	95.303 %	10.948 ppb	11.096 ppb	95.707 %
Concentration per Run 1	97.620 %	25.257 ppb	24.898 ppb	221.380 ppb	212.476 ppb	96.348 %	10.907 ppb	11.296 ppb	96.669 %
Concentration per Run 2	95.523 %	26.864 ppb	25.293 ppb	221.005 ppb	214.188 ppb	94.715 %	10.941 ppb	11.078 ppb	94.661 %
Concentration per Run 3	97.137 %	26.295 ppb	26.103 ppb	221.550 ppb	218.560 ppb	94.847 %	10.997 ppb	10.914 ppb	95.791 %
Concentration RSD	1.1 %	3.1 %	2.4 %	0.1 %	1.5 %	1.0 %	0.4 %	1.7 %	1.1 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	208.607 ppb	106.058 ppb	425.554 ppb	97.769 %	92.778 %	0.155 ppb	27.619 ppb	115.554 ppb	87.127 %
Concentration per Run 1	221.299 ppb	105.341 ppb	427.986 ppb	99.562 %	94.438 %	-0.166 ppb	27.798 ppb	116.312 ppb	88.214 %
Concentration per Run 2	216.995 ppb	106.062 ppb	422.438 ppb	97.191 %	91.693 %	0.152 ppb	27.322 ppb	114.803 ppb	86.311 %
Concentration per Run 3	187.527 ppb	106.770 ppb	426.238 ppb	96.554 %	92.203 %	0.478 ppb	27.738 ppb	115.547 ppb	86.858 %
Concentration RSD	8.8 %	0.7 %	0.7 %	1.6 %	1.6 %	208.0 %	0.9 %	0.7 %	1.1 %

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Analysis index: 13
Analysis label: WG1356406-4 2008TL
Analysis started at: 3/31/2020 3:15:32 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	93.061 %	92.998 %	0.023 ppb	130,517.754 ppb	4,511.958 ppb	320.606 ppb	10,981.920 ppb	28,574.672 ppb	94.167 %
Concentration per Run 1	94.321 %	94.896 %	0.015 ppb	123,369.860 ppb	4,287.542 ppb	314.758 ppb	10,569.832 ppb	27,440.065 ppb	95.129 %
Concentration per Run 2	92.083 %	91.733 %	0.017 ppb	132,617.903 ppb	4,561.109 ppb	326.098 ppb	11,070.814 ppb	28,912.924 ppb	93.747 %
Concentration per Run 3	92.780 %	92.366 %	0.037 ppb	135,565.498 ppb	4,687.223 ppb	320.963 ppb	11,305.113 ppb	29,371.027 ppb	93.625 %
Concentration RSD	1.2 %	1.8 %	53.2 %	4.9 %	4.5 %	1.8 %	3.4 %	3.5 %	0.9 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	69.638 ppb	0.877 ppb	3.178 ppb	108.790 ppb	1,038.061 ppb	0.662 ppb	5.205 ppb	34.755 ppb	65.686 ppb
Concentration per Run 1	68.571 ppb	0.783 ppb	3.073 ppb	105.479 ppb	1,037.464 ppb	0.700 ppb	5.162 ppb	33.649 ppb	64.601 ppb
Concentration per Run 2	75.373 ppb	0.943 ppb	3.160 ppb	110.589 ppb	1,056.250 ppb	0.635 ppb	5.257 ppb	35.721 ppb	65.849 ppb
Concentration per Run 3	64.970 ppb	0.906 ppb	3.300 ppb	110.302 ppb	1,020.468 ppb	0.651 ppb	5.197 ppb	34.893 ppb	66.609 ppb
Concentration RSD	7.6 %	9.5 %	3.6 %	2.6 %	1.7 %	5.1 %	0.9 %	3.0 %	1.5 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	96.632 %	3.421 ppb	0.658 ppb	161.513 ppb	26.567 ppb	92.105 %	0.124 ppb	0.233 ppb	93.883 %
Concentration per Run 1	95.812 %	3.416 ppb	0.935 ppb	159.985 ppb	24.226 ppb	92.174 %	0.128 ppb	0.226 ppb	93.270 %
Concentration per Run 2	98.002 %	3.525 ppb	0.541 ppb	161.273 ppb	26.343 ppb	92.094 %	0.121 ppb	0.232 ppb	94.011 %
Concentration per Run 3	96.080 %	3.321 ppb	0.496 ppb	163.280 ppb	29.130 ppb	92.047 %	0.121 ppb	0.242 ppb	94.370 %
Concentration RSD	1.2 %	3.0 %	36.7 %	1.0 %	9.3 %	0.1 %	3.3 %	3.4 %	0.6 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	7.139 ppb	3.082 ppb	41.607 ppb	92.399 %	87.393 %	2.603 ppb	0.180 ppb	6.923 ppb	81.729 %
Concentration per Run 1	6.939 ppb	3.014 ppb	41.668 ppb	91.738 %	86.678 %	2.070 ppb	0.175 ppb	6.856 ppb	82.137 %
Concentration per Run 2	7.132 ppb	3.009 ppb	41.698 ppb	92.914 %	87.877 %	2.653 ppb	0.193 ppb	6.970 ppb	81.251 %
Concentration per Run 3	7.347 ppb	3.222 ppb	41.456 ppb	92.544 %	87.625 %	3.087 ppb	0.171 ppb	6.943 ppb	81.799 %
Concentration RSD	2.9 %	3.9 %	0.3 %	0.7 %	0.7 %	19.6 %	6.6 %	0.9 %	0.5 %

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Analysis index: 14
Analysis label: XL2013614-01 2008TL
Analysis started at: 3/31/2020 3:20:38 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	100.169 %	116.597 %	0.022 ppb	61,019.961 ppb	2,137.956 ppb	143.706 ppb	5,209.601 ppb	13,402.631 ppb	97.158 %
Concentration per Run 1	102.652 %	112.042 %	0.007 ppb	67,205.958 ppb	2,360.480 ppb	151.149 ppb	5,679.647 ppb	14,631.505 ppb	97.867 %
Concentration per Run 2	101.695 %	122.228 %	0.033 ppb	51,862.633 ppb	1,810.802 ppb	127.436 ppb	4,533.383 ppb	11,789.650 ppb	99.152 %
Concentration per Run 3	96.160 %	115.522 %	0.027 ppb	63,991.294 ppb	2,242.586 ppb	152.532 ppb	5,415.774 ppb	13,786.737 ppb	94.455 %
Concentration RSD	3.5 %	4.4 %	61.2 %	13.3 %	13.5 %	9.8 %	11.5 %	10.9 %	2.5 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	24.782 ppb	0.352 ppb	1.554 ppb	51.609 ppb	478.798 ppb	0.333 ppb	2.444 ppb	15.938 ppb	29.821 ppb
Concentration per Run 1	25.188 ppb	0.390 ppb	1.645 ppb	56.637 ppb	519.251 ppb	0.417 ppb	2.853 ppb	17.466 ppb	32.455 ppb
Concentration per Run 2	22.421 ppb	0.228 ppb	1.401 ppb	44.818 ppb	420.715 ppb	0.285 ppb	2.047 ppb	14.190 ppb	25.596 ppb
Concentration per Run 3	26.737 ppb	0.437 ppb	1.616 ppb	53.372 ppb	496.429 ppb	0.298 ppb	2.431 ppb	16.157 ppb	31.414 ppb
Concentration RSD	8.8 %	31.1 %	8.6 %	11.8 %	10.8 %	21.7 %	16.5 %	10.3 %	12.4 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	117.538 %	1.572 ppb	0.293 ppb	74.454 ppb	4.951 ppb	114.066 %	0.059 ppb	0.100 ppb	113.048 %
Concentration per Run 1	116.227 %	1.720 ppb	0.258 ppb	78.044 ppb	3.788 ppb	112.933 %	0.067 ppb	0.095 ppb	111.589 %
Concentration per Run 2	117.936 %	1.383 ppb	0.256 ppb	67.978 ppb	4.762 ppb	116.145 %	0.051 ppb	0.098 ppb	112.757 %
Concentration per Run 3	118.452 %	1.614 ppb	0.364 ppb	77.341 ppb	6.304 ppb	113.119 %	0.061 ppb	0.105 ppb	114.799 %
Concentration RSD	1.0 %	11.0 %	21.2 %	7.5 %	25.6 %	1.6 %	13.5 %	5.1 %	1.4 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	2.192 ppb	0.713 ppb	19.251 ppb	113.019 %	120.971 %	0.856 ppb	-0.030 ppb	2.864 ppb	112.629 %
Concentration per Run 1	2.256 ppb	0.691 ppb	20.240 ppb	111.770 %	120.644 %	0.456 ppb	-0.086 ppb	3.083 ppb	107.664 %
Concentration per Run 2	2.274 ppb	0.683 ppb	18.096 ppb	114.974 %	121.677 %	1.175 ppb	-0.018 ppb	2.617 ppb	118.143 %
Concentration per Run 3	2.047 ppb	0.765 ppb	19.416 ppb	112.313 %	120.593 %	0.936 ppb	0.013 ppb	2.893 ppb	112.079 %
Concentration RSD	5.7 %	6.4 %	5.6 %	1.5 %	0.5 %	42.7 %	167.0 %	8.2 %	4.7 %

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Analysis index: 15
Analysis label: L2013614-11 2008TL
Analysis started at: 3/31/2020 3:25:43 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	103.707 %	99.979 %	0.027 ppb	160,675.869 ppb	4,952.790 ppb	363.941 ppb	10,128.470 ppb	32,444.592 ppb	97.581 %
Concentration per Run 1	104.329 %	92.935 %	0.032 ppb	166,658.325 ppb	5,127.296 ppb	364.448 ppb	10,186.064 ppb	32,813.557 ppb	97.436 %
Concentration per Run 2	104.049 %	104.070 %	0.020 ppb	153,008.145 ppb	4,777.193 ppb	349.034 ppb	9,523.336 ppb	30,935.311 ppb	98.039 %
Concentration per Run 3	102.744 %	102.931 %	0.028 ppb	162,361.135 ppb	4,953.881 ppb	378.339 ppb	10,676.011 ppb	33,584.908 ppb	97.269 %
Concentration RSD	0.8 %	6.1 %	22.6 %	4.3 %	3.5 %	4.0 %	5.7 %	4.2 %	0.4 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	63.157 ppb	0.910 ppb	2.134 ppb	118.323 ppb	900.280 ppb	0.846 ppb	7.304 ppb	27.790 ppb	70.079 ppb
Concentration per Run 1	60.725 ppb	0.991 ppb	2.149 ppb	117.350 ppb	911.553 ppb	0.917 ppb	7.325 ppb	28.765 ppb	70.659 ppb
Concentration per Run 2	66.190 ppb	0.731 ppb	2.059 ppb	117.000 ppb	898.022 ppb	0.816 ppb	7.371 ppb	28.146 ppb	69.496 ppb
Concentration per Run 3	62.555 ppb	1.010 ppb	2.193 ppb	120.619 ppb	891.265 ppb	0.806 ppb	7.215 ppb	26.459 ppb	70.080 ppb
Concentration RSD	4.4 %	17.1 %	3.2 %	1.7 %	1.1 %	7.3 %	1.1 %	4.3 %	0.8 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	102.991 %	3.554 ppb	0.694 ppb	187.589 ppb	4.155 ppb	97.055 %	0.095 ppb	0.264 ppb	100.066 %
Concentration per Run 1	101.264 %	3.430 ppb	0.737 ppb	182.626 ppb	3.930 ppb	96.810 %	0.112 ppb	0.258 ppb	97.965 %
Concentration per Run 2	101.772 %	3.644 ppb	0.605 ppb	183.838 ppb	4.212 ppb	96.115 %	0.082 ppb	0.283 ppb	98.656 %
Concentration per Run 3	105.936 %	3.588 ppb	0.739 ppb	196.302 ppb	4.325 ppb	98.239 %	0.090 ppb	0.250 ppb	103.578 %
Concentration RSD	2.5 %	3.1 %	11.1 %	4.0 %	4.9 %	1.1 %	16.6 %	6.4 %	3.1 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.745 ppb	0.388 ppb	43.167 ppb	96.010 %	93.866 %	2.739 ppb	-0.021 ppb	6.805 ppb	82.964 %
Concentration per Run 1	0.637 ppb	0.314 ppb	42.862 ppb	94.773 %	89.144 %	2.485 ppb	-0.034 ppb	6.912 ppb	82.927 %
Concentration per Run 2	0.557 ppb	0.437 ppb	43.055 ppb	95.612 %	88.628 %	2.954 ppb	-0.021 ppb	6.822 ppb	82.095 %
Concentration per Run 3	1.041 ppb	0.412 ppb	43.585 ppb	97.645 %	103.825 %	2.779 ppb	-0.008 ppb	6.681 ppb	83.869 %
Concentration RSD	34.8 %	16.8 %	0.9 %	1.5 %	9.2 %	8.7 %	61.4 %	1.7 %	1.1 %

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Analysis index: 16
Analysis label: L2013614-12 2008TL
Analysis started at: 3/31/2020 3:30:48 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	110.054 %	110.798 %	0.004 ppb	177,287.182 ppb	19,359.751 ppb	13.649 ppb	9,767.803 ppb	31,168.067 ppb	108.209 %
Concentration per Run 1	110.104 %	103.880 %	0.006 ppb	184,821.981 ppb	20,084.213 ppb	14.111 ppb	10,240.232 ppb	31,848.512 ppb	108.562 %
Concentration per Run 2	109.768 %	119.254 %	0.004 ppb	173,759.478 ppb	19,318.164 ppb	14.291 ppb	9,825.994 ppb	31,401.944 ppb	108.443 %
Concentration per Run 3	110.288 %	109.258 %	0.002 ppb	173,280.086 ppb	18,676.877 ppb	12.544 ppb	9,237.183 ppb	30,253.747 ppb	107.621 %
Concentration RSD	0.2 %	7.0 %	54.4 %	3.7 %	3.6 %	7.0 %	5.2 %	2.6 %	0.5 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	50.491 ppb	0.529 ppb	1.464 ppb	55.099 ppb	69.452 ppb	0.616 ppb	4.115 ppb	2.508 ppb	33.656 ppb
Concentration per Run 1	50.551 ppb	0.494 ppb	1.498 ppb	55.869 ppb	64.501 ppb	0.546 ppb	4.000 ppb	2.605 ppb	34.073 ppb
Concentration per Run 2	51.716 ppb	0.516 ppb	1.426 ppb	54.552 ppb	69.038 ppb	0.645 ppb	4.121 ppb	2.449 ppb	33.137 ppb
Concentration per Run 3	49.204 ppb	0.578 ppb	1.469 ppb	54.876 ppb	74.818 ppb	0.657 ppb	4.225 ppb	2.469 ppb	33.759 ppb
Concentration RSD	2.5 %	8.2 %	2.5 %	1.2 %	7.4 %	9.9 %	2.7 %	3.4 %	1.4 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	109.673 %	2.727 ppb	0.612 ppb	182.134 ppb	2.740 ppb	103.655 %	0.012 ppb	0.129 ppb	104.197 %
Concentration per Run 1	108.600 %	2.676 ppb	0.626 ppb	182.824 ppb	2.567 ppb	102.894 %	0.012 ppb	0.126 ppb	103.058 %
Concentration per Run 2	115.187 %	2.813 ppb	0.668 ppb	190.312 ppb	2.753 ppb	105.200 %	0.012 ppb	0.114 ppb	110.416 %
Concentration per Run 3	105.230 %	2.692 ppb	0.541 ppb	173.264 ppb	2.900 ppb	102.871 %	0.012 ppb	0.147 ppb	99.119 %
Concentration RSD	4.6 %	2.7 %	10.6 %	4.7 %	6.1 %	1.3 %	1.3 %	12.8 %	5.5 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.028 ppb	0.306 ppb	21.872 ppb	101.952 %	103.898 %	-0.781 ppb	-0.064 ppb	0.298 ppb	84.806 %
Concentration per Run 1	-0.092 ppb	0.233 ppb	22.004 ppb	102.080 %	109.839 %	-0.927 ppb	-0.080 ppb	0.295 ppb	85.563 %
Concentration per Run 2	-0.082 ppb	0.327 ppb	22.031 ppb	103.364 %	110.797 %	-0.842 ppb	-0.062 ppb	0.295 ppb	85.401 %
Concentration per Run 3	0.090 ppb	0.358 ppb	21.581 ppb	100.413 %	91.059 %	-0.574 ppb	-0.050 ppb	0.303 ppb	83.455 %
Concentration RSD	361.1 %	21.3 %	1.2 %	1.5 %	10.7 %	23.6 %	23.3 %	1.5 %	1.4 %

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Analysis index: 17
Analysis label: L2013667-01 2008TL
Analysis started at: 3/31/2020 3:35:53 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	110.190 %	107.782 %	0.037 ppb	31,516.801 ppb	792.765 ppb	642.256 ppb	572.768 ppb	5,114.574 ppb	110.084 %
Concentration per Run 1	110.347 %	110.587 %	0.038 ppb	32,128.051 ppb	838.700 ppb	664.227 ppb	586.757 ppb	5,250.629 ppb	110.359 %
Concentration per Run 2	109.686 %	103.248 %	0.035 ppb	31,175.309 ppb	754.893 ppb	613.865 ppb	567.302 ppb	4,912.792 ppb	109.902 %
Concentration per Run 3	110.537 %	109.511 %	0.039 ppb	31,247.043 ppb	784.702 ppb	648.675 ppb	564.243 ppb	5,180.300 ppb	109.991 %
Concentration RSD	0.4 %	3.7 %	5.2 %	1.7 %	5.4 %	4.0 %	2.1 %	3.5 %	0.2 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	23.555 ppb	6.999 ppb	3.017 ppb	35.655 ppb	1,118.274 ppb	0.738 ppb	2.975 ppb	8.239 ppb	38.930 ppb
Concentration per Run 1	23.968 ppb	6.845 ppb	2.881 ppb	35.517 ppb	1,120.837 ppb	0.737 ppb	2.771 ppb	8.102 ppb	38.025 ppb
Concentration per Run 2	23.862 ppb	7.072 ppb	3.096 ppb	35.016 ppb	1,113.834 ppb	0.768 ppb	3.089 ppb	8.591 ppb	39.503 ppb
Concentration per Run 3	22.836 ppb	7.079 ppb	3.074 ppb	36.430 ppb	1,120.152 ppb	0.709 ppb	3.066 ppb	8.025 ppb	39.262 ppb
Concentration RSD	2.7 %	1.9 %	3.9 %	2.0 %	0.3 %	4.0 %	5.9 %	3.7 %	2.0 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	109.071 %	1.829 ppb	0.293 ppb	20.370 ppb	-0.116 ppb	105.565 %	0.014 ppb	0.039 ppb	106.084 %
Concentration per Run 1	114.931 %	1.872 ppb	0.331 ppb	21.092 ppb	-0.487 ppb	107.027 %	0.017 ppb	0.028 ppb	109.477 %
Concentration per Run 2	103.071 %	1.927 ppb	0.359 ppb	19.693 ppb	-0.106 ppb	104.548 %	0.010 ppb	0.053 ppb	102.485 %
Concentration per Run 3	109.210 %	1.688 ppb	0.189 ppb	20.324 ppb	0.245 ppb	105.120 %	0.013 ppb	0.037 ppb	106.291 %
Concentration RSD	5.4 %	6.9 %	31.1 %	3.4 %	316.3 %	1.2 %	24.5 %	32.5 %	3.3 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.123 ppb	0.284 ppb	8.101 ppb	104.722 %	107.914 %	-0.804 ppb	-0.098 ppb	1.649 ppb	95.919 %
Concentration per Run 1	-0.194 ppb	0.231 ppb	8.151 ppb	105.430 %	114.510 %	-0.936 ppb	-0.120 ppb	1.475 ppb	106.631 %
Concentration per Run 2	-0.170 ppb	0.271 ppb	7.944 ppb	103.136 %	95.707 %	-0.708 ppb	-0.086 ppb	1.733 ppb	89.935 %
Concentration per Run 3	-0.003 ppb	0.350 ppb	8.206 ppb	105.600 %	113.525 %	-0.767 ppb	-0.087 ppb	1.738 ppb	91.192 %
Concentration RSD	84.8 %	21.4 %	1.7 %	1.3 %	9.8 %	14.7 %	19.8 %	9.1 %	9.7 %

Alpha ICPMSQ Full

4/1/2020 2:17:09 AM

Analysis index: 18
Analysis label: L2013667-02 2008TL
Analysis started at: 3/31/2020 3:40:58 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	107.314 %	104.851 %	0.038 ppb	176,720.102 ppb	621.440 ppb	763.418 ppb	450.192 ppb	2,233.393 ppb	112.065 %
Concentration per Run 1	106.678 %	102.046 %	0.044 ppb	175,618.910 ppb	618.563 ppb	740.128 ppb	436.237 ppb	2,222.778 ppb	110.588 %
Concentration per Run 2	107.820 %	101.413 %	0.040 ppb	182,765.278 ppb	639.884 ppb	794.837 ppb	455.388 ppb	2,255.160 ppb	112.222 %
Concentration per Run 3	107.443 %	111.093 %	0.032 ppb	171,776.118 ppb	605.874 ppb	755.288 ppb	458.950 ppb	2,222.241 ppb	113.384 %
Concentration RSD	0.5 %	5.2 %	15.8 %	3.2 %	2.8 %	3.7 %	2.7 %	0.8 %	1.3 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	50.622 ppb	2.484 ppb	3.253 ppb	31.591 ppb	1,338.519 ppb	0.724 ppb	2.016 ppb	6.419 ppb	91.736 ppb
Concentration per Run 1	91.439 ppb	2.547 ppb	3.261 ppb	31.594 ppb	1,339.157 ppb	0.689 ppb	2.074 ppb	6.450 ppb	92.317 ppb
Concentration per Run 2	30.493 ppb	2.617 ppb	3.334 ppb	32.235 ppb	1,361.999 ppb	0.766 ppb	1.962 ppb	6.478 ppb	92.619 ppb
Concentration per Run 3	29.932 ppb	2.289 ppb	3.165 ppb	30.943 ppb	1,314.401 ppb	0.718 ppb	2.012 ppb	6.329 ppb	90.271 ppb
Concentration RSD	69.8 %	7.0 %	2.6 %	2.0 %	1.8 %	5.3 %	2.8 %	1.2 %	1.4 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	106.151 %	1.540 ppb	0.278 ppb	11.185 ppb	-1.065 ppb	100.119 %	0.018 ppb	0.064 ppb	100.766 %
Concentration per Run 1	103.545 %	1.564 ppb	0.254 ppb	11.063 ppb	-1.300 ppb	99.098 %	0.014 ppb	0.080 ppb	99.158 %
Concentration per Run 2	105.624 %	1.575 ppb	0.283 ppb	11.263 ppb	-1.082 ppb	99.449 %	0.017 ppb	0.065 ppb	100.699 %
Concentration per Run 3	109.285 %	1.481 ppb	0.296 ppb	11.229 ppb	-0.813 ppb	101.811 %	0.024 ppb	0.047 ppb	102.442 %
Concentration RSD	2.7 %	3.3 %	7.6 %	1.0 %	22.9 %	1.5 %	26.4 %	25.7 %	1.6 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.045 ppb	0.069 ppb	8.736 ppb	103.576 %	106.061 %	-1.038 ppb	-0.100 ppb	1.944 ppb	85.331 %
Concentration per Run 1	-0.118 ppb	0.042 ppb	8.429 ppb	102.852 %	110.349 %	-1.093 ppb	-0.107 ppb	1.912 ppb	85.331 %
Concentration per Run 2	-0.051 ppb	0.065 ppb	8.785 ppb	103.941 %	109.822 %	-1.080 ppb	-0.101 ppb	1.960 ppb	84.633 %
Concentration per Run 3	0.032 ppb	0.100 ppb	8.995 ppb	103.936 %	98.011 %	-0.942 ppb	-0.093 ppb	1.960 ppb	86.028 %
Concentration RSD	165.0 %	42.5 %	3.3 %	0.6 %	6.6 %	8.1 %	6.9 %	1.4 %	0.8 %

Alpha ICPMSQ Full

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Analysis index: 19
Analysis label: 0347-07 SCAN
Analysis started at: 3/31/2020 3:46:03 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	104.327 %	107.487 %	0.001 ppb	21.789 ppb	-0.453 ppb	0.442 ppb	6.038 ppb	5.023 ppb	109.053 %
Concentration per Run 1	104.959 %	102.172 %	-0.004 ppb	20.663 ppb	-0.501 ppb	0.423 ppb	9.157 ppb	5.334 ppb	110.312 %
Concentration per Run 2	104.798 %	106.538 %	-0.002 ppb	24.169 ppb	-0.508 ppb	0.362 ppb	3.721 ppb	3.233 ppb	109.554 %
Concentration per Run 3	103.224 %	113.750 %	0.008 ppb	20.536 ppb	-0.349 ppb	0.539 ppb	5.236 ppb	6.503 ppb	107.292 %
Concentration RSD	0.9 %	5.4 %	971.7 %	9.5 %	19.8 %	20.4 %	46.5 %	33.0 %	1.4 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.153 ppb	0.052 ppb	0.111 ppb	0.060 ppb	1.401 ppb	0.004 ppb	0.049 ppb	0.032 ppb	0.998 ppb
Concentration per Run 1	0.133 ppb	0.073 ppb	0.138 ppb	0.071 ppb	-1.021 ppb	0.006 ppb	0.044 ppb	0.001 ppb	0.967 ppb
Concentration per Run 2	0.055 ppb	0.043 ppb	0.102 ppb	0.065 ppb	1.511 ppb	0.000 ppb	0.036 ppb	0.029 ppb	1.043 ppb
Concentration per Run 3	0.271 ppb	0.040 ppb	0.092 ppb	0.044 ppb	3.715 ppb	0.006 ppb	0.065 ppb	0.066 ppb	0.984 ppb
Concentration RSD	71.4 %	35.5 %	21.8 %	23.1 %	169.1 %	89.9 %	31.2 %	101.5 %	4.0 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	105.835 %	-0.008 ppb	0.111 ppb	0.009 ppb	-1.605 ppb	104.937 %	-0.001 ppb	0.001 ppb	104.537 %
Concentration per Run 1	103.315 %	-0.029 ppb	-0.044 ppb	0.011 ppb	-1.755 ppb	104.690 %	-0.002 ppb	0.000 ppb	104.762 %
Concentration per Run 2	107.506 %	-0.001 ppb	0.277 ppb	0.008 ppb	-1.551 ppb	103.923 %	-0.001 ppb	0.000 ppb	103.447 %
Concentration per Run 3	106.682 %	0.007 ppb	0.101 ppb	0.008 ppb	-1.509 ppb	106.199 %	-0.001 ppb	0.005 ppb	105.403 %
Concentration RSD	2.1 %	243.2 %	144.7 %	20.1 %	8.2 %	1.1 %	56.3 %	235.5 %	1.0 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.301 ppb	-0.015 ppb	-0.013 ppb	104.217 %	102.265 %	-1.268 ppb	-0.138 ppb	0.004 ppb	91.062 %
Concentration per Run 1	-0.421 ppb	-0.054 ppb	-0.013 ppb	103.704 %	97.537 %	-1.334 ppb	-0.148 ppb	0.004 ppb	91.883 %
Concentration per Run 2	-0.308 ppb	-0.006 ppb	-0.013 ppb	104.545 %	98.049 %	-1.242 ppb	-0.133 ppb	0.005 ppb	90.006 %
Concentration per Run 3	-0.173 ppb	0.015 ppb	-0.013 ppb	104.403 %	111.210 %	-1.228 ppb	-0.135 ppb	0.003 ppb	91.298 %
Concentration RSD	41.3 %	233.7 %	0.6 %	0.4 %	7.6 %	4.5 %	5.8 %	22.4 %	1.1 %

Alpha ICPMSQ Full

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Analysis index: 20 Analysis started at: 3/31/2020 3:51:09 PM
Analysis label: CCV User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	105.611 %	103.416 %	58.755 ppb	6,295.464 ppb	6,285.990 ppb	63.076 ppb	6,402.925 ppb	6,242.854 ppb	120.006 %
Concentration per Run 1	105.747 %	106.031 %	57.825 ppb	6,174.100 ppb	6,211.872 ppb	62.174 ppb	6,387.659 ppb	6,354.102 ppb	120.989 %
Concentration per Run 2	105.604 %	103.248 %	58.508 ppb	6,376.276 ppb	6,297.562 ppb	63.155 ppb	6,384.099 ppb	6,148.873 ppb	118.949 %
Concentration per Run 3	105.481 %	100.970 %	59.931 ppb	6,336.015 ppb	6,348.537 ppb	63.900 ppb	6,437.018 ppb	6,225.586 ppb	120.078 %
Recovery Percentage 1			97.925 %	104.924 %	104.767 %	105.127 %	106.715 %	104.048 %	
Concentration RSD	0.1 %	2.5 %	1.8 %	1.7 %	1.1 %	1.4 %	0.5 %	1.7 %	0.9 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	59.680 ppb	60.708 ppb	61.963 ppb	61.259 ppb	6,020.019 ppb	61.534 ppb	61.418 ppb	61.952 ppb	59.646 ppb
Concentration per Run 1	58.682 ppb	59.400 ppb	61.783 ppb	61.238 ppb	5,972.379 ppb	62.030 ppb	61.896 ppb	62.016 ppb	59.000 ppb
Concentration per Run 2	60.238 ppb	60.897 ppb	61.824 ppb	61.396 ppb	6,038.737 ppb	61.549 ppb	61.689 ppb	62.685 ppb	60.525 ppb
Concentration per Run 3	60.119 ppb	61.826 ppb	62.282 ppb	61.142 ppb	6,048.940 ppb	61.023 ppb	60.669 ppb	61.154 ppb	59.412 ppb
Recovery Percentage 1	99.466 %	101.180 %	103.272 %	102.098 %	100.334 %	102.557 %	102.363 %	103.253 %	99.410 %
Concentration RSD	1.5 %	2.0 %	0.4 %	0.2 %	0.7 %	0.8 %	1.1 %	1.2 %	1.3 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	104.694 %	57.408 ppb	56.542 ppb	60.804 ppb	56.331 ppb	104.600 %	62.759 ppb	57.751 ppb	103.881 %
Concentration per Run 1	104.527 %	57.544 ppb	55.758 ppb	61.688 ppb	57.986 ppb	105.478 %	62.916 ppb	57.413 ppb	104.958 %
Concentration per Run 2	104.082 %	57.818 ppb	57.413 ppb	60.683 ppb	55.249 ppb	103.997 %	62.715 ppb	57.809 ppb	103.491 %
Concentration per Run 3	105.472 %	56.861 ppb	56.454 ppb	60.043 ppb	55.758 ppb	104.324 %	62.647 ppb	58.029 ppb	103.195 %
Recovery Percentage 1		95.680 %	94.236 %	101.341 %	93.885 %		104.599 %	96.251 %	
Concentration RSD	0.7 %	0.9 %	1.5 %	1.4 %	2.6 %	0.7 %	0.2 %	0.5 %	0.9 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	57.295 ppb	54.639 ppb	60.206 ppb	105.351 %	103.722 %	56.405 ppb	62.085 ppb	60.376 ppb	90.545 %
Concentration per Run 1	56.944 ppb	54.045 ppb	59.922 ppb	106.135 %	100.417 %	58.588 ppb	61.614 ppb	60.099 ppb	91.757 %
Concentration per Run 2	57.172 ppb	54.981 ppb	59.869 ppb	104.434 %	110.984 %	53.115 ppb	61.909 ppb	60.406 ppb	89.317 %
Concentration per Run 3	57.769 ppb	54.890 ppb	60.826 ppb	105.483 %	99.764 %	57.511 ppb	62.733 ppb	60.623 ppb	90.560 %
Recovery Percentage 1	95.492 %	91.064 %	100.343 %			94.008 %	103.475 %	100.627 %	
Concentration RSD	0.7 %	0.9 %	0.9 %	0.8 %	6.1 %	5.1 %	0.9 %	0.4 %	1.3 %

Analysis index:	21	Analysis started at:	3/31/2020 3:56:17 PM
Analysis label:	XCCB	User name:	ALPHALAB\metals-instrument

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Analysis index: 22 Analysis started at: 3/31/2020 4:01:27 PM
Analysis label: CCB User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	100.181 %	100.654 %	0.006 ppb	1.400 ppb	-0.374 ppb	-0.036 ppb	3.626 ppb	0.904 ppb	99.349 %
Concentration per Run 1	100.930 %	100.654 %	0.006 ppb	-4.096 ppb	-0.312 ppb	-0.221 ppb	6.428 ppb	2.793 ppb	100.884 %
Concentration per Run 2	99.658 %	101.223 %	0.004 ppb	5.975 ppb	-0.313 ppb	0.087 ppb	2.134 ppb	-2.835 ppb	99.039 %
Concentration per Run 3	99.955 %	100.084 %	0.007 ppb	2.320 ppb	-0.497 ppb	0.026 ppb	2.317 ppb	2.753 ppb	98.125 %
Recovery Percentage 1			1.127 %	1.400 %	-0.534 %	-0.359 %	3.626 %	0.904 %	
Concentration RSD	0.7 %	0.6 %	27.1 %	364.2 %	28.5 %	453.9 %	67.0 %	358.3 %	1.4 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.024 ppb	-0.016 ppb	0.004 ppb	-0.021 ppb	-1.456 ppb	0.003 ppb	-0.007 ppb	-0.049 ppb	-0.359 ppb
Concentration per Run 1	0.004 ppb	-0.002 ppb	0.012 ppb	-0.017 ppb	-3.477 ppb	0.004 ppb	-0.058 ppb	-0.024 ppb	-0.452 ppb
Concentration per Run 2	0.018 ppb	0.015 ppb	0.011 ppb	-0.033 ppb	1.733 ppb	0.000 ppb	-0.050 ppb	-0.070 ppb	-0.320 ppb
Concentration per Run 3	0.050 ppb	-0.061 ppb	-0.010 ppb	-0.013 ppb	-2.624 ppb	0.004 ppb	0.088 ppb	-0.053 ppb	-0.304 ppb
Recovery Percentage 1	4.811 %	-0.323 %	0.428 %	-2.083 %	-2.912 %	0.539 %	-0.338 %	-4.908 %	-3.587 %
Concentration RSD	97.9 %	247.1 %	290.2 %	49.7 %	191.9 %	86.7 %	1,208.7 %	46.5 %	22.6 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	100.610 %	-0.014 ppb	0.005 ppb	0.002 ppb	-0.432 ppb	103.036 %	0.002 ppb	0.003 ppb	101.912 %
Concentration per Run 1	99.985 %	-0.038 ppb	-0.073 ppb	0.004 ppb	-0.774 ppb	104.251 %	-0.001 ppb	0.004 ppb	102.002 %
Concentration per Run 2	99.913 %	-0.001 ppb	0.137 ppb	0.000 ppb	-0.345 ppb	101.783 %	0.003 ppb	0.004 ppb	101.064 %
Concentration per Run 3	101.931 %	-0.004 ppb	-0.051 ppb	0.002 ppb	-0.178 ppb	103.074 %	0.002 ppb	0.002 ppb	102.669 %
Recovery Percentage 1		-2.893 %	0.090 %	0.365 %	-21.622 %		0.438 %	1.544 %	
Concentration RSD	1.1 %	143.9 %	2,554.1 %	90.1 %	71.1 %	1.2 %	121.2 %	25.3 %	0.8 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.212 ppb	-0.106 ppb	-0.013 ppb	102.340 %	107.542 %	-0.490 ppb	-0.018 ppb	0.000 ppb	94.611 %
Concentration per Run 1	-0.294 ppb	-0.144 ppb	-0.012 ppb	102.158 %	111.539 %	-0.682 ppb	-0.032 ppb	-0.001 ppb	90.111 %
Concentration per Run 2	-0.246 ppb	-0.112 ppb	-0.009 ppb	102.894 %	112.960 %	-0.532 ppb	0.001 ppb	0.001 ppb	88.274 %
Concentration per Run 3	-0.096 ppb	-0.061 ppb	-0.019 ppb	101.968 %	98.126 %	-0.256 ppb	-0.023 ppb	0.000 ppb	105.447 %
Recovery Percentage 1	-7.064 %	-2.646 %	-2.669 %			-24.504 %	-3.612 %	0.008 %	
Concentration RSD	48.6 %	39.8 %	36.6 %	0.5 %	7.6 %	44.1 %	92.9 %	1,280.6 %	10.0 %

Alpha ICPMSQ Full

4/1/2020 2:17:09 AM

Analysis index: 23
Analysis label: WG1356406-5D10 2008TL
Analysis started at: 3/31/2020 4:06:36 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	102.913 %	100.316 %	10.523 ppb	15,283.968 ppb	4,816.748 ppb	462.957 ppb	3,429.176 ppb	5,226.596 ppb	106.986 %
Concentration per Run 1	102.782 %	93.441 %	10.388 ppb	15,896.062 ppb	5,077.706 ppb	478.285 ppb	3,580.256 ppb	5,395.552 ppb	107.278 %
Concentration per Run 2	102.773 %	102.362 %	10.660 ppb	15,163.852 ppb	4,709.294 ppb	459.686 ppb	3,366.185 ppb	5,148.375 ppb	106.224 %
Concentration per Run 3	103.183 %	105.146 %	10.520 ppb	14,791.991 ppb	4,663.243 ppb	450.899 ppb	3,341.087 ppb	5,135.860 ppb	107.455 %
Concentration RSD	0.2 %	6.1 %	1.3 %	3.7 %	4.7 %	3.0 %	3.8 %	2.8 %	0.6 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	185.147 ppb	111.802 ppb	44.927 ppb	116.542 ppb	235.023 ppb	113.459 ppb	112.791 ppb	54.148 ppb	113.310 ppb
Concentration per Run 1	186.999 ppb	112.603 ppb	45.575 ppb	118.470 ppb	242.596 ppb	114.547 ppb	113.820 ppb	54.835 ppb	114.098 ppb
Concentration per Run 2	185.885 ppb	113.746 ppb	45.056 ppb	116.020 ppb	233.225 ppb	114.270 ppb	113.613 ppb	53.621 ppb	114.266 ppb
Concentration per Run 3	182.558 ppb	109.058 ppb	44.149 ppb	115.138 ppb	229.249 ppb	111.560 ppb	110.942 ppb	53.989 ppb	111.566 ppb
Concentration RSD	1.2 %	2.2 %	1.6 %	1.5 %	2.9 %	1.5 %	1.4 %	1.1 %	1.3 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	101.905 %	26.198 ppb	24.067 ppb	239.668 ppb	202.625 ppb	102.264 %	11.203 ppb	11.233 ppb	102.629 %
Concentration per Run 1	102.928 %	26.090 ppb	23.738 ppb	240.304 ppb	201.221 ppb	102.859 %	11.279 ppb	11.148 ppb	103.572 %
Concentration per Run 2	100.502 %	26.874 ppb	24.728 ppb	238.759 ppb	206.711 ppb	102.189 %	11.253 ppb	11.199 ppb	102.545 %
Concentration per Run 3	102.287 %	25.628 ppb	23.735 ppb	239.942 ppb	199.944 ppb	101.743 %	11.076 ppb	11.351 ppb	101.771 %
Concentration RSD	1.2 %	2.4 %	2.4 %	0.3 %	1.8 %	0.5 %	1.0 %	0.9 %	0.9 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	207.081 ppb	104.695 ppb	445.791 ppb	103.290 %	102.555 %	-0.417 ppb	28.510 ppb	119.779 ppb	90.319 %
Concentration per Run 1	206.467 ppb	104.310 ppb	447.314 ppb	103.352 %	98.054 %	-0.617 ppb	28.530 ppb	118.386 ppb	92.034 %
Concentration per Run 2	207.215 ppb	104.456 ppb	443.550 ppb	104.301 %	112.551 %	-0.497 ppb	28.159 ppb	119.915 ppb	89.621 %
Concentration per Run 3	207.561 ppb	105.319 ppb	446.510 ppb	102.216 %	97.060 %	-0.137 ppb	28.840 ppb	121.037 ppb	89.301 %
Concentration RSD	0.3 %	0.5 %	0.4 %	1.0 %	8.5 %	59.9 %	1.2 %	1.1 %	1.7 %

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Analysis index: 24
Analysis label: WG1356406-6 2008TL
Analysis started at: 3/31/2020 4:11:42 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	104.457 %	107.170 %	0.002 ppb	153,591.341 ppb	23,043.370 ppb	17.673 ppb	11,411.345 ppb	29,995.789 ppb	114.453 %
Concentration per Run 1	106.237 %	103.817 %	0.005 ppb	155,947.157 ppb	23,318.877 ppb	18.035 ppb	11,639.608 ppb	30,702.930 ppb	115.142 %
Concentration per Run 2	103.588 %	108.436 %	-0.002 ppb	152,379.809 ppb	23,120.712 ppb	17.493 ppb	11,339.234 ppb	29,752.174 ppb	112.649 %
Concentration per Run 3	103.548 %	109.258 %	0.002 ppb	152,447.056 ppb	22,690.519 ppb	17.491 ppb	11,255.194 ppb	29,532.263 ppb	115.568 %
Concentration RSD	1.5 %	2.7 %	232.4 %	1.3 %	1.4 %	1.8 %	1.8 %	2.1 %	1.4 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	49.716 ppb	0.660 ppb	2.003 ppb	47.080 ppb	88.841 ppb	0.579 ppb	4.563 ppb	2.726 ppb	29.179 ppb
Concentration per Run 1	49.768 ppb	0.753 ppb	2.093 ppb	47.097 ppb	91.016 ppb	0.578 ppb	4.457 ppb	2.581 ppb	29.166 ppb
Concentration per Run 2	50.531 ppb	0.611 ppb	1.945 ppb	46.970 ppb	90.828 ppb	0.598 ppb	4.767 ppb	2.611 ppb	29.420 ppb
Concentration per Run 3	48.850 ppb	0.616 ppb	1.970 ppb	47.174 ppb	84.678 ppb	0.560 ppb	4.464 ppb	2.984 ppb	28.949 ppb
Concentration RSD	1.7 %	12.2 %	4.0 %	0.2 %	4.1 %	3.3 %	3.9 %	8.2 %	0.8 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	107.062 %	3.164 ppb	0.882 ppb	172.199 ppb	26.553 ppb	99.217 %	0.021 ppb	0.179 ppb	102.356 %
Concentration per Run 1	105.816 %	3.197 ppb	0.920 ppb	174.118 ppb	24.298 ppb	99.906 %	0.015 ppb	0.174 ppb	101.624 %
Concentration per Run 2	106.647 %	3.197 ppb	1.063 ppb	170.779 ppb	27.148 ppb	98.761 %	0.022 ppb	0.189 ppb	101.407 %
Concentration per Run 3	108.722 %	3.097 ppb	0.661 ppb	171.701 ppb	28.214 ppb	98.983 %	0.025 ppb	0.173 ppb	104.036 %
Concentration RSD	1.4 %	1.8 %	23.1 %	1.0 %	7.6 %	0.6 %	23.8 %	4.8 %	1.4 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	6.482 ppb	1.480 ppb	18.553 ppb	99.801 %	98.768 %	-0.582 ppb	0.148 ppb	0.365 ppb	83.359 %
Concentration per Run 1	6.344 ppb	1.475 ppb	18.617 ppb	100.466 %	108.260 %	-0.846 ppb	0.155 ppb	0.376 ppb	83.629 %
Concentration per Run 2	6.664 ppb	1.454 ppb	18.478 ppb	100.221 %	94.777 %	-0.551 ppb	0.148 ppb	0.359 ppb	83.465 %
Concentration per Run 3	6.438 ppb	1.512 ppb	18.565 ppb	98.716 %	93.268 %	-0.350 ppb	0.140 ppb	0.359 ppb	82.984 %
Concentration RSD	2.5 %	2.0 %	0.4 %	0.9 %	8.4 %	42.9 %	5.2 %	2.7 %	0.4 %

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Analysis index: 25
Analysis label: L2013614-02 2008TL
Analysis started at: 3/31/2020 4:16:48 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	107.846 %	109.701 %	0.001 ppb	151,947.435 ppb	22,977.415 ppb	19.292 ppb	11,622.714 ppb	29,582.616 ppb	114.128 %
Concentration per Run 1	109.214 %	107.550 %	0.000 ppb	154,938.520 ppb	23,352.122 ppb	18.954 ppb	11,706.114 ppb	29,478.754 ppb	115.181 %
Concentration per Run 2	108.714 %	112.611 %	0.000 ppb	151,892.380 ppb	23,007.949 ppb	19.931 ppb	11,860.127 ppb	30,126.635 ppb	114.245 %
Concentration per Run 3	105.609 %	108.942 %	0.002 ppb	149,011.405 ppb	22,572.175 ppb	18.989 ppb	11,301.901 ppb	29,142.459 ppb	112.957 %
Concentration RSD	1.8 %	2.4 %	120.4 %	2.0 %	1.7 %	2.9 %	2.5 %	1.7 %	1.0 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	48.303 ppb	0.681 ppb	1.846 ppb	46.476 ppb	81.767 ppb	0.566 ppb	4.859 ppb	2.724 ppb	29.447 ppb
Concentration per Run 1	46.039 ppb	0.653 ppb	1.855 ppb	45.459 ppb	83.114 ppb	0.562 ppb	5.028 ppb	2.809 ppb	29.312 ppb
Concentration per Run 2	50.641 ppb	0.716 ppb	1.910 ppb	47.444 ppb	82.569 ppb	0.541 ppb	4.689 ppb	2.746 ppb	29.223 ppb
Concentration per Run 3	48.227 ppb	0.675 ppb	1.774 ppb	46.524 ppb	79.617 ppb	0.596 ppb	4.862 ppb	2.618 ppb	29.806 ppb
Concentration RSD	4.8 %	4.7 %	3.7 %	2.1 %	2.3 %	4.9 %	3.5 %	3.6 %	1.1 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	107.745 %	3.054 ppb	0.934 ppb	170.285 ppb	7.957 ppb	100.431 %	0.024 ppb	0.165 ppb	102.466 %
Concentration per Run 1	107.351 %	2.962 ppb	0.958 ppb	172.635 ppb	6.853 ppb	100.987 %	0.024 ppb	0.180 ppb	102.741 %
Concentration per Run 2	108.172 %	3.200 ppb	0.994 ppb	174.774 ppb	8.284 ppb	99.924 %	0.023 ppb	0.142 ppb	105.549 %
Concentration per Run 3	107.711 %	2.999 ppb	0.849 ppb	163.447 ppb	8.735 ppb	100.380 %	0.025 ppb	0.173 ppb	99.109 %
Concentration RSD	0.4 %	4.2 %	8.1 %	3.5 %	12.4 %	0.5 %	3.3 %	12.2 %	3.2 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	1.917 ppb	0.625 ppb	18.506 ppb	101.078 %	103.204 %	-0.933 ppb	-0.060 ppb	0.379 ppb	83.259 %
Concentration per Run 1	1.688 ppb	0.580 ppb	18.588 ppb	102.252 %	109.900 %	-1.106 ppb	-0.071 ppb	0.371 ppb	84.816 %
Concentration per Run 2	1.950 ppb	0.610 ppb	18.374 ppb	102.039 %	108.025 %	-0.977 ppb	-0.054 ppb	0.384 ppb	82.677 %
Concentration per Run 3	2.112 ppb	0.683 ppb	18.556 ppb	98.942 %	91.686 %	-0.715 ppb	-0.055 ppb	0.382 ppb	82.283 %
Concentration RSD	11.2 %	8.4 %	0.6 %	1.8 %	9.7 %	21.4 %	16.6 %	1.9 %	1.6 %

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Analysis index: 26
Analysis label: L2013614-03 2008TL
Analysis started at: 3/31/2020 4:21:54 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	106.605 %	105.525 %	0.020 ppb	135,558.315 ppb	4,825.693 ppb	368.939 ppb	12,497.502 ppb	30,185.212 ppb	100.050 %
Concentration per Run 1	105.924 %	106.917 %	0.021 ppb	138,229.323 ppb	4,954.577 ppb	365.363 ppb	12,861.025 ppb	31,253.678 ppb	100.063 %
Concentration per Run 2	107.164 %	102.362 %	0.026 ppb	134,202.490 ppb	4,730.710 ppb	385.197 ppb	11,886.950 ppb	29,353.561 ppb	100.725 %
Concentration per Run 3	106.728 %	107.297 %	0.012 ppb	134,243.131 ppb	4,791.791 ppb	356.256 ppb	12,744.531 ppb	29,948.398 ppb	99.362 %
Concentration RSD	0.6 %	2.6 %	36.5 %	1.7 %	2.4 %	4.0 %	4.3 %	3.2 %	0.7 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	66.687 ppb	0.773 ppb	1.838 ppb	116.675 ppb	955.992 ppb	0.657 ppb	5.180 ppb	31.824 ppb	66.714 ppb
Concentration per Run 1	57.134 ppb	0.716 ppb	1.801 ppb	116.818 ppb	966.017 ppb	0.655 ppb	5.206 ppb	31.837 ppb	66.560 ppb
Concentration per Run 2	70.517 ppb	0.821 ppb	1.847 ppb	117.287 ppb	958.971 ppb	0.643 ppb	5.144 ppb	32.513 ppb	67.058 ppb
Concentration per Run 3	72.409 ppb	0.782 ppb	1.865 ppb	115.921 ppb	942.989 ppb	0.673 ppb	5.191 ppb	31.121 ppb	66.526 ppb
Concentration RSD	12.5 %	6.9 %	1.8 %	0.6 %	1.2 %	2.3 %	0.6 %	2.2 %	0.4 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	107.377 %	3.407 ppb	0.684 ppb	169.211 ppb	1.447 ppb	100.488 %	0.166 ppb	0.145 ppb	103.180 %
Concentration per Run 1	109.047 %	3.357 ppb	0.623 ppb	179.798 ppb	1.245 ppb	101.541 %	0.148 ppb	0.151 ppb	107.618 %
Concentration per Run 2	103.561 %	3.387 ppb	0.456 ppb	160.854 ppb	1.287 ppb	99.399 %	0.181 ppb	0.141 ppb	98.405 %
Concentration per Run 3	109.523 %	3.476 ppb	0.974 ppb	166.983 ppb	1.810 ppb	100.523 %	0.168 ppb	0.143 ppb	103.516 %
Concentration RSD	3.1 %	1.8 %	38.7 %	5.7 %	21.7 %	1.1 %	10.1 %	3.8 %	4.5 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.742 ppb	0.242 ppb	43.467 ppb	99.178 %	92.331 %	1.492 ppb	-0.091 ppb	4.531 ppb	85.924 %
Concentration per Run 1	0.740 ppb	0.217 ppb	42.519 ppb	99.888 %	95.289 %	1.015 ppb	-0.095 ppb	4.496 ppb	86.510 %
Concentration per Run 2	0.821 ppb	0.255 ppb	43.870 ppb	97.107 %	89.080 %	1.673 ppb	-0.090 ppb	4.527 ppb	85.083 %
Concentration per Run 3	0.666 ppb	0.255 ppb	44.010 ppb	100.538 %	92.622 %	1.789 ppb	-0.087 ppb	4.570 ppb	86.177 %
Concentration RSD	10.4 %	9.0 %	1.9 %	1.8 %	3.4 %	28.0 %	4.6 %	0.8 %	0.9 %

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Analysis index: 27
Analysis label: L2013614-04 2008TL
Analysis started at: 3/31/2020 4:27:01 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	113.446 %	109.511 %	0.001 ppb	150,740.833 ppb	24,596.673 ppb	15.287 ppb	11,699.285 ppb	29,780.499 ppb	108.869 %
Concentration per Run 1	114.744 %	105.462 %	-0.004 ppb	147,468.926 ppb	23,791.815 ppb	14.774 ppb	11,283.582 ppb	29,317.753 ppb	109.430 %
Concentration per Run 2	112.410 %	111.789 %	0.007 ppb	149,709.454 ppb	24,754.138 ppb	15.549 ppb	11,854.891 ppb	29,875.314 ppb	109.140 %
Concentration per Run 3	113.184 %	111.283 %	0.001 ppb	155,044.118 ppb	25,244.065 ppb	15.539 ppb	11,959.381 ppb	30,148.429 ppb	108.036 %
Concentration RSD	1.0 %	3.2 %	403.2 %	2.6 %	3.0 %	2.9 %	3.1 %	1.4 %	0.7 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	49.702 ppb	0.609 ppb	1.018 ppb	43.994 ppb	83.473 ppb	0.541 ppb	4.288 ppb	2.722 ppb	28.779 ppb
Concentration per Run 1	47.894 ppb	0.636 ppb	1.078 ppb	42.953 ppb	84.063 ppb	0.474 ppb	4.397 ppb	2.996 ppb	29.336 ppb
Concentration per Run 2	50.472 ppb	0.663 ppb	0.923 ppb	44.150 ppb	82.598 ppb	0.582 ppb	4.598 ppb	2.776 ppb	29.374 ppb
Concentration per Run 3	50.739 ppb	0.528 ppb	1.052 ppb	44.879 ppb	83.759 ppb	0.566 ppb	3.870 ppb	2.393 ppb	27.627 ppb
Concentration RSD	3.2 %	11.7 %	8.1 %	2.2 %	0.9 %	10.8 %	8.8 %	11.2 %	3.5 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	108.281 %	3.082 ppb	0.738 ppb	167.455 ppb	1.222 ppb	103.740 %	0.015 ppb	0.180 ppb	104.054 %
Concentration per Run 1	104.162 %	2.886 ppb	0.829 ppb	162.340 ppb	0.872 ppb	102.934 %	0.012 ppb	0.187 ppb	99.773 %
Concentration per Run 2	108.584 %	3.024 ppb	0.653 ppb	169.760 ppb	1.238 ppb	104.493 %	0.017 ppb	0.182 ppb	106.165 %
Concentration per Run 3	112.096 %	3.337 ppb	0.732 ppb	170.266 ppb	1.556 ppb	103.792 %	0.017 ppb	0.172 ppb	106.225 %
Concentration RSD	3.7 %	7.5 %	11.9 %	2.6 %	28.0 %	0.8 %	21.5 %	4.1 %	3.6 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.030 ppb	0.151 ppb	18.070 ppb	102.966 %	95.627 %	-1.152 ppb	-0.109 ppb	0.344 ppb	86.410 %
Concentration per Run 1	-0.116 ppb	0.119 ppb	18.239 ppb	102.148 %	93.860 %	-1.204 ppb	-0.114 ppb	0.344 ppb	85.880 %
Concentration per Run 2	-0.025 ppb	0.187 ppb	17.586 ppb	102.758 %	95.184 %	-1.165 ppb	-0.111 ppb	0.335 ppb	86.447 %
Concentration per Run 3	0.230 ppb	0.147 ppb	18.386 ppb	103.992 %	97.838 %	-1.087 ppb	-0.100 ppb	0.353 ppb	86.904 %
Concentration RSD	606.7 %	22.5 %	2.4 %	0.9 %	2.1 %	5.2 %	6.6 %	2.6 %	0.6 %

Alpha ICPMSQ Full

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Analysis index: 28
Analysis label: L2013614-05 2008TL
Analysis started at: 3/31/2020 4:32:08 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	109.524 %	103.332 %	0.031 ppb	404,157.301 ppb	5,330.070 ppb	700.130 ppb	11,456.178 ppb	31,229.385 ppb	106.534 %
Concentration per Run 1	109.239 %	102.362 %	0.021 ppb	411,336.381 ppb	5,367.044 ppb	691.852 ppb	11,744.268 ppb	31,895.867 ppb	105.178 %
Concentration per Run 2	110.237 %	105.146 %	0.032 ppb	394,010.861 ppb	5,156.593 ppb	708.193 ppb	11,092.656 ppb	30,193.028 ppb	107.330 %
Concentration per Run 3	109.097 %	102.489 %	0.038 ppb	407,124.661 ppb	5,466.572 ppb	700.344 ppb	11,531.611 ppb	31,599.260 ppb	107.093 %
Concentration RSD	0.6 %	1.5 %	27.9 %	2.2 %	3.0 %	1.2 %	2.9 %	2.9 %	1.1 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	63.972 ppb	1.939 ppb	6.624 ppb	124.976 ppb	1,466.009 ppb	1.405 ppb	9.126 ppb	40.890 ppb	91.293 ppb
Concentration per Run 1	64.486 ppb	2.124 ppb	6.579 ppb	126.978 ppb	1,508.046 ppb	1.439 ppb	9.453 ppb	42.296 ppb	93.225 ppb
Concentration per Run 2	69.032 ppb	1.723 ppb	6.553 ppb	123.765 ppb	1,454.915 ppb	1.380 ppb	8.770 ppb	40.628 ppb	90.433 ppb
Concentration per Run 3	58.398 ppb	1.969 ppb	6.742 ppb	124.185 ppb	1,435.066 ppb	1.396 ppb	9.156 ppb	39.745 ppb	90.221 ppb
Concentration RSD	8.3 %	10.4 %	1.5 %	1.4 %	2.6 %	2.2 %	3.8 %	3.2 %	1.8 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	105.305 %	4.144 ppb	0.600 ppb	188.790 ppb	1.822 ppb	97.670 %	0.301 ppb	0.461 ppb	99.419 %
Concentration per Run 1	103.754 %	4.290 ppb	0.548 ppb	189.914 ppb	1.593 ppb	98.312 %	0.292 ppb	0.476 ppb	100.514 %
Concentration per Run 2	105.287 %	3.921 ppb	0.673 ppb	187.632 ppb	1.803 ppb	96.763 %	0.296 ppb	0.454 ppb	99.486 %
Concentration per Run 3	106.873 %	4.220 ppb	0.578 ppb	188.824 ppb	2.069 ppb	97.933 %	0.315 ppb	0.455 ppb	98.257 %
Concentration RSD	1.5 %	4.7 %	10.9 %	0.6 %	13.1 %	0.8 %	4.0 %	2.7 %	1.1 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.344 ppb	0.355 ppb	58.815 ppb	97.813 %	91.321 %	3.404 ppb	-0.099 ppb	16.693 ppb	80.537 %
Concentration per Run 1	0.230 ppb	0.321 ppb	58.002 ppb	99.413 %	92.493 %	2.861 ppb	-0.105 ppb	16.575 ppb	81.509 %
Concentration per Run 2	0.424 ppb	0.332 ppb	59.144 ppb	96.451 %	90.347 %	3.483 ppb	-0.089 ppb	16.735 ppb	79.712 %
Concentration per Run 3	0.379 ppb	0.412 ppb	59.300 ppb	97.574 %	91.123 %	3.868 ppb	-0.101 ppb	16.769 ppb	80.390 %
Concentration RSD	29.4 %	14.0 %	1.2 %	1.5 %	1.2 %	14.9 %	8.8 %	0.6 %	1.1 %

Alpha ICPMSQ Full

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Analysis index: 29
Analysis label: L2013614-06 2008TL
Analysis started at: 3/31/2020 4:37:15 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	116.209 %	114.783 %	0.000 ppb	154,365.127 ppb	24,666.490 ppb	22.613 ppb	12,459.138 ppb	30,641.325 ppb	112.716 %
Concentration per Run 1	116.932 %	114.889 %	0.004 ppb	153,533.638 ppb	24,366.137 ppb	21.737 ppb	12,654.233 ppb	31,055.137 ppb	113.875 %
Concentration per Run 2	116.553 %	114.383 %	0.000 ppb	153,930.658 ppb	24,486.833 ppb	23.079 ppb	12,288.806 ppb	30,361.864 ppb	112.520 %
Concentration per Run 3	115.141 %	115.079 %	-0.003 ppb	155,631.086 ppb	25,146.501 ppb	23.024 ppb	12,434.373 ppb	30,506.974 ppb	111.752 %
Concentration RSD	0.8 %	0.3 %	1,637.3 %	0.7 %	1.7 %	3.4 %	1.5 %	1.2 %	1.0 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	49.235 ppb	0.608 ppb	0.947 ppb	47.574 ppb	98.993 ppb	0.571 ppb	4.329 ppb	3.552 ppb	29.532 ppb
Concentration per Run 1	48.798 ppb	0.687 ppb	0.988 ppb	47.418 ppb	102.271 ppb	0.608 ppb	4.768 ppb	3.626 ppb	29.710 ppb
Concentration per Run 2	49.964 ppb	0.518 ppb	0.949 ppb	46.916 ppb	100.365 ppb	0.603 ppb	4.040 ppb	3.471 ppb	29.352 ppb
Concentration per Run 3	48.944 ppb	0.619 ppb	0.903 ppb	48.387 ppb	94.344 ppb	0.501 ppb	4.179 ppb	3.559 ppb	29.535 ppb
Concentration RSD	1.3 %	14.0 %	4.5 %	1.6 %	4.2 %	10.6 %	8.9 %	2.2 %	0.6 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	114.293 %	3.097 ppb	0.576 ppb	172.677 ppb	0.470 ppb	106.960 %	0.026 ppb	0.209 ppb	108.271 %
Concentration per Run 1	112.810 %	3.009 ppb	0.604 ppb	175.511 ppb	0.419 ppb	107.442 %	0.027 ppb	0.209 ppb	108.501 %
Concentration per Run 2	114.538 %	3.137 ppb	0.559 ppb	171.125 ppb	0.399 ppb	106.949 %	0.025 ppb	0.224 ppb	108.331 %
Concentration per Run 3	115.529 %	3.146 ppb	0.564 ppb	171.395 ppb	0.592 ppb	106.490 %	0.026 ppb	0.193 ppb	107.982 %
Concentration RSD	1.2 %	2.5 %	4.2 %	1.4 %	22.5 %	0.4 %	3.5 %	7.4 %	0.2 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.340 ppb	0.106 ppb	18.430 ppb	105.099 %	107.486 %	-1.129 ppb	-0.127 ppb	0.342 ppb	87.800 %
Concentration per Run 1	-0.418 ppb	0.071 ppb	18.434 ppb	106.146 %	111.959 %	-1.214 ppb	-0.138 ppb	0.334 ppb	88.512 %
Concentration per Run 2	-0.314 ppb	0.099 ppb	18.607 ppb	104.842 %	98.242 %	-1.094 ppb	-0.121 ppb	0.342 ppb	87.028 %
Concentration per Run 3	-0.288 ppb	0.149 ppb	18.249 ppb	104.308 %	112.256 %	-1.080 ppb	-0.121 ppb	0.350 ppb	87.860 %
Concentration RSD	20.3 %	36.9 %	1.0 %	0.9 %	7.4 %	6.5 %	7.8 %	2.4 %	0.8 %

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Analysis index: 30
Analysis label: L2013614-07 2008TL
Analysis started at: 3/31/2020 4:42:23 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	113.150 %	112.274 %	0.030 ppb	278,708.314 ppb	3,512.696 ppb	440.912 ppb	7,060.400 ppb	22,457.423 ppb	112.980 %
Concentration per Run 1	114.867 %	112.042 %	0.036 ppb	280,626.625 ppb	3,532.260 ppb	450.758 ppb	6,996.651 ppb	22,682.040 ppb	113.235 %
Concentration per Run 2	112.966 %	110.144 %	0.016 ppb	279,869.400 ppb	3,516.592 ppb	437.926 ppb	7,209.955 ppb	22,539.919 ppb	114.756 %
Concentration per Run 3	111.618 %	114.636 %	0.039 ppb	275,628.916 ppb	3,489.236 ppb	434.052 ppb	6,974.595 ppb	22,150.311 ppb	110.948 %
Concentration RSD	1.4 %	2.0 %	40.3 %	1.0 %	0.6 %	2.0 %	1.8 %	1.2 %	1.7 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	52.756 ppb	1.590 ppb	3.844 ppb	80.029 ppb	1,117.160 ppb	0.900 ppb	6.066 ppb	21.520 ppb	62.619 ppb
Concentration per Run 1	57.378 ppb	1.554 ppb	3.714 ppb	79.632 ppb	1,129.046 ppb	0.871 ppb	6.325 ppb	21.644 ppb	62.474 ppb
Concentration per Run 2	48.340 ppb	1.575 ppb	4.017 ppb	82.008 ppb	1,130.392 ppb	0.875 ppb	6.134 ppb	21.747 ppb	63.573 ppb
Concentration per Run 3	52.550 ppb	1.643 ppb	3.801 ppb	78.446 ppb	1,092.040 ppb	0.955 ppb	5.740 ppb	21.170 ppb	61.810 ppb
Concentration RSD	8.6 %	2.9 %	4.1 %	2.3 %	1.9 %	5.3 %	4.9 %	1.4 %	1.4 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	107.888 %	3.318 ppb	0.658 ppb	140.998 ppb	0.852 ppb	100.738 %	0.124 ppb	0.434 ppb	102.470 %
Concentration per Run 1	106.813 %	3.344 ppb	0.982 ppb	142.976 ppb	0.805 ppb	100.105 %	0.121 ppb	0.413 ppb	102.495 %
Concentration per Run 2	106.784 %	3.437 ppb	0.453 ppb	139.846 ppb	0.840 ppb	100.853 %	0.113 ppb	0.401 ppb	102.090 %
Concentration per Run 3	110.066 %	3.173 ppb	0.540 ppb	140.172 ppb	0.911 ppb	101.256 %	0.136 ppb	0.487 ppb	102.824 %
Concentration RSD	1.7 %	4.0 %	43.1 %	1.2 %	6.3 %	0.6 %	9.3 %	10.6 %	0.4 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.032 ppb	0.261 ppb	39.668 ppb	101.078 %	94.736 %	-0.401 ppb	-0.122 ppb	16.700 ppb	83.673 %
Concentration per Run 1	-0.062 ppb	0.260 ppb	40.007 ppb	101.015 %	94.285 %	-0.513 ppb	-0.131 ppb	16.429 ppb	84.656 %
Concentration per Run 2	-0.069 ppb	0.250 ppb	39.217 ppb	101.278 %	94.835 %	-0.388 ppb	-0.123 ppb	16.726 ppb	82.924 %
Concentration per Run 3	0.034 ppb	0.272 ppb	39.781 ppb	100.942 %	95.088 %	-0.301 ppb	-0.112 ppb	16.945 ppb	83.439 %
Concentration RSD	178.8 %	4.1 %	1.0 %	0.2 %	0.4 %	26.7 %	7.7 %	1.6 %	1.1 %

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Analysis index: 31
Analysis label: L2013614-08 2008TL
Analysis started at: 3/31/2020 4:47:26 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	117.268 %	116.914 %	-0.002 ppb	422,755.437 ppb	15,081.315 ppb	16.721 ppb	8,295.158 ppb	25,718.567 ppb	118.783 %
Concentration per Run 1	118.608 %	113.687 %	0.001 ppb	433,771.075 ppb	15,455.203 ppb	17.007 ppb	8,479.883 ppb	25,811.961 ppb	121.129 %
Concentration per Run 2	116.407 %	113.687 %	-0.006 ppb	423,287.786 ppb	15,022.552 ppb	16.155 ppb	8,157.293 ppb	25,835.528 ppb	120.038 %
Concentration per Run 3	116.791 %	123.367 %	-0.002 ppb	411,207.450 ppb	14,766.191 ppb	17.001 ppb	8,248.299 ppb	25,508.212 ppb	115.183 %
Concentration RSD	1.0 %	4.8 %	155.2 %	2.7 %	2.3 %	2.9 %	2.0 %	0.7 %	2.7 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	41.330 ppb	0.449 ppb	1.047 ppb	49.769 ppb	71.850 ppb	0.484 ppb	3.109 ppb	2.549 ppb	24.038 ppb
Concentration per Run 1	41.274 ppb	0.388 ppb	1.053 ppb	49.903 ppb	75.585 ppb	0.521 ppb	3.286 ppb	2.640 ppb	24.002 ppb
Concentration per Run 2	42.084 ppb	0.550 ppb	1.095 ppb	50.096 ppb	65.136 ppb	0.478 ppb	2.961 ppb	2.474 ppb	23.819 ppb
Concentration per Run 3	40.632 ppb	0.409 ppb	0.993 ppb	49.307 ppb	74.829 ppb	0.453 ppb	3.079 ppb	2.532 ppb	24.295 ppb
Concentration RSD	1.8 %	19.7 %	4.9 %	0.8 %	8.1 %	7.1 %	5.3 %	3.3 %	1.0 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	109.853 %	2.271 ppb	0.540 ppb	158.946 ppb	0.977 ppb	102.326 %	0.018 ppb	0.118 ppb	104.073 %
Concentration per Run 1	109.309 %	2.305 ppb	0.531 ppb	160.886 ppb	1.051 ppb	102.258 %	0.019 ppb	0.126 ppb	104.014 %
Concentration per Run 2	109.402 %	2.278 ppb	0.561 ppb	157.830 ppb	0.816 ppb	101.504 %	0.013 ppb	0.115 ppb	104.770 %
Concentration per Run 3	110.847 %	2.231 ppb	0.529 ppb	158.121 ppb	1.063 ppb	103.216 %	0.020 ppb	0.114 ppb	103.436 %
Concentration RSD	0.8 %	1.6 %	3.3 %	1.1 %	14.3 %	0.8 %	20.6 %	5.5 %	0.6 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.455 ppb	0.078 ppb	18.433 ppb	105.165 %	107.095 %	-1.139 ppb	-0.135 ppb	0.311 ppb	81.639 %
Concentration per Run 1	-0.592 ppb	0.055 ppb	18.419 ppb	106.388 %	113.418 %	-1.211 ppb	-0.138 ppb	0.311 ppb	82.335 %
Concentration per Run 2	-0.390 ppb	0.073 ppb	18.084 ppb	104.488 %	109.854 %	-1.130 ppb	-0.137 ppb	0.303 ppb	80.848 %
Concentration per Run 3	-0.382 ppb	0.104 ppb	18.797 ppb	104.618 %	98.014 %	-1.076 ppb	-0.131 ppb	0.320 ppb	81.735 %
Concentration RSD	26.1 %	31.9 %	1.9 %	1.0 %	7.5 %	6.0 %	2.5 %	2.7 %	0.9 %

Alpha ICPMSQ Full

4/1/2020 2:17:09 AM

Analysis index: 32
Analysis label: 9711-04 SCAN
Analysis started at: 3/31/2020 4:52:30 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	118.940 %	118.727 %	-0.002 ppb	50.810 ppb	0.969 ppb	0.865 ppb	24.797 ppb	10.136 ppb	124.902 %
Concentration per Run 1	119.892 %	111.156 %	-0.003 ppb	53.226 ppb	0.318 ppb	0.983 ppb	29.429 ppb	11.240 ppb	126.973 %
Concentration per Run 2	118.865 %	118.812 %	-0.002 ppb	47.602 ppb	0.581 ppb	0.817 ppb	22.901 ppb	12.303 ppb	124.670 %
Concentration per Run 3	118.064 %	126.214 %	0.000 ppb	51.603 ppb	2.007 ppb	0.797 ppb	22.061 ppb	6.864 ppb	123.062 %
Concentration RSD	0.8 %	6.3 %	77.2 %	5.7 %	93.8 %	11.8 %	16.3 %	28.4 %	1.6 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	-0.017 ppb	0.088 ppb	0.100 ppb	0.074 ppb	-10.011 ppb	0.003 ppb	0.051 ppb	0.152 ppb	1.624 ppb
Concentration per Run 1	-0.025 ppb	0.091 ppb	0.130 ppb	0.090 ppb	-10.412 ppb	0.009 ppb	0.012 ppb	0.133 ppb	1.653 ppb
Concentration per Run 2	0.027 ppb	0.093 ppb	0.075 ppb	0.032 ppb	-10.197 ppb	0.001 ppb	0.072 ppb	0.176 ppb	1.658 ppb
Concentration per Run 3	-0.052 ppb	0.082 ppb	0.093 ppb	0.099 ppb	-9.423 ppb	-0.002 ppb	0.069 ppb	0.146 ppb	1.562 ppb
Concentration RSD	244.2 %	6.6 %	28.1 %	49.1 %	5.2 %	201.5 %	65.8 %	14.7 %	3.3 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	116.402 %	-0.019 ppb	0.005 ppb	0.015 ppb	-1.569 ppb	114.988 %	0.001 ppb	0.001 ppb	114.735 %
Concentration per Run 1	113.431 %	-0.029 ppb	-0.089 ppb	0.015 ppb	-1.719 ppb	114.633 %	0.002 ppb	0.001 ppb	113.084 %
Concentration per Run 2	115.421 %	-0.016 ppb	-0.044 ppb	0.012 ppb	-1.482 ppb	115.719 %	0.000 ppb	0.003 ppb	112.886 %
Concentration per Run 3	120.355 %	-0.013 ppb	0.147 ppb	0.019 ppb	-1.504 ppb	114.613 %	0.001 ppb	0.000 ppb	118.235 %
Concentration RSD	3.1 %	43.2 %	2,738.8 %	20.7 %	8.4 %	0.6 %	154.9 %	160.1 %	2.6 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.466 ppb	-0.129 ppb	0.018 ppb	111.101 %	119.770 %	-1.438 ppb	-0.168 ppb	0.006 ppb	111.340 %
Concentration per Run 1	-0.495 ppb	-0.163 ppb	0.015 ppb	111.119 %	119.598 %	-1.482 ppb	-0.175 ppb	0.006 ppb	112.844 %
Concentration per Run 2	-0.486 ppb	-0.119 ppb	0.030 ppb	110.159 %	117.610 %	-1.424 ppb	-0.167 ppb	0.007 ppb	110.084 %
Concentration per Run 3	-0.419 ppb	-0.104 ppb	0.009 ppb	112.026 %	122.102 %	-1.409 ppb	-0.164 ppb	0.006 ppb	111.091 %
Concentration RSD	8.9 %	23.7 %	61.4 %	0.8 %	1.9 %	2.7 %	3.4 %	5.2 %	1.3 %

Alpha ICPMSQ Full

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Analysis index: 33 Analysis started at: 3/31/2020 4:57:36 PM
Analysis label: CCV User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	111.805 %	109.659 %	56.653 ppb	6,431.705 ppb	6,430.606 ppb	63.323 ppb	6,518.581 ppb	6,448.001 ppb	125.960 %
Concentration per Run 1	112.099 %	107.866 %	55.894 ppb	6,451.537 ppb	6,381.959 ppb	62.714 ppb	6,499.392 ppb	6,409.956 ppb	129.149 %
Concentration per Run 2	112.742 %	113.750 %	57.290 ppb	6,517.531 ppb	6,587.507 ppb	66.687 ppb	6,720.456 ppb	6,604.573 ppb	125.536 %
Concentration per Run 3	110.575 %	107.360 %	56.776 ppb	6,326.046 ppb	6,322.352 ppb	60.568 ppb	6,335.894 ppb	6,329.475 ppb	123.196 %
Recovery Percentage 1			94.422 %	107.195 %	107.177 %	105.539 %	108.643 %	107.467 %	
Concentration RSD	1.0 %	3.2 %	1.2 %	1.5 %	2.2 %	4.9 %	3.0 %	2.2 %	2.4 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	60.680 ppb	61.529 ppb	62.230 ppb	62.565 ppb	6,133.031 ppb	61.871 ppb	60.721 ppb	62.025 ppb	57.202 ppb
Concentration per Run 1	60.280 ppb	60.726 ppb	62.723 ppb	63.175 ppb	6,193.249 ppb	62.338 ppb	60.078 ppb	62.631 ppb	57.342 ppb
Concentration per Run 2	62.509 ppb	60.501 ppb	61.434 ppb	63.999 ppb	6,158.477 ppb	61.020 ppb	59.422 ppb	59.604 ppb	55.651 ppb
Concentration per Run 3	59.250 ppb	63.360 ppb	62.533 ppb	60.520 ppb	6,047.366 ppb	62.253 ppb	62.665 ppb	63.840 ppb	58.613 ppb
Recovery Percentage 1	101.133 %	102.548 %	103.717 %	104.275 %	102.217 %	103.118 %	101.202 %	103.375 %	95.337 %
Concentration RSD	2.7 %	2.6 %	1.1 %	2.9 %	1.2 %	1.2 %	2.8 %	3.5 %	2.6 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	106.582 %	56.339 ppb	54.288 ppb	63.336 ppb	54.421 ppb	107.602 %	62.556 ppb	55.664 ppb	108.101 %
Concentration per Run 1	106.350 %	56.733 ppb	54.006 ppb	63.139 ppb	53.243 ppb	109.067 %	62.863 ppb	55.487 ppb	107.108 %
Concentration per Run 2	111.296 %	56.611 ppb	56.663 ppb	65.889 ppb	54.782 ppb	108.372 %	61.675 ppb	55.747 ppb	112.791 %
Concentration per Run 3	102.099 %	55.675 ppb	52.196 ppb	60.979 ppb	55.238 ppb	105.366 %	63.130 ppb	55.757 ppb	104.404 %
Recovery Percentage 1		93.899 %	90.480 %	105.559 %	90.702 %		104.260 %	92.773 %	
Concentration RSD	4.3 %	1.0 %	4.1 %	3.9 %	1.9 %	1.8 %	1.2 %	0.3 %	4.0 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	56.747 ppb	54.351 ppb	59.732 ppb	108.833 %	116.611 %	50.458 ppb	56.283 ppb	54.419 ppb	103.572 %
Concentration per Run 1	56.715 ppb	54.086 ppb	60.448 ppb	109.396 %	116.848 %	52.850 ppb	61.021 ppb	59.871 ppb	93.102 %
Concentration per Run 2	56.569 ppb	54.317 ppb	60.478 ppb	110.574 %	120.524 %	48.191 ppb	53.687 ppb	51.633 ppb	109.687 %
Concentration per Run 3	56.956 ppb	54.651 ppb	58.272 ppb	106.529 %	112.461 %	50.333 ppb	54.141 ppb	51.752 ppb	107.928 %
Recovery Percentage 1	94.578 %	90.585 %	99.554 %			84.096 %	93.805 %	90.698 %	
Concentration RSD	0.3 %	0.5 %	2.1 %	1.9 %	3.5 %	4.6 %	7.3 %	8.7 %	8.8 %

Alpha ICPMSQ Full

4/1/2020 2:17:09 AM

Analysis index: 34 Analysis started at: 3/31/2020 5:02:44 PM
Analysis label: CCB User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	104.579 %	104.323 %	0.011 ppb	12.130 ppb	-0.207 ppb	-0.125 ppb	4.046 ppb	1.617 ppb	102.009 %
Concentration per Run 1	102.881 %	113.117 %	0.007 ppb	4.583 ppb	-0.349 ppb	-0.019 ppb	12.065 ppb	3.945 ppb	101.530 %
Concentration per Run 2	104.718 %	96.478 %	0.014 ppb	17.220 ppb	-0.490 ppb	-0.075 ppb	-1.275 ppb	1.061 ppb	101.791 %
Concentration per Run 3	106.138 %	103.374 %	0.012 ppb	14.587 ppb	0.219 ppb	-0.280 ppb	1.348 ppb	-0.154 ppb	102.705 %
Recovery Percentage 1			2.187 %	12.130 %	-0.295 %	-1.248 %	4.046 %	1.617 %	
Concentration RSD	1.6 %	8.0 %	33.9 %	55.0 %	181.6 %	110.3 %	174.7 %	130.2 %	0.6 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.287 ppb	0.015 ppb	0.005 ppb	0.006 ppb	32.401 ppb	0.003 ppb	-0.029 ppb	-0.005 ppb	-0.372 ppb
Concentration per Run 1	0.315 ppb	-0.040 ppb	-0.027 ppb	0.002 ppb	31.706 ppb	0.000 ppb	-0.027 ppb	-0.003 ppb	-0.370 ppb
Concentration per Run 2	0.293 ppb	0.019 ppb	0.013 ppb	0.026 ppb	32.275 ppb	0.002 ppb	-0.023 ppb	-0.029 ppb	-0.409 ppb
Concentration per Run 3	0.253 ppb	0.067 ppb	0.028 ppb	-0.009 ppb	33.224 ppb	0.008 ppb	-0.037 ppb	0.017 ppb	-0.338 ppb
Recovery Percentage 1	57.341 %	0.300 %	0.477 %	0.617 %	64.803 %	0.654 %	-1.438 %	-0.496 %	-3.724 %
Concentration RSD	10.9 %	357.7 %	600.1 %	287.7 %	2.4 %	126.3 %	25.1 %	470.2 %	9.6 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	103.137 %	-0.004 ppb	0.192 ppb	0.002 ppb	2.811 ppb	104.799 %	0.004 ppb	0.001 ppb	105.664 %
Concentration per Run 1	107.460 %	-0.028 ppb	0.200 ppb	0.003 ppb	2.396 ppb	106.651 %	0.006 ppb	0.003 ppb	112.110 %
Concentration per Run 2	98.747 %	0.025 ppb	0.096 ppb	-0.001 ppb	2.921 ppb	103.336 %	0.004 ppb	0.001 ppb	99.717 %
Concentration per Run 3	103.205 %	-0.009 ppb	0.281 ppb	0.005 ppb	3.118 ppb	104.409 %	0.003 ppb	0.000 ppb	105.164 %
Recovery Percentage 1		-0.822 %	3.844 %	0.493 %	140.575 %		1.049 %	0.613 %	
Concentration RSD	4.2 %	652.0 %	48.4 %	130.3 %	13.3 %	1.6 %	37.1 %	152.5 %	5.9 %

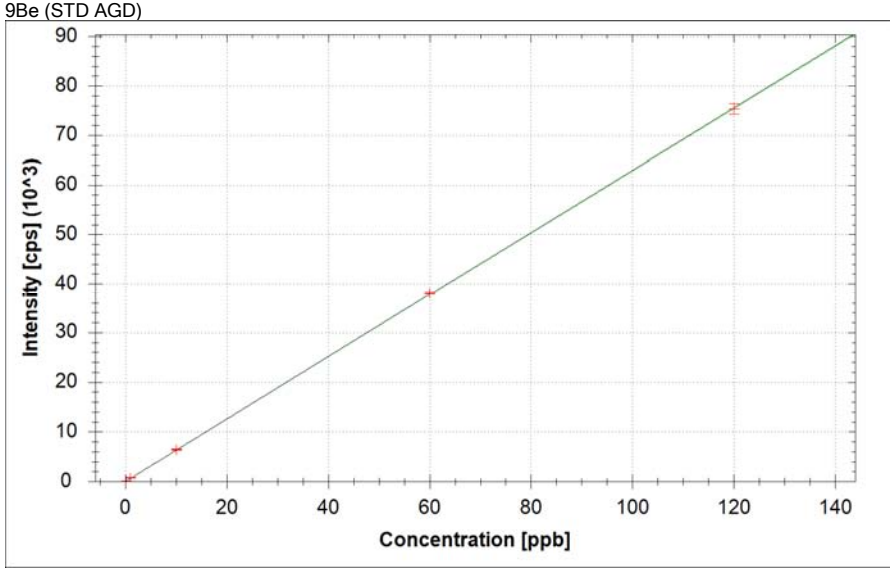
Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.510 ppb	-0.159 ppb	-0.012 ppb	106.568 %	110.922 %	1.402 ppb	0.455 ppb	0.011 ppb	92.984 %
Concentration per Run 1	0.422 ppb	-0.187 ppb	0.001 ppb	110.153 %	121.149 %	0.886 ppb	0.487 ppb	0.009 ppb	94.936 %
Concentration per Run 2	0.659 ppb	-0.158 ppb	-0.015 ppb	103.115 %	96.795 %	1.772 ppb	0.491 ppb	0.012 ppb	91.409 %
Concentration per Run 3	0.447 ppb	-0.131 ppb	-0.022 ppb	106.435 %	114.822 %	1.548 ppb	0.388 ppb	0.013 ppb	92.607 %
Recovery Percentage 1	16.984 %	-3.972 %	-2.426 %			70.085 %	91.069 %	1.124 %	
Concentration RSD	25.5 %	17.6 %	98.1 %	3.3 %	11.4 %	32.9 %	12.8 %	20.6 %	1.9 %

Analysis index:	35	Analysis started at:	3/31/2020 8:51:02 PM
Analysis label:	XCCV	User name:	ALPHALAB\metals-instrument

Analysis index:	36	Analysis started at:	3/31/2020 8:56:11 PM
Analysis label:	XCCB	User name:	ALPHALAB\metals-instrument

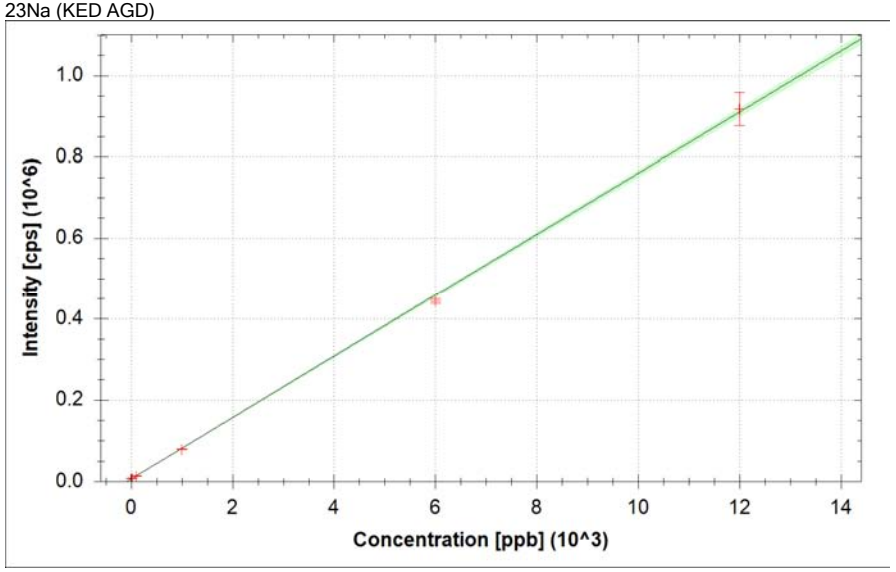
Calibration Curves:

9Be (STD AGD)



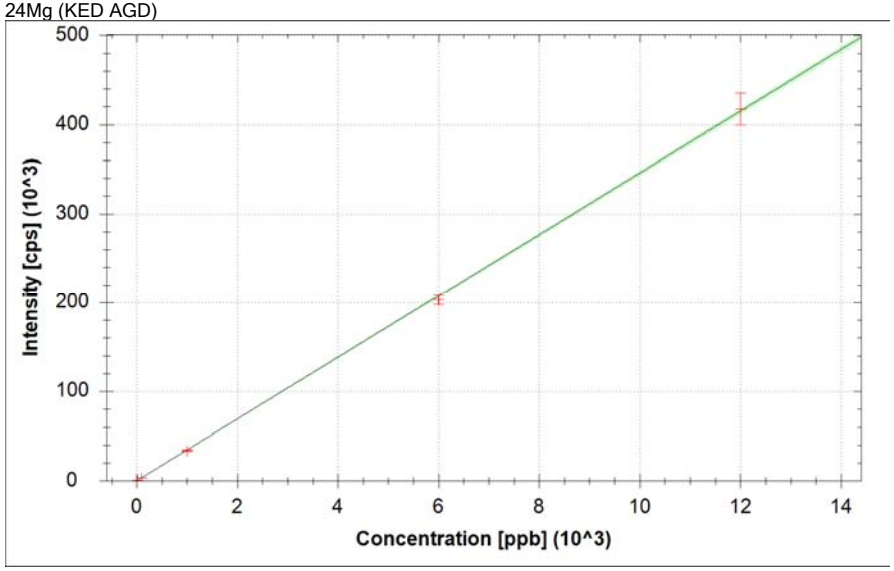
f(x) = 629.0434*x + 6.2241
R² = 1.0000
BEC = 0.010 ppb
LoD = 0.0160 ppb

23Na (KED AGD)



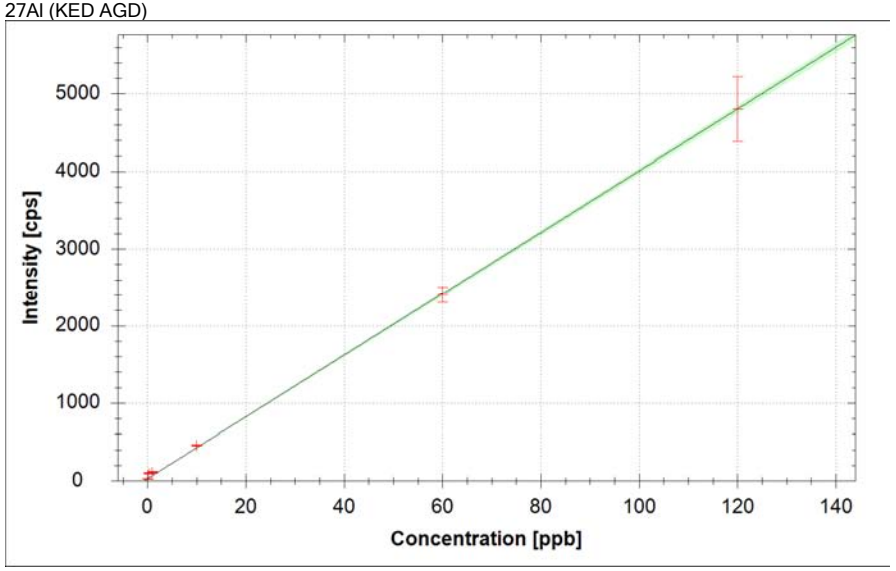
f(x) = 75.3138*x + 6313.9567
R² = 0.9996
BEC = 83.835 ppb
LoD = 6.1510 ppb

24Mg (KED AGD)



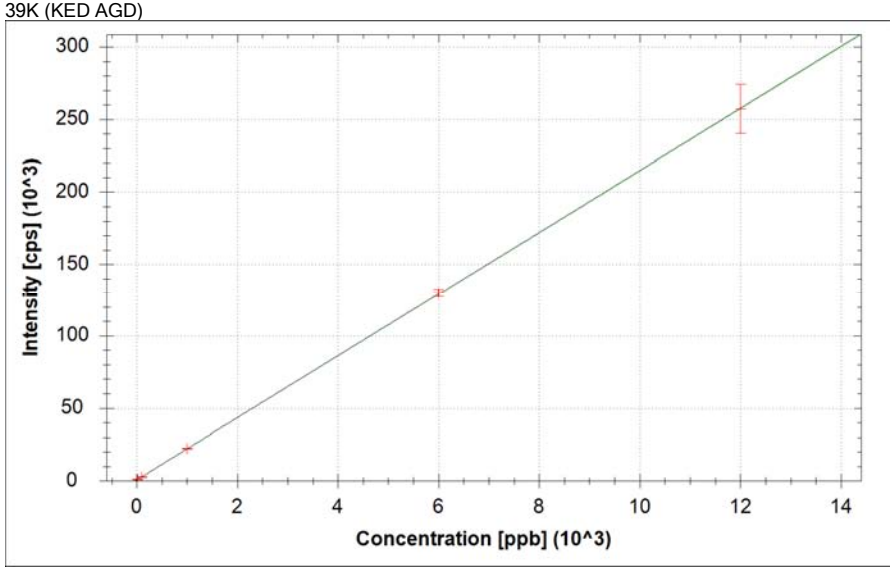
f(x) = 34.5756*x + 15.5166
R² = 0.9998
BEC = 0.449 ppb
LoD = 0.3087 ppb

27Al (KED AGD)



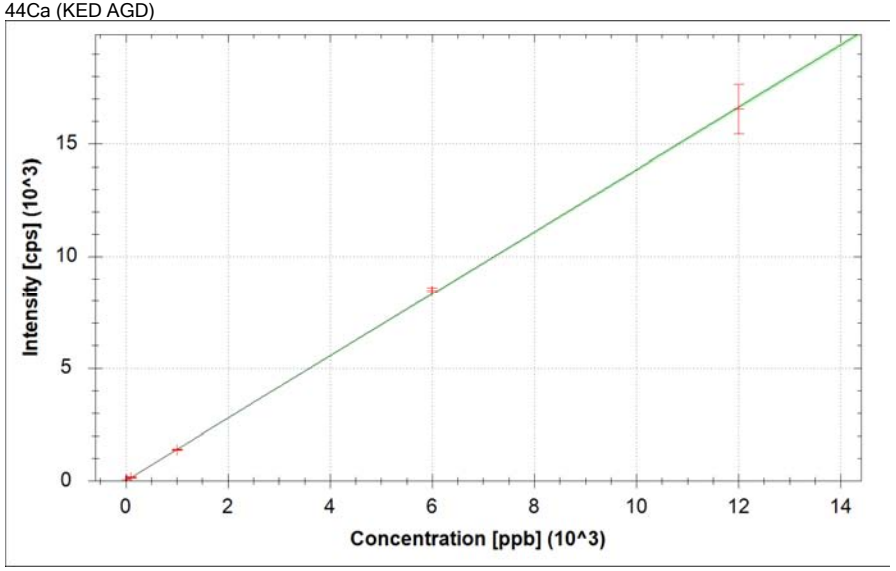
f(x) = 39.7887*x + 27.5489
R² = 0.9996
BEC = 0.692 ppb
LoD = 0.3160 ppb

39K (KED AGD)



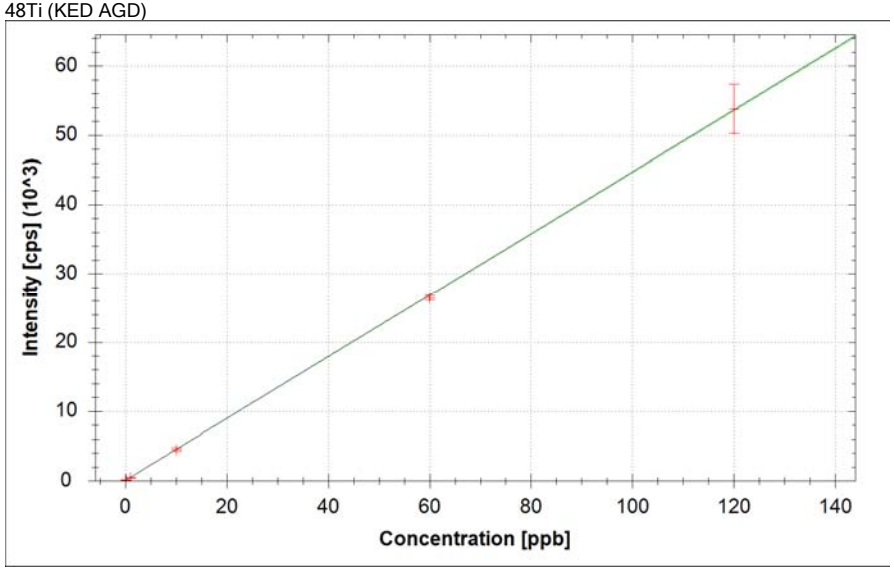
f(x) = 21.4087*x + 618.1538
R² = 1.0000
BEC = 28.874 ppb
LoD = 10.4599 ppb

44Ca (KED AGD)



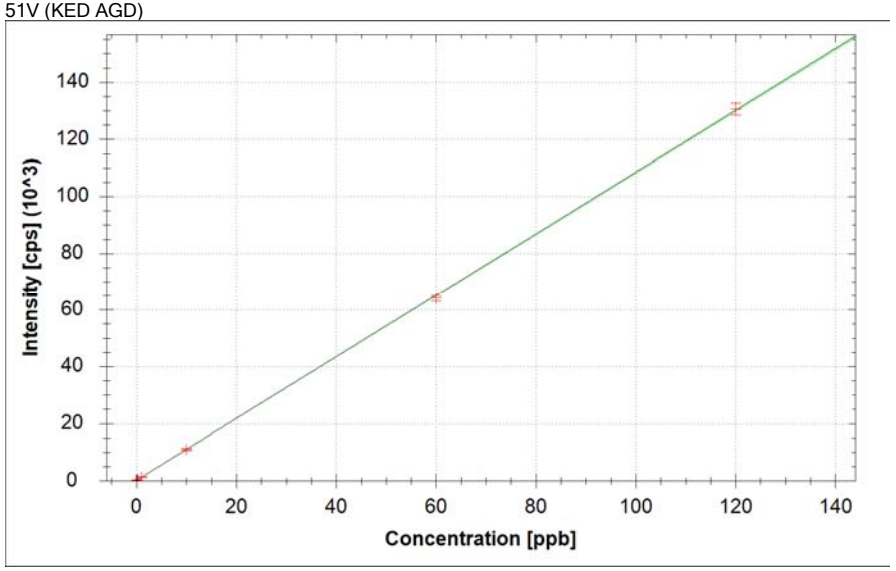
f(x) = 1.3852*x + 3.3052
R² = 0.9999
BEC = 2.386 ppb
LoD = 1.6517 ppb

48Ti (KED AGD)



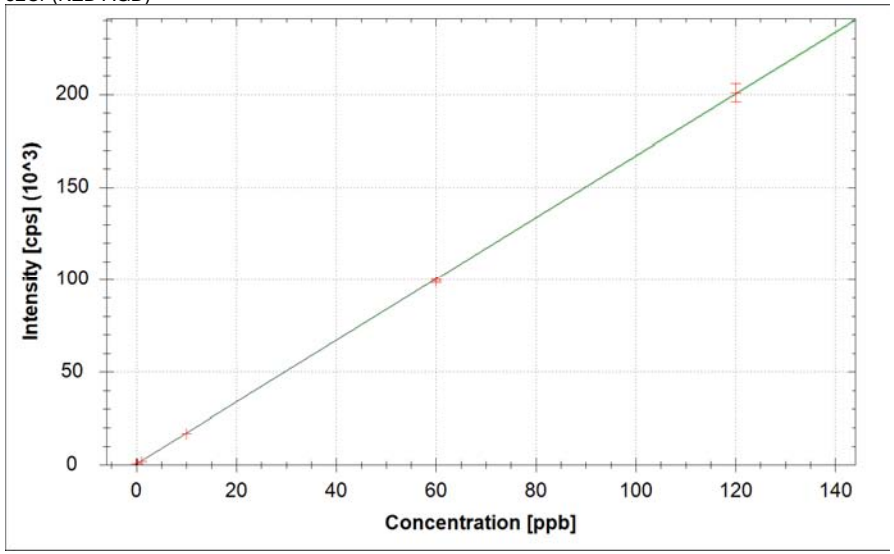
f(x) = 446.0196*x + 81.1033
R² = 0.9999
BEC = 0.182 ppb
LoD = 0.0325 ppb

51V (KED AGD)



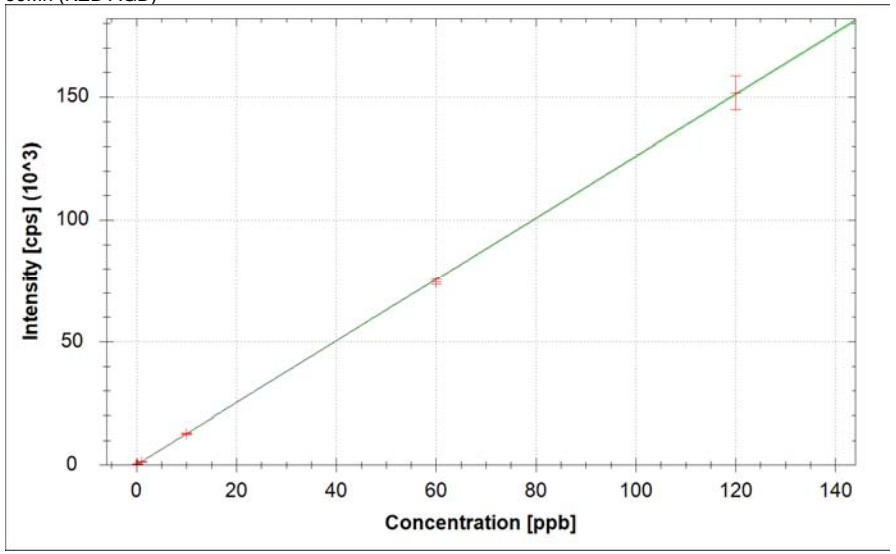
f(x) = 1082.2867*x + 171.1849
R² = 0.9999
BEC = 0.158 ppb
LoD = 0.0325 ppb

52Cr (KED AGD)



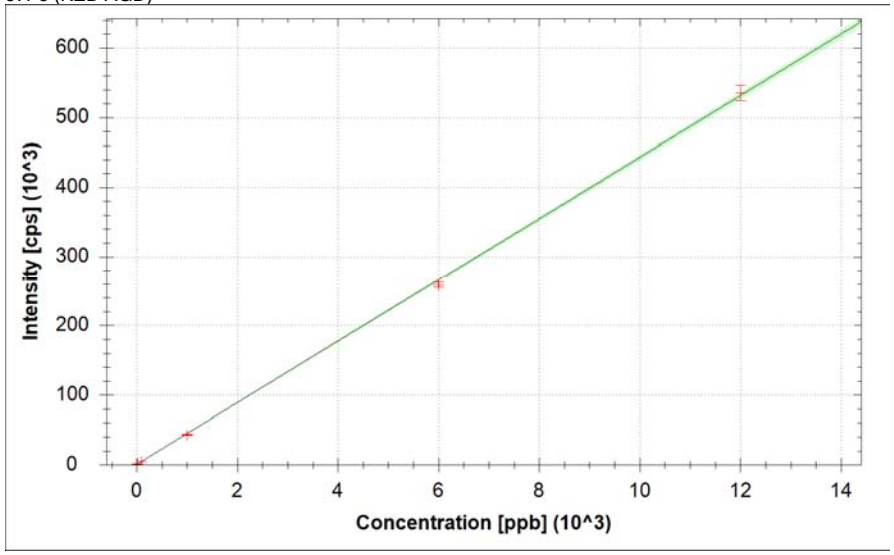
f(x) = 1664.7407*x + 450.0584
R² = 0.9999
BEC = 0.270 ppb
LoD = 0.0603 ppb

55Mn (KED AGD)



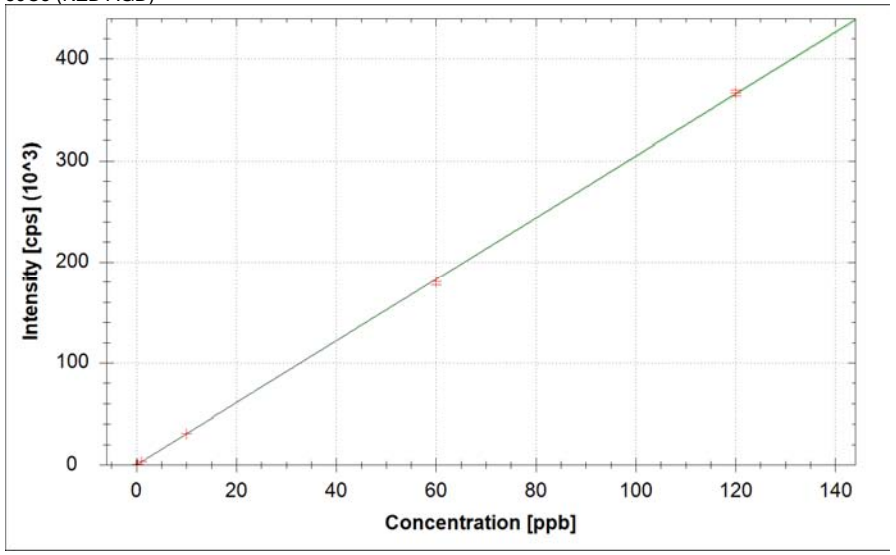
f(x) = 1258.3559*x + 35.5049
R² = 0.9999
BEC = 0.028 ppb
LoD = 0.0236 ppb

57Fe (KED AGD)



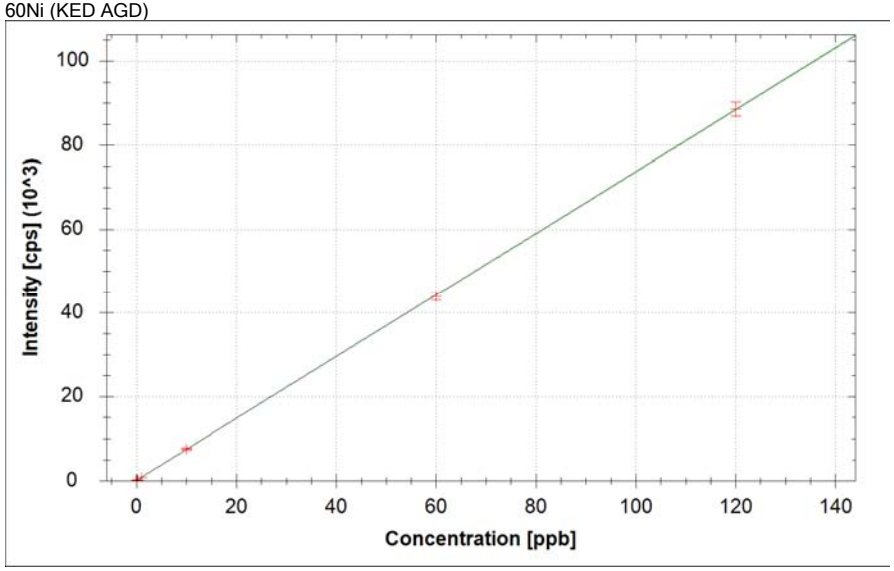
f(x) = 44.2280*x + 722.5096
R² = 0.9997
BEC = 16.336 ppb
LoD = 4.5940 ppb

59Co (KED AGD)



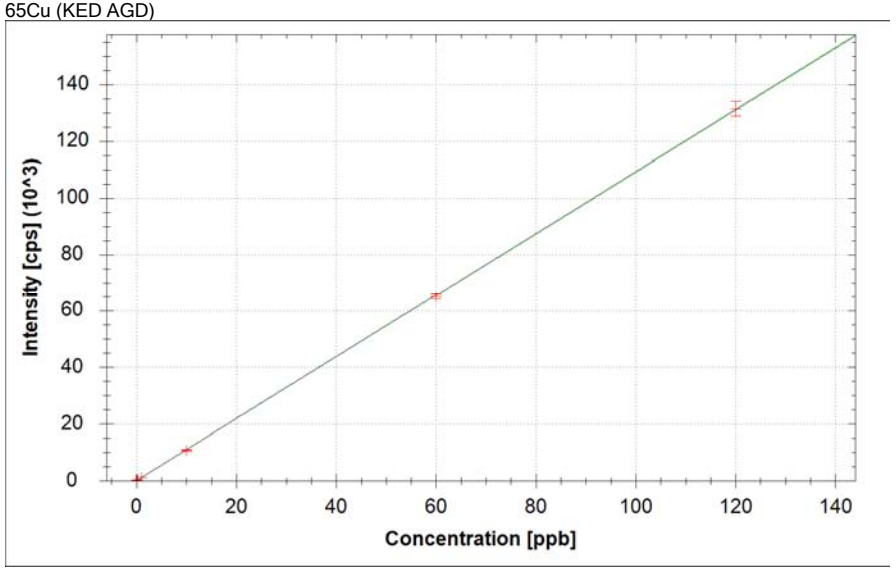
f(x) = 3044.4381*x + 8.8912
R² = 1.0000
BEC = 0.003 ppb
LoD = 0.0100 ppb

60Ni (KED AGD)



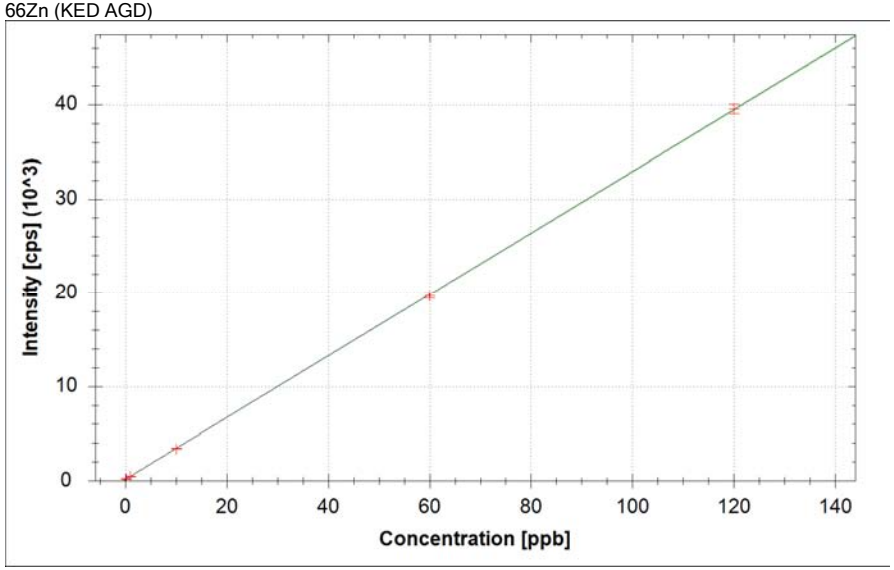
f(x) = 735.8114*x + 108.7347
R² = 1.0000
BEC = 0.148 ppb
LoD = 0.1470 ppb

65Cu (KED AGD)



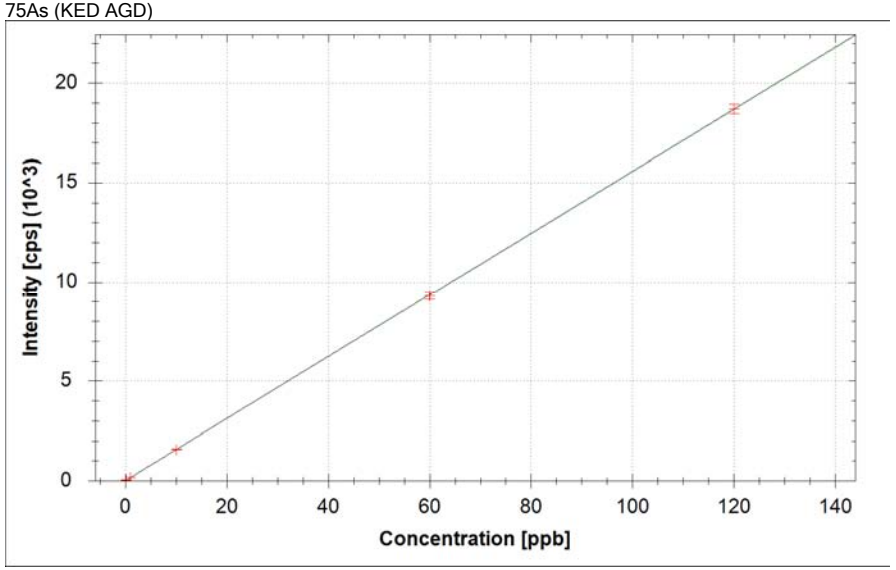
f(x) = 1091.5440*x + 68.9057
R² = 1.0000
BEC = 0.063 ppb
LoD = 0.0117 ppb

66Zn (KED AGD)



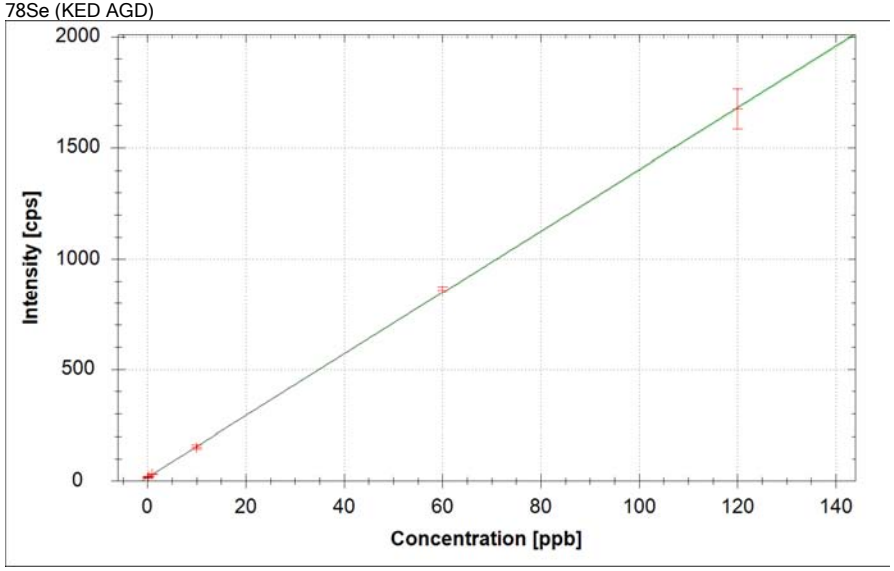
f(x) = 327.4271*x + 170.2332
R² = 1.0000
BEC = 0.520 ppb
LoD = 0.0433 ppb

75As (KED AGD)



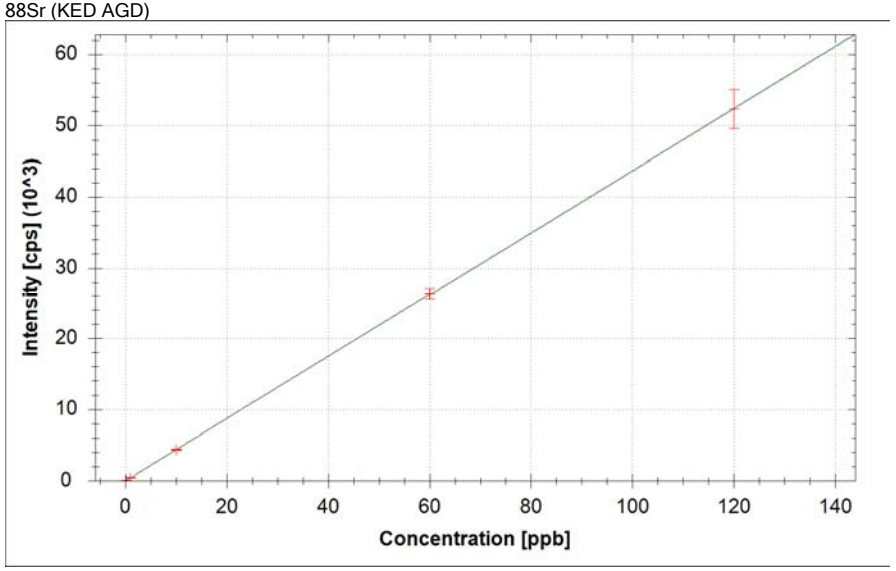
f(x) = 155.4943*x + 12.5048
R² = 1.0000
BEC = 0.080 ppb
LoD = 0.0332 ppb

78Se (KED AGD)



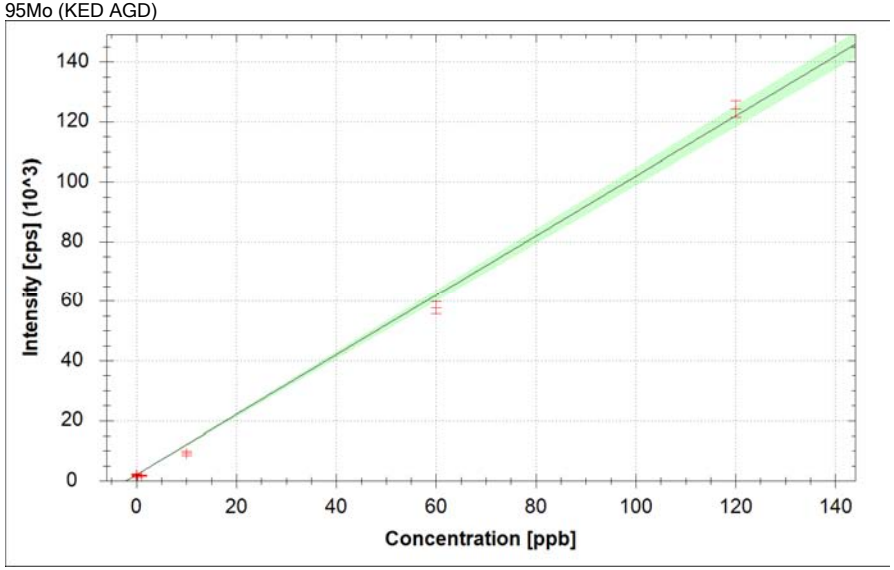
f(x) = 13.8691*x + 15.2251
R² = 0.9999
BEC = 1.098 ppb
LoD = 0.5846 ppb

88Sr (KED AGD)



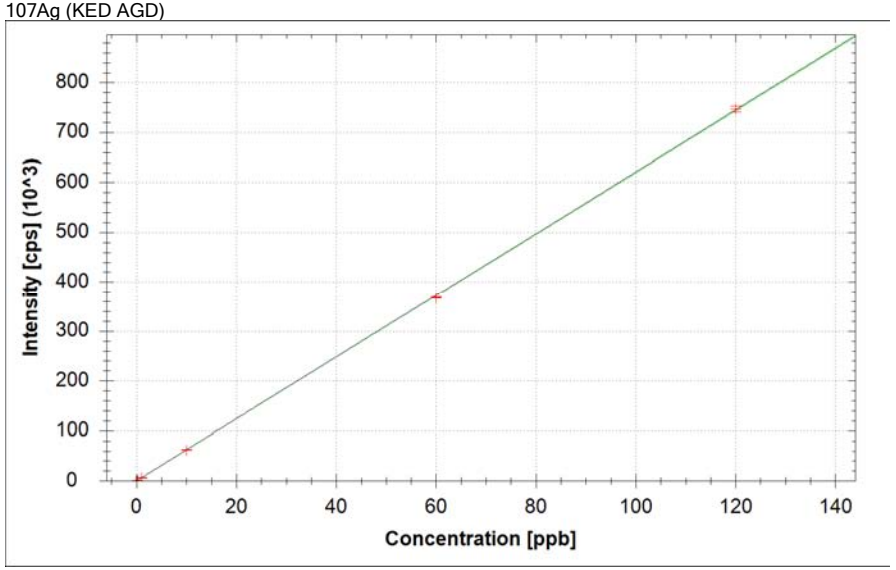
f(x) = 436.4436*x + 13.3785
R² = 1.0000
BEC = 0.031 ppb
LoD = 0.0037 ppb

95Mo (KED AGD)



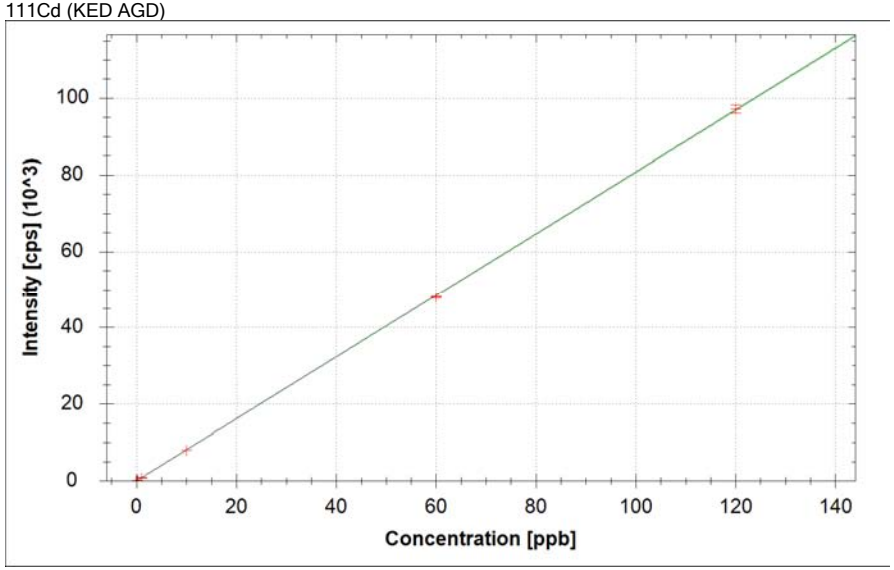
f(x) = 998.2616*x + 2042.7710
R² = 0.9972
BEC = 2.046 ppb
LoD = 0.7372 ppb

107Ag (KED AGD)



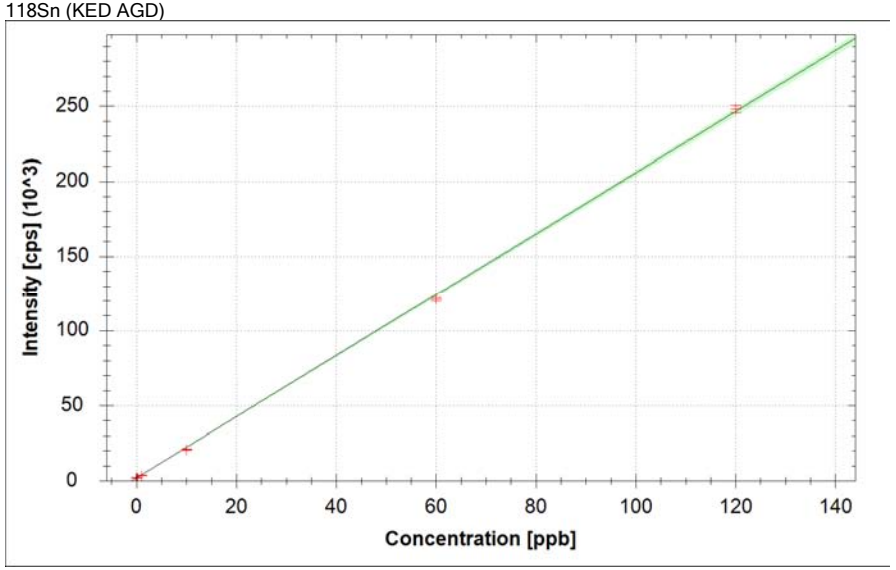
f(x) = 6205.3762*x + 22.2627
R² = 0.9999
BEC = 0.004 ppb
LoD = 0.0057 ppb

111Cd (KED AGD)



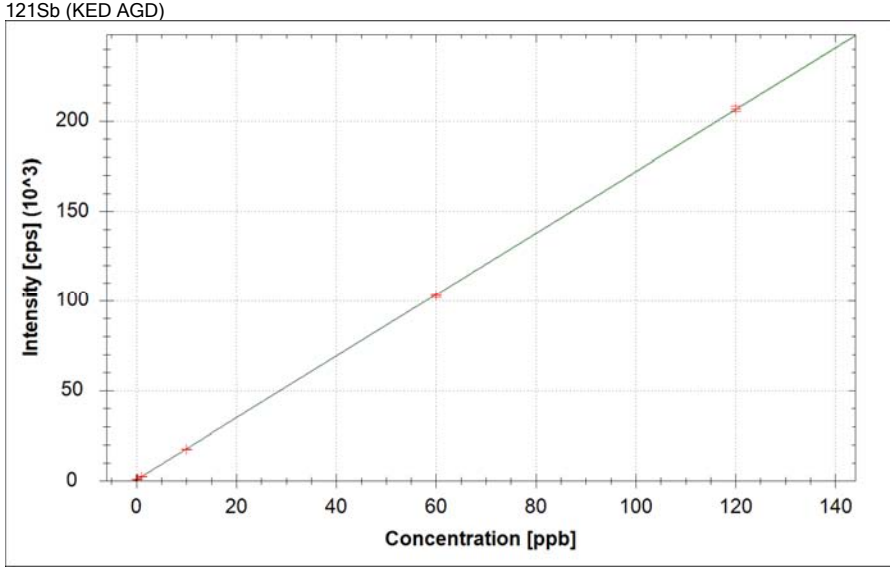
f(x) = 807.4643*x + 1.7744
R² = 1.0000
BEC = 0.002 ppb
LoD = 0.0028 ppb

118Sn (KED AGD)



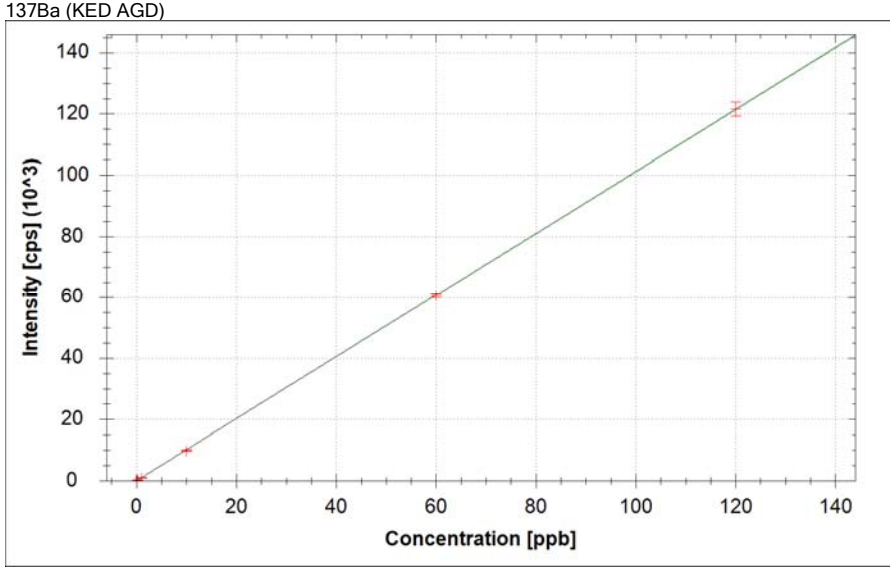
f(x) = 2036.6913*x + 1912.6894
R² = 0.9997
BEC = 0.939 ppb
LoD = 0.2850 ppb

121Sb (KED AGD)



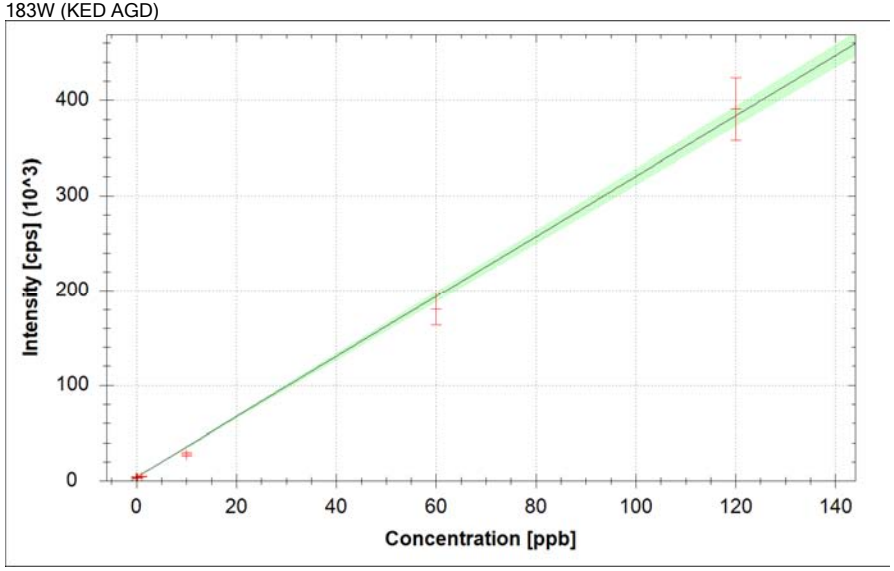
f(x) = 1714.4575*x + 571.1771
R² = 1.0000
BEC = 0.333 ppb
LoD = 0.1113 ppb

137Ba (KED AGD)



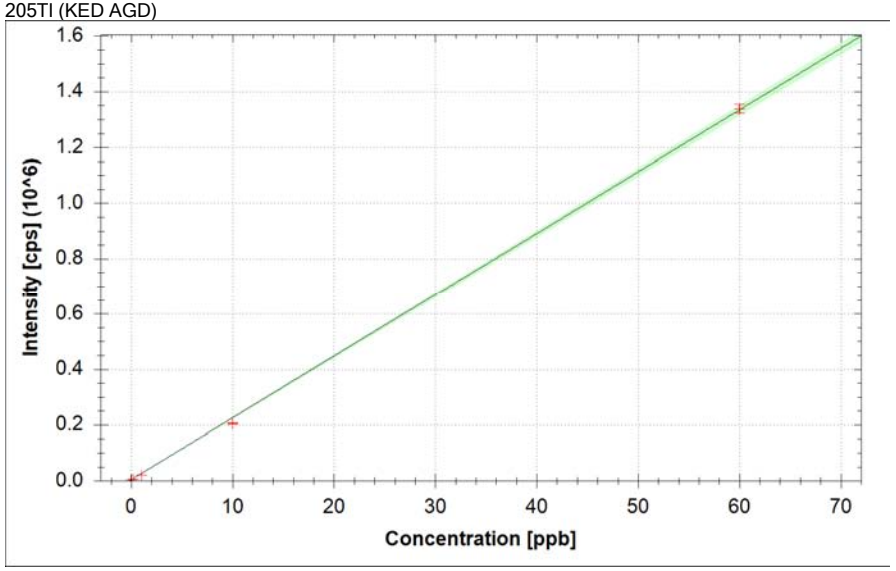
f(x) = 1011.5401*x + 21.1043
R² = 1.0000
BEC = 0.021 ppb
LoD = 0.0113 ppb

183W (KED AGD)



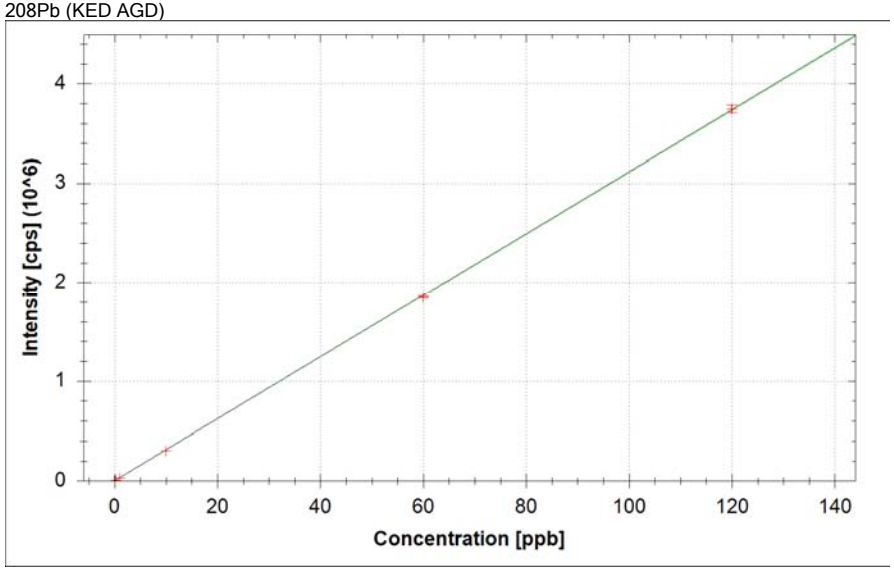
f(x) = 3163.5012*x + 3735.4186
R² = 0.9976
BEC = 1.181 ppb
LoD = 0.6554 ppb

205TI (KED AGD)



f(x) = 22158.7936*x + 4107.6522
R² = 0.9996
BEC = 0.185 ppb
LoD = 0.0432 ppb

208Pb (KED AGD)



f(x) = 31129.5985*x + 502.2104
R² = 1.0000
BEC = 0.016 ppb
LoD = 0.0060 ppb

Standards:

Analysis Index: 2
Analysis Name: 0.2/20 Cal
Analysis Type: STD
Analysis Started at: 3/31/2020 9:07:13 PM
Standard (Stock): Calibration Standard 6020/2008
Standard DF: 50000

Category	Concentration average	Concentration RSD	Standard Concentration
6Li (STD AGD)	101.128 %	0.6 %	
6Li (KED AGD)	97.358 %	4.7 %	
9Be (STD AGD)	0.190 ppb	15.2 %	0.200 ppb
23Na (KED AGD)	18.831 ppb	5.3 %	20.000 ppb
24Mg (KED AGD)	19.441 ppb	14.2 %	20.000 ppb
27Al (KED AGD)	1.731 ppb	9.7 %	0.200 ppb
39K (KED AGD)	16.966 ppb	18.2 %	20.000 ppb
44Ca (KED AGD)	23.965 ppb	8.2 %	20.000 ppb
45Sc (STD AGD)	105.591 %	1.2 %	
48Ti (KED AGD)	0.179 ppb	20.0 %	0.200 ppb
51V (KED AGD)	0.152 ppb	11.4 %	0.200 ppb
52Cr (KED AGD)	0.026 ppb	36.0 %	0.200 ppb
55Mn (KED AGD)	0.183 ppb	34.1 %	0.200 ppb
57Fe (KED AGD)	15.349 ppb	15.3 %	20.000 ppb
59Co (KED AGD)	0.193 ppb	17.0 %	0.200 ppb
60Ni (KED AGD)	0.093 ppb	28.6 %	0.200 ppb
65Cu (KED AGD)	0.185 ppb	2.9 %	0.200 ppb
66Zn (KED AGD)	0.137 ppb	27.8 %	0.200 ppb
74Ge (KED AGD)	99.430 %	0.6 %	
75As (KED AGD)	0.239 ppb	13.9 %	0.200 ppb
78Se (KED AGD)	0.319 ppb	38.6 %	0.200 ppb
88Sr (KED AGD)	0.192 ppb	3.5 %	0.200 ppb
95Mo (KED AGD)	-0.490 ppb	73.0 %	0.200 ppb
103Rh (KED AGD)	100.543 %	1.1 %	
107Ag (KED AGD)	0.182 ppb	11.3 %	0.200 ppb
111Cd (KED AGD)	0.198 ppb	6.5 %	0.200 ppb
115In (KED AGD)	99.312 %	0.5 %	
118Sn (KED AGD)	0.178 ppb	19.2 %	0.200 ppb
121Sb (KED AGD)	0.252 ppb	1.8 %	0.200 ppb
137Ba (KED AGD)	0.180 ppb	24.2 %	0.200 ppb
159Tb (KED AGD)	100.003 %	0.9 %	
175Lu (KED AGD)	95.548 %	0.3 %	
183W (KED AGD)	-0.201 ppb	64.2 %	0.200 ppb
205Tl (KED AGD)	0.088 ppb	16.0 %	0.200 ppb
208Pb (KED AGD)	0.174 ppb	2.5 %	0.200 ppb
209Bi (KED AGD)	99.054 %	1.1 %	

Standards:

Analysis Index: 3
Analysis Name: 1/100 Cal
Analysis Type: STD
Analysis Started at: 3/31/2020 9:12:18 PM
Standard (Stock): Calibration Standard 6020/2008
Standard DF: 10000

Category	Concentration average	Concentration RSD	Standard Concentration
6Li (STD AGD)	101.114 %	0.5 %	
6Li (KED AGD)	98.938 %	0.6 %	
9Be (STD AGD)	1.088 ppb	7.8 %	1.000 ppb
23Na (KED AGD)	90.715 ppb	4.6 %	100.000 ppb
24Mg (KED AGD)	92.981 ppb	5.5 %	100.000 ppb
27Al (KED AGD)	2.109 ppb	8.7 %	1.000 ppb
39K (KED AGD)	92.267 ppb	7.0 %	100.000 ppb
44Ca (KED AGD)	107.141 ppb	11.9 %	100.000 ppb
45Sc (STD AGD)	105.460 %	0.1 %	
48Ti (KED AGD)	0.817 ppb	2.1 %	1.000 ppb
51V (KED AGD)	1.043 ppb	1.5 %	1.000 ppb
52Cr (KED AGD)	0.837 ppb	2.3 %	1.000 ppb
55Mn (KED AGD)	0.945 ppb	5.9 %	1.000 ppb
57Fe (KED AGD)	91.314 ppb	7.2 %	100.000 ppb
59Co (KED AGD)	1.035 ppb	2.8 %	1.000 ppb
60Ni (KED AGD)	0.905 ppb	3.7 %	1.000 ppb
65Cu (KED AGD)	1.026 ppb	5.5 %	1.000 ppb
66Zn (KED AGD)	0.918 ppb	11.4 %	1.000 ppb
74Ge (KED AGD)	98.674 %	0.6 %	
75As (KED AGD)	1.000 ppb	4.7 %	1.000 ppb
78Se (KED AGD)	1.082 ppb	10.2 %	1.000 ppb
88Sr (KED AGD)	0.937 ppb	2.8 %	1.000 ppb
95Mo (KED AGD)	-0.327 ppb	47.3 %	1.000 ppb
103Rh (KED AGD)	100.120 %	0.3 %	
107Ag (KED AGD)	0.993 ppb	3.4 %	1.000 ppb
111Cd (KED AGD)	0.975 ppb	6.2 %	1.000 ppb
115In (KED AGD)	100.311 %	1.5 %	
118Sn (KED AGD)	0.781 ppb	15.0 %	1.000 ppb
121Sb (KED AGD)	1.027 ppb	3.0 %	1.000 ppb
137Ba (KED AGD)	0.931 ppb	6.1 %	1.000 ppb
159Tb (KED AGD)	100.466 %	0.3 %	
175Lu (KED AGD)	105.618 %	8.2 %	
183W (KED AGD)	0.199 ppb	49.6 %	1.000 ppb
205Tl (KED AGD)	0.756 ppb	3.2 %	1.000 ppb
208Pb (KED AGD)	0.950 ppb	1.2 %	1.000 ppb
209Bi (KED AGD)	99.658 %	0.7 %	

Standards:

Analysis Index: 4
Analysis Name: 10/1000 Cal
Analysis Type: STD
Analysis Started at: 3/31/2020 9:17:23 PM
Standard (Stock): Calibration Standard 6020/2008
Standard DF: 1000

Category	Concentration average	Concentration RSD	Standard Concentration
6Li (STD AGD)	99.354 %	0.2 %	
6Li (KED AGD)	100.354 %	0.9 %	
9Be (STD AGD)	10.173 ppb	2.0 %	10.000 ppb
23Na (KED AGD)	961.205 ppb	1.0 %	1,000.000 ppb
24Mg (KED AGD)	978.979 ppb	3.3 %	1,000.000 ppb
27Al (KED AGD)	10.729 ppb	1.1 %	10.000 ppb
39K (KED AGD)	1,004.776 ppb	0.8 %	1,000.000 ppb
44Ca (KED AGD)	994.594 ppb	1.5 %	1,000.000 ppb
45Sc (STD AGD)	101.046 %	0.2 %	
48Ti (KED AGD)	9.871 ppb	5.5 %	10.000 ppb
51V (KED AGD)	9.949 ppb	3.8 %	10.000 ppb
52Cr (KED AGD)	9.807 ppb	0.7 %	10.000 ppb
55Mn (KED AGD)	9.989 ppb	2.7 %	10.000 ppb
57Fe (KED AGD)	955.980 ppb	1.1 %	1,000.000 ppb
59Co (KED AGD)	10.064 ppb	0.4 %	10.000 ppb
60Ni (KED AGD)	10.157 ppb	4.1 %	10.000 ppb
65Cu (KED AGD)	9.742 ppb	2.8 %	10.000 ppb
66Zn (KED AGD)	9.809 ppb	1.1 %	10.000 ppb
74Ge (KED AGD)	98.907 %	0.7 %	
75As (KED AGD)	10.045 ppb	1.7 %	10.000 ppb
78Se (KED AGD)	9.850 ppb	6.8 %	10.000 ppb
88Sr (KED AGD)	9.967 ppb	1.4 %	10.000 ppb
95Mo (KED AGD)	7.076 ppb	8.7 %	10.000 ppb
103Rh (KED AGD)	100.784 %	0.8 %	
107Ag (KED AGD)	9.935 ppb	1.1 %	10.000 ppb
111Cd (KED AGD)	9.865 ppb	0.9 %	10.000 ppb
115In (KED AGD)	100.947 %	0.1 %	
118Sn (KED AGD)	9.252 ppb	1.7 %	10.000 ppb
121Sb (KED AGD)	9.903 ppb	0.9 %	10.000 ppb
137Ba (KED AGD)	9.696 ppb	2.8 %	10.000 ppb
159Tb (KED AGD)	101.283 %	0.8 %	
175Lu (KED AGD)	105.519 %	7.5 %	
183W (KED AGD)	7.593 ppb	6.8 %	10.000 ppb
205Tl (KED AGD)	9.028 ppb	1.9 %	10.000 ppb
208Pb (KED AGD)	9.645 ppb	0.5 %	10.000 ppb
209Bi (KED AGD)	99.830 %	0.5 %	

Standards:

Analysis Index: 5
Analysis Name: 60/6000 Cal
Analysis Type: STD
Analysis Started at: 3/31/2020 9:22:29 PM
Standard (Stock): Calibration Standard 6020/2008
Standard DF: 166.6666666

Category	Concentration average	Concentration RSD	Standard Concentration
6Li (STD AGD)	99.080 %	0.4 %	
6Li (KED AGD)	99.505 %	3.0 %	
9Be (STD AGD)	60.516 ppb	0.6 %	60.000 ppb
23Na (KED AGD)	5,800.099 ppb	1.4 %	6,000.000 ppb
24Mg (KED AGD)	5,864.391 ppb	2.6 %	6,000.000 ppb
27Al (KED AGD)	59.793 ppb	4.1 %	60.000 ppb
39K (KED AGD)	6,039.426 ppb	1.9 %	6,000.000 ppb
44Ca (KED AGD)	6,111.201 ppb	1.4 %	6,000.000 ppb
45Sc (STD AGD)	107.453 %	1.2 %	
48Ti (KED AGD)	59.259 ppb	1.3 %	60.000 ppb
51V (KED AGD)	59.033 ppb	1.4 %	60.000 ppb
52Cr (KED AGD)	59.367 ppb	1.0 %	60.000 ppb
55Mn (KED AGD)	59.141 ppb	1.4 %	60.000 ppb
57Fe (KED AGD)	5,837.647 ppb	1.4 %	6,000.000 ppb
59Co (KED AGD)	59.337 ppb	2.2 %	60.000 ppb
60Ni (KED AGD)	59.517 ppb	1.9 %	60.000 ppb
65Cu (KED AGD)	59.536 ppb	1.3 %	60.000 ppb
66Zn (KED AGD)	59.533 ppb	1.1 %	60.000 ppb
74Ge (KED AGD)	98.062 %	2.0 %	
75As (KED AGD)	59.776 ppb	2.1 %	60.000 ppb
78Se (KED AGD)	60.770 ppb	1.9 %	60.000 ppb
88Sr (KED AGD)	60.256 ppb	2.9 %	60.000 ppb
95Mo (KED AGD)	55.741 ppb	3.8 %	60.000 ppb
103Rh (KED AGD)	98.026 %	0.2 %	
107Ag (KED AGD)	59.288 ppb	0.4 %	60.000 ppb
111Cd (KED AGD)	59.363 ppb	0.6 %	60.000 ppb
115In (KED AGD)	100.967 %	1.8 %	
118Sn (KED AGD)	58.415 ppb	1.0 %	60.000 ppb
121Sb (KED AGD)	59.590 ppb	0.8 %	60.000 ppb
137Ba (KED AGD)	59.723 ppb	0.9 %	60.000 ppb
159Tb (KED AGD)	99.642 %	0.6 %	
175Lu (KED AGD)	100.858 %	9.2 %	
183W (KED AGD)	55.793 ppb	9.5 %	60.000 ppb
205Tl (KED AGD)	60.166 ppb	1.2 %	60.000 ppb
208Pb (KED AGD)	59.487 ppb	0.6 %	60.000 ppb
209Bi (KED AGD)	97.078 %	0.5 %	

Standards:

Analysis Index: 6
Analysis Name: 120/12000 Cal
Analysis Type: STD
Analysis Started at: 3/31/2020 9:27:35 PM
Standard (Stock): Calibration Standard 6020/2008
Standard DF: 83.33333333

Category	Concentration average	Concentration RSD	Standard Concentration
6Li (STD AGD)	96.507 %	2.1 %	
6Li (KED AGD)	93.135 %	1.3 %	
9Be (STD AGD)	119.727 ppb	1.5 %	120.000 ppb
23Na (KED AGD)	12,103.262 ppb	4.5 %	12,000.000 ppb
24Mg (KED AGD)	12,069.615 ppb	4.3 %	12,000.000 ppb
27Al (KED AGD)	120.031 ppb	8.8 %	120.000 ppb
39K (KED AGD)	11,979.958 ppb	6.6 %	12,000.000 ppb
44Ca (KED AGD)	11,944.784 ppb	6.7 %	12,000.000 ppb
45Sc (STD AGD)	105.274 %	2.1 %	
48Ti (KED AGD)	120.383 ppb	6.6 %	120.000 ppb
51V (KED AGD)	120.488 ppb	1.6 %	120.000 ppb
52Cr (KED AGD)	120.334 ppb	2.5 %	120.000 ppb
55Mn (KED AGD)	120.431 ppb	4.5 %	120.000 ppb
57Fe (KED AGD)	12,084.925 ppb	2.1 %	12,000.000 ppb
59Co (KED AGD)	120.326 ppb	0.8 %	120.000 ppb
60Ni (KED AGD)	120.229 ppb	1.9 %	120.000 ppb
65Cu (KED AGD)	120.253 ppb	2.0 %	120.000 ppb
66Zn (KED AGD)	120.250 ppb	1.3 %	120.000 ppb
74Ge (KED AGD)	94.951 %	3.3 %	
75As (KED AGD)	120.108 ppb	1.2 %	120.000 ppb
78Se (KED AGD)	119.627 ppb	5.4 %	120.000 ppb
88Sr (KED AGD)	119.875 ppb	5.3 %	120.000 ppb
95Mo (KED AGD)	122.385 ppb	2.3 %	120.000 ppb
103Rh (KED AGD)	94.021 %	1.0 %	
107Ag (KED AGD)	120.362 ppb	0.8 %	120.000 ppb
111Cd (KED AGD)	120.330 ppb	1.1 %	120.000 ppb
115In (KED AGD)	95.967 %	4.3 %	
118Sn (KED AGD)	120.856 ppb	1.0 %	120.000 ppb
121Sb (KED AGD)	120.213 ppb	0.7 %	120.000 ppb
137Ba (KED AGD)	120.165 ppb	1.9 %	120.000 ppb
159Tb (KED AGD)	96.851 %	2.2 %	
175Lu (KED AGD)	96.072 %	10.8 %	
183W (KED AGD)	122.311 ppb	8.5 %	120.000 ppb
205Tl (KED AGD)	144.908 ppb	1.2 %	120.000 ppb
208Pb (KED AGD)	120.287 ppb	1.0 %	120.000 ppb
209Bi (KED AGD)	94.680 %	1.9 %	

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 1
Analysis label: Blank MG ICPMSQ
Analysis started at: 3/31/2020 9:02:05 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	100.000 %	100.000 %	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	100.000 %
Concentration per Run	100.000 %	100.000 %	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	100.000 %
Concentration RSD	0.0 %	0.0 %	0.5 %	0.0 %	0.2 %	0.2 %	0.1 %	0.2 %	0.0 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb
Concentration per Run	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb
Concentration RSD	0.1 %	0.1 %	0.1 %	0.3 %	0.1 %	1.1 %	0.3 %	0.1 %	0.0 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	100.000 %	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	100.000 %	0.000 ppb	0.000 ppb	100.000 %
Concentration per Run	100.000 %	0.000 ppb	0.000 ppb	0.000 ppb	0.000 ppb	100.000 %	0.000 ppb	0.000 ppb	100.000 %
Concentration RSD	0.0 %	0.1 %	0.2 %	0.0 %	0.1 %	0.0 %	0.5 %	0.4 %	0.0 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.000 ppb	0.000 ppb	0.000 ppb	100.000 %	100.000 %	0.000 ppb	0.000 ppb	0.000 ppb	100.000 %
Concentration per Run	0.000 ppb	0.000 ppb	0.000 ppb	100.000 %	100.000 %	0.000 ppb	0.000 ppb	0.000 ppb	100.000 %
Concentration RSD	0.1 %	0.1 %	0.2 %	0.0 %	0.1 %	0.2 %	0.1 %	0.1 %	0.0 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 2
Analysis label: 0.2/20 Cal
Analysis started at: 3/31/2020 9:07:13 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	101.128 %	97.358 %	0.190 ppb	18.831 ppb	19.441 ppb	1.731 ppb	16.966 ppb	23.965 ppb	105.591 %
Concentration per Run 1	101.797 %	92.498 %	0.163 ppb	19.913 ppb	22.243 ppb	1.733 ppb	18.239 ppb	25.174 ppb	104.254 %
Concentration per Run 2	100.634 %	98.018 %	0.187 ppb	17.947 ppb	19.373 ppb	1.899 ppb	19.212 ppb	21.709 ppb	106.826 %
Concentration per Run 3	100.953 %	101.557 %	0.220 ppb	18.635 ppb	16.708 ppb	1.562 ppb	13.448 ppb	25.013 ppb	105.694 %
Concentration RSD	0.6 %	4.7 %	15.2 %	5.3 %	14.2 %	9.7 %	18.2 %	8.2 %	1.2 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.179 ppb	0.152 ppb	0.026 ppb	0.183 ppb	15.349 ppb	0.193 ppb	0.093 ppb	0.185 ppb	0.137 ppb
Concentration per Run 1	0.166 ppb	0.172 ppb	0.037 ppb	0.254 ppb	12.680 ppb	0.169 ppb	0.083 ppb	0.191 ppb	0.174 ppb
Concentration per Run 2	0.220 ppb	0.142 ppb	0.018 ppb	0.138 ppb	17.123 ppb	0.230 ppb	0.073 ppb	0.184 ppb	0.140 ppb
Concentration per Run 3	0.152 ppb	0.142 ppb	0.024 ppb	0.156 ppb	16.245 ppb	0.178 ppb	0.123 ppb	0.181 ppb	0.098 ppb
Concentration RSD	20.0 %	11.4 %	36.0 %	34.1 %	15.3 %	17.0 %	28.6 %	2.9 %	27.8 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	99.430 %	0.239 ppb	0.319 ppb	0.192 ppb	-0.490 ppb	100.543 %	0.182 ppb	0.198 ppb	99.312 %
Concentration per Run 1	99.394 %	0.227 ppb	0.278 ppb	0.199 ppb	-0.871 ppb	100.976 %	0.160 ppb	0.184 ppb	98.895 %
Concentration per Run 2	98.884 %	0.277 ppb	0.457 ppb	0.190 ppb	-0.437 ppb	99.297 %	0.187 ppb	0.201 ppb	99.228 %
Concentration per Run 3	100.014 %	0.214 ppb	0.221 ppb	0.186 ppb	-0.161 ppb	101.355 %	0.200 ppb	0.208 ppb	99.814 %
Concentration RSD	0.6 %	13.9 %	38.6 %	3.5 %	73.0 %	1.1 %	11.3 %	6.5 %	0.5 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.178 ppb	0.252 ppb	0.180 ppb	100.003 %	95.548 %	-0.201 ppb	0.088 ppb	0.174 ppb	99.054 %
Concentration per Run 1	0.203 ppb	0.247 ppb	0.227 ppb	100.713 %	95.440 %	-0.335 ppb	0.073 ppb	0.178 ppb	99.145 %
Concentration per Run 2	0.139 ppb	0.256 ppb	0.141 ppb	100.292 %	95.306 %	-0.188 ppb	0.091 ppb	0.175 ppb	97.878 %
Concentration per Run 3	0.191 ppb	0.253 ppb	0.171 ppb	99.004 %	95.898 %	-0.078 ppb	0.101 ppb	0.169 ppb	100.138 %
Concentration RSD	19.2 %	1.8 %	24.2 %	0.9 %	0.3 %	64.2 %	16.0 %	2.5 %	1.1 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 3
Analysis label: 1/100 Cal
Analysis started at: 3/31/2020 9:12:18 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	101.114 %	98.938 %	1.088 ppb	90.715 ppb	92.981 ppb	2.109 ppb	92.267 ppb	107.141 ppb	105.460 %
Concentration per Run 1	101.640 %	98.726 %	1.042 ppb	85.899 ppb	87.180 ppb	2.207 ppb	99.320 ppb	95.828 ppb	105.498 %
Concentration per Run 2	101.069 %	99.575 %	1.035 ppb	92.975 ppb	94.797 ppb	2.224 ppb	86.572 ppb	121.012 ppb	105.518 %
Concentration per Run 3	100.634 %	98.514 %	1.186 ppb	93.272 ppb	96.966 ppb	1.897 ppb	90.908 ppb	104.583 ppb	105.363 %
Concentration RSD	0.5 %	0.6 %	7.8 %	4.6 %	5.5 %	8.7 %	7.0 %	11.9 %	0.1 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.817 ppb	1.043 ppb	0.837 ppb	0.945 ppb	91.314 ppb	1.035 ppb	0.905 ppb	1.026 ppb	0.918 ppb
Concentration per Run 1	0.831 ppb	1.044 ppb	0.825 ppb	0.994 ppb	97.469 ppb	1.011 ppb	0.942 ppb	0.961 ppb	1.023 ppb
Concentration per Run 2	0.798 ppb	1.059 ppb	0.828 ppb	0.955 ppb	84.365 ppb	1.067 ppb	0.876 ppb	1.053 ppb	0.919 ppb
Concentration per Run 3	0.823 ppb	1.028 ppb	0.860 ppb	0.884 ppb	92.107 ppb	1.028 ppb	0.896 ppb	1.064 ppb	0.813 ppb
Concentration RSD	2.1 %	1.5 %	2.3 %	5.9 %	7.2 %	2.8 %	3.7 %	5.5 %	11.4 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	98.674 %	1.000 ppb	1.082 ppb	0.937 ppb	-0.327 ppb	100.120 %	0.993 ppb	0.975 ppb	100.311 %
Concentration per Run 1	99.037 %	1.012 ppb	1.157 ppb	0.967 ppb	-0.330 ppb	99.835 %	1.031 ppb	0.949 ppb	98.557 %
Concentration per Run 2	98.953 %	0.948 ppb	1.133 ppb	0.917 ppb	-0.481 ppb	100.144 %	0.977 ppb	0.932 ppb	101.104 %
Concentration per Run 3	98.031 %	1.039 ppb	0.955 ppb	0.926 ppb	-0.171 ppb	100.380 %	0.970 ppb	1.044 ppb	101.272 %
Concentration RSD	0.6 %	4.7 %	10.2 %	2.8 %	47.3 %	0.3 %	3.4 %	6.2 %	1.5 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.781 ppb	1.027 ppb	0.931 ppb	100.466 %	105.618 %	0.199 ppb	0.756 ppb	0.950 ppb	99.658 %
Concentration per Run 1	0.646 ppb	1.000 ppb	0.866 ppb	100.692 %	110.361 %	0.104 ppb	0.735 ppb	0.953 ppb	99.670 %
Concentration per Run 2	0.851 ppb	1.023 ppb	0.960 ppb	100.555 %	95.599 %	0.301 ppb	0.782 ppb	0.960 ppb	98.992 %
Concentration per Run 3	0.847 ppb	1.060 ppb	0.967 ppb	100.150 %	110.895 %	0.193 ppb	0.749 ppb	0.938 ppb	100.313 %
Concentration RSD	15.0 %	3.0 %	6.1 %	0.3 %	8.2 %	49.6 %	3.2 %	1.2 %	0.7 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 4
Analysis label: 10/1000 Cal
Analysis started at: 3/31/2020 9:17:23 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	99.354 %	100.354 %	10.173 ppb	961.205 ppb	978.979 ppb	10.729 ppb	1,004.776 ppb	994.594 ppb	101.046 %
Concentration per Run 1	99.527 %	99.292 %	10.111 ppb	972.063 ppb	962.808 ppb	10.710 ppb	999.181 ppb	983.063 ppb	100.854 %
Concentration per Run 2	99.110 %	100.637 %	10.004 ppb	955.197 ppb	957.860 ppb	10.855 ppb	1,001.306 ppb	988.942 ppb	101.045 %
Concentration per Run 3	99.426 %	101.132 %	10.403 ppb	956.355 ppb	1,016.269 ppb	10.621 ppb	1,013.841 ppb	1,011.778 ppb	101.240 %
Concentration RSD	0.2 %	0.9 %	2.0 %	1.0 %	3.3 %	1.1 %	0.8 %	1.5 %	0.2 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	9.871 ppb	9.949 ppb	9.807 ppb	9.989 ppb	955.980 ppb	10.064 ppb	10.157 ppb	9.742 ppb	9.809 ppb
Concentration per Run 1	9.246 ppb	9.877 ppb	9.736 ppb	9.950 ppb	943.368 ppb	10.053 ppb	9.720 ppb	9.432 ppb	9.686 ppb
Concentration per Run 2	10.129 ppb	10.357 ppb	9.868 ppb	10.280 ppb	962.377 ppb	10.032 ppb	10.543 ppb	9.927 ppb	9.902 ppb
Concentration per Run 3	10.239 ppb	9.612 ppb	9.818 ppb	9.738 ppb	962.195 ppb	10.105 ppb	10.207 ppb	9.866 ppb	9.837 ppb
Concentration RSD	5.5 %	3.8 %	0.7 %	2.7 %	1.1 %	0.4 %	4.1 %	2.8 %	1.1 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	98.907 %	10.045 ppb	9.850 ppb	9.967 ppb	7.076 ppb	100.784 %	9.935 ppb	9.865 ppb	100.947 %
Concentration per Run 1	98.470 %	9.923 ppb	10.615 ppb	10.106 ppb	7.488 ppb	101.640 %	10.009 ppb	9.849 ppb	100.941 %
Concentration per Run 2	98.495 %	10.242 ppb	9.372 ppb	9.971 ppb	7.370 ppb	100.045 %	9.981 ppb	9.960 ppb	101.002 %
Concentration per Run 3	99.756 %	9.969 ppb	9.562 ppb	9.824 ppb	6.370 ppb	100.665 %	9.815 ppb	9.785 ppb	100.899 %
Concentration RSD	0.7 %	1.7 %	6.8 %	1.4 %	8.7 %	0.8 %	1.1 %	0.9 %	0.1 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	9.252 ppb	9.903 ppb	9.696 ppb	101.283 %	105.519 %	7.593 ppb	9.028 ppb	9.645 ppb	99.830 %
Concentration per Run 1	9.253 ppb	9.935 ppb	9.745 ppb	102.140 %	110.243 %	7.514 ppb	8.858 ppb	9.598 ppb	99.706 %
Concentration per Run 2	9.094 ppb	9.973 ppb	9.943 ppb	100.681 %	96.335 %	8.148 ppb	9.032 ppb	9.634 ppb	100.407 %
Concentration per Run 3	9.409 ppb	9.802 ppb	9.399 ppb	101.028 %	109.978 %	7.118 ppb	9.193 ppb	9.702 ppb	99.378 %
Concentration RSD	1.7 %	0.9 %	2.8 %	0.8 %	7.5 %	6.8 %	1.9 %	0.5 %	0.5 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 5
Analysis label: 60/6000 Cal
Analysis started at: 3/31/2020 9:22:29 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	99.080 %	99.505 %	60.516 ppb	5,800.099 ppb	5,864.391 ppb	59.793 ppb	6,039.426 ppb	6,111.201 ppb	107.453 %
Concentration per Run 1	99.018 %	97.098 %	60.076 ppb	5,889.468 ppb	5,966.997 ppb	56.941 ppb	5,992.892 ppb	6,027.607 ppb	106.367 %
Concentration per Run 2	98.736 %	98.585 %	60.646 ppb	5,740.799 ppb	5,686.268 ppb	61.030 ppb	5,953.142 ppb	6,112.206 ppb	108.880 %
Concentration per Run 3	99.486 %	102.831 %	60.826 ppb	5,770.032 ppb	5,939.909 ppb	61.408 ppb	6,172.245 ppb	6,193.788 ppb	107.111 %
Concentration RSD	0.4 %	3.0 %	0.6 %	1.4 %	2.6 %	4.1 %	1.9 %	1.4 %	1.2 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	59.259 ppb	59.033 ppb	59.367 ppb	59.141 ppb	5,837.647 ppb	59.337 ppb	59.517 ppb	59.536 ppb	59.533 ppb
Concentration per Run 1	58.453 ppb	58.322 ppb	59.972 ppb	59.053 ppb	5,869.060 ppb	60.680 ppb	60.629 ppb	59.887 ppb	59.389 ppb
Concentration per Run 2	59.929 ppb	59.976 ppb	59.310 ppb	58.344 ppb	5,747.489 ppb	58.083 ppb	59.502 ppb	60.088 ppb	60.278 ppb
Concentration per Run 3	59.394 ppb	58.800 ppb	58.820 ppb	60.026 ppb	5,896.391 ppb	59.248 ppb	58.421 ppb	58.634 ppb	58.932 ppb
Concentration RSD	1.3 %	1.4 %	1.0 %	1.4 %	1.4 %	2.2 %	1.9 %	1.3 %	1.1 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	98.062 %	59.776 ppb	60.770 ppb	60.256 ppb	55.741 ppb	98.026 %	59.288 ppb	59.363 ppb	100.967 %
Concentration per Run 1	96.287 %	58.341 ppb	59.488 ppb	60.074 ppb	58.023 ppb	98.265 %	59.563 ppb	59.604 ppb	100.559 %
Concentration per Run 2	97.678 %	60.324 ppb	61.733 ppb	58.613 ppb	55.302 ppb	97.838 %	59.260 ppb	58.948 ppb	99.351 %
Concentration per Run 3	100.220 %	60.662 ppb	61.089 ppb	62.083 ppb	53.898 ppb	97.975 %	59.040 ppb	59.537 ppb	102.990 %
Concentration RSD	2.0 %	2.1 %	1.9 %	2.9 %	3.8 %	0.2 %	0.4 %	0.6 %	1.8 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	58.415 ppb	59.590 ppb	59.723 ppb	99.642 %	100.858 %	55.793 ppb	60.166 ppb	59.487 ppb	97.078 %
Concentration per Run 1	58.154 ppb	59.170 ppb	59.103 ppb	99.329 %	95.569 %	59.634 ppb	60.603 ppb	59.783 ppb	97.655 %
Concentration per Run 2	59.067 ppb	60.083 ppb	59.880 ppb	99.239 %	95.483 %	57.983 ppb	60.546 ppb	59.620 ppb	96.800 %
Concentration per Run 3	58.026 ppb	59.517 ppb	60.186 ppb	100.356 %	111.522 %	49.763 ppb	59.350 ppb	59.058 ppb	96.780 %
Concentration RSD	1.0 %	0.8 %	0.9 %	0.6 %	9.2 %	9.5 %	1.2 %	0.6 %	0.5 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 6
Analysis label: 120/12000 Cal
Analysis started at: 3/31/2020 9:27:35 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	96.507 %	93.135 %	119.727 ppb	12,103.262 ppb	12,069.615 ppb	120.031 ppb	11,979.958 ppb	11,944.784 ppb	105.274 %
Concentration per Run 1	98.334 %	93.064 %	118.317 ppb	12,159.385 ppb	12,057.567 ppb	118.671 ppb	11,785.583 ppb	11,571.026 ppb	107.181 %
Concentration per Run 2	96.876 %	92.003 %	119.185 ppb	12,619.533 ppb	12,592.919 ppb	131.222 ppb	12,845.999 ppb	12,859.059 ppb	105.715 %
Concentration per Run 3	94.312 %	94.338 %	121.678 ppb	11,530.870 ppb	11,558.361 ppb	110.199 ppb	11,308.293 ppb	11,404.267 ppb	102.925 %
Concentration RSD	2.1 %	1.3 %	1.5 %	4.5 %	4.3 %	8.8 %	6.6 %	6.7 %	2.1 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	120.383 ppb	120.488 ppb	120.334 ppb	120.431 ppb	12,084.925 ppb	120.326 ppb	120.229 ppb	120.253 ppb	120.250 ppb
Concentration per Run 1	116.831 ppb	118.900 ppb	119.108 ppb	120.785 ppb	12,233.662 ppb	120.131 ppb	122.220 ppb	119.832 ppb	121.214 ppb
Concentration per Run 2	129.446 ppb	122.558 ppb	123.744 ppb	125.671 ppb	12,222.201 ppb	121.374 ppb	120.685 ppb	118.100 ppb	121.061 ppb
Concentration per Run 3	114.872 ppb	120.006 ppb	118.151 ppb	114.836 ppb	11,798.913 ppb	119.472 ppb	117.783 ppb	122.828 ppb	118.476 ppb
Concentration RSD	6.6 %	1.6 %	2.5 %	4.5 %	2.1 %	0.8 %	1.9 %	2.0 %	1.3 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	94.951 %	120.108 ppb	119.627 ppb	119.875 ppb	122.385 ppb	94.021 %	120.362 ppb	120.330 ppb	95.967 %
Concentration per Run 1	94.397 %	118.489 ppb	121.326 ppb	119.631 ppb	124.025 ppb	94.112 %	120.277 ppb	119.262 ppb	94.937 %
Concentration per Run 2	98.299 %	120.436 ppb	125.094 ppb	126.324 ppb	123.964 ppb	94.869 %	119.395 ppb	119.956 ppb	100.546 %
Concentration per Run 3	92.156 %	121.400 ppb	112.460 ppb	113.671 ppb	119.168 ppb	93.083 %	121.414 ppb	121.771 ppb	92.418 %
Concentration RSD	3.3 %	1.2 %	5.4 %	5.3 %	2.3 %	1.0 %	0.8 %	1.1 %	4.3 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	120.856 ppb	120.213 ppb	120.165 ppb	96.851 %	96.072 %	122.311 ppb	144.905 ppb	120.287 ppb	94.680 %
Concentration per Run 1	121.591 ppb	121.228 ppb	121.076 ppb	97.624 %	92.570 %	126.908 ppb	143.947 ppb	119.812 ppb	96.268 %
Concentration per Run 2	119.465 ppb	119.732 ppb	121.792 ppb	98.468 %	107.707 %	110.431 ppb	143.837 ppb	119.337 ppb	94.993 %
Concentration per Run 3	121.513 ppb	119.678 ppb	117.625 ppb	94.462 %	87.939 %	129.595 ppb	146.941 ppb	121.711 ppb	92.780 %
Concentration RSD	1.0 %	0.7 %	1.9 %	2.2 %	10.8 %	8.5 %	1.2 %	1.0 %	1.9 %

Analysis index: 7
Analysis label: Sr 200ppb
Analysis started at: 3/31/2020 9:32:42 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	94.245 %	94.810 %	0.021 ppb	-10.594 ppb	0.775 ppb	3.581 ppb	-1.675 ppb	-9.740 ppb	92.341 %
Concentration per Run 1	93.738 %	97.806 %	0.015 ppb	-11.558 ppb	1.126 ppb	4.472 ppb	-0.617 ppb	-43.814 ppb	90.784 %
Concentration per Run 2	94.450 %	91.295 %	0.017 ppb	-11.624 ppb	1.042 ppb	2.810 ppb	-7.400 ppb	13.326 ppb	94.274 %
Concentration per Run 3	94.546 %	95.329 %	0.031 ppb	-8.599 ppb	0.156 ppb	3.461 ppb	2.992 ppb	1.269 ppb	91.965 %
Concentration RSD	0.5 %	3.5 %	40.4 %	16.3 %	69.3 %	23.4 %	315.0 %	309.2 %	1.9 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.513 ppb	-0.053 ppb	0.069 ppb	0.102 ppb	51.417 ppb	0.007 ppb	0.047 ppb	0.050 ppb	1.948 ppb
Concentration per Run 1	0.526 ppb	-0.095 ppb	0.072 ppb	0.171 ppb	49.344 ppb	0.006 ppb	0.055 ppb	0.024 ppb	2.028 ppb
Concentration per Run 2	0.486 ppb	-0.041 ppb	0.072 ppb	0.037 ppb	52.312 ppb	0.009 ppb	0.046 ppb	0.068 ppb	1.902 ppb
Concentration per Run 3	0.527 ppb	-0.023 ppb	0.064 ppb	0.099 ppb	52.595 ppb	0.006 ppb	0.041 ppb	0.058 ppb	1.916 ppb
Concentration RSD	4.6 %	70.5 %	7.3 %	65.6 %	3.5 %	26.3 %	15.3 %	46.1 %	3.5 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	94.354 %	0.190 ppb	0.368 ppb	201.378 ppb	10.413 ppb	95.619 %	0.007 ppb	0.003 ppb	96.299 %
Concentration per Run 1	98.379 %	0.159 ppb	0.250 ppb	213.479 ppb	9.458 ppb	96.219 %	0.006 ppb	0.005 ppb	99.482 %
Concentration per Run 2	88.444 %	0.186 ppb	0.680 ppb	190.788 ppb	10.575 ppb	94.246 %	0.008 ppb	0.001 ppb	91.944 %
Concentration per Run 3	96.237 %	0.226 ppb	0.176 ppb	199.868 ppb	11.206 ppb	96.392 %	0.007 ppb	0.005 ppb	97.472 %
Concentration RSD	5.5 %	17.6 %	73.9 %	5.7 %	8.5 %	1.2 %	11.1 %	52.8 %	4.1 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	1.888 ppb	0.334 ppb	0.055 ppb	96.517 %	97.065 %	8.656 ppb	1.364 ppb	0.030 ppb	95.991 %
Concentration per Run 1	1.763 ppb	0.261 ppb	0.056 ppb	97.772 %	110.095 %	6.636 ppb	1.458 ppb	0.032 ppb	98.125 %
Concentration per Run 2	1.990 ppb	0.374 ppb	0.050 ppb	94.367 %	88.643 %	9.427 ppb	1.444 ppb	0.029 ppb	94.170 %
Concentration per Run 3	1.913 ppb	0.366 ppb	0.060 ppb	97.414 %	92.458 %	9.904 ppb	1.190 ppb	0.029 ppb	95.677 %
Concentration RSD	6.1 %	18.9 %	9.4 %	1.9 %	11.8 %	20.4 %	11.0 %	5.8 %	2.1 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 8 Analysis started at: 3/31/2020 9:37:51 PM
Analysis label: ICV User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	96.897 %	96.367 %	51.676 ppb	4,872.856 ppb	4,895.795 ppb	50.849 ppb	4,890.837 ppb	4,906.056 ppb	99.365 %
Concentration per Run 1	98.246 %	95.400 %	50.545 ppb	4,719.144 ppb	4,686.294 ppb	46.888 ppb	4,773.350 ppb	4,843.872 ppb	101.569 %
Concentration per Run 2	96.619 %	94.975 %	51.463 ppb	4,974.080 ppb	5,026.961 ppb	52.575 ppb	4,890.366 ppb	4,993.332 ppb	96.272 %
Concentration per Run 3	95.825 %	98.726 %	53.021 ppb	4,925.344 ppb	4,974.130 ppb	53.085 ppb	5,008.795 ppb	4,880.964 ppb	100.254 %
Recovery Percentage 1			103.352 %	97.457 %	97.916 %	101.698 %	97.817 %	98.121 %	
Concentration RSD	1.3 %	2.1 %	2.4 %	2.8 %	3.7 %	6.8 %	2.4 %	1.6 %	2.8 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	49.776 ppb	49.810 ppb	51.751 ppb	50.565 ppb	5,147.184 ppb	51.725 ppb	52.141 ppb	51.514 ppb	51.357 ppb
Concentration per Run 1	48.517 ppb	49.843 ppb	51.788 ppb	50.431 ppb	5,181.174 ppb	52.803 ppb	52.689 ppb	53.313 ppb	51.045 ppb
Concentration per Run 2	50.252 ppb	49.110 ppb	51.765 ppb	50.328 ppb	5,109.297 ppb	51.776 ppb	50.785 ppb	50.465 ppb	51.987 ppb
Concentration per Run 3	50.560 ppb	50.478 ppb	51.701 ppb	50.936 ppb	5,151.081 ppb	50.597 ppb	52.950 ppb	50.763 ppb	51.038 ppb
Recovery Percentage 1	99.552 %	99.621 %	103.503 %	101.130 %	102.944 %	103.451 %	104.282 %	103.028 %	102.714 %
Concentration RSD	2.2 %	1.4 %	0.1 %	0.6 %	0.7 %	2.1 %	2.3 %	3.0 %	1.1 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	94.312 %	50.139 ppb	51.243 ppb	49.589 ppb	52.604 ppb	97.051 %	53.231 ppb	51.073 ppb	95.655 %
Concentration per Run 1	90.395 %	50.477 ppb	49.214 ppb	48.022 ppb	53.163 ppb	96.217 %	53.621 ppb	51.447 ppb	91.813 %
Concentration per Run 2	95.774 %	49.927 ppb	51.185 ppb	49.930 ppb	52.682 ppb	97.328 %	53.108 ppb	50.927 ppb	97.756 %
Concentration per Run 3	96.767 %	50.014 ppb	53.332 ppb	50.816 ppb	51.967 ppb	97.607 %	52.964 ppb	50.845 ppb	97.397 %
Recovery Percentage 1		100.278 %	102.487 %	99.179 %	105.208 %		106.462 %	102.146 %	
Concentration RSD	3.6 %	0.6 %	4.0 %	2.9 %	1.1 %	0.8 %	0.6 %	0.6 %	3.5 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	50.135 ppb	48.548 ppb	50.874 ppb	98.189 %	93.357 %	52.367 ppb	52.629 ppb	50.799 ppb	96.773 %
Concentration per Run 1	50.216 ppb	49.023 ppb	51.460 ppb	97.393 %	91.839 %	54.055 ppb	52.704 ppb	51.002 ppb	96.255 %
Concentration per Run 2	50.391 ppb	48.145 ppb	50.579 ppb	98.783 %	94.621 %	51.605 ppb	52.768 ppb	51.105 ppb	96.531 %
Concentration per Run 3	49.799 ppb	48.477 ppb	50.584 ppb	98.391 %	93.613 %	51.441 ppb	52.414 ppb	50.290 ppb	97.533 %
Recovery Percentage 1	100.271 %	97.097 %	101.749 %			104.734 %	105.257 %	101.598 %	
Concentration RSD	0.6 %	0.9 %	1.0 %	0.7 %	1.5 %	2.8 %	0.4 %	0.9 %	0.7 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 9 Analysis started at: 3/31/2020 9:42:59 PM
Analysis label: ICB User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	94.371 %	94.055 %	0.011 ppb	-19.214 ppb	-0.033 ppb	0.390 ppb	-0.928 ppb	3.285 ppb	89.707 %
Concentration per Run 1	93.167 %	90.375 %	0.006 ppb	-20.844 ppb	0.186 ppb	0.282 ppb	-3.045 ppb	2.675 ppb	89.415 %
Concentration per Run 2	95.849 %	97.523 %	0.010 ppb	-21.530 ppb	-0.249 ppb	0.492 ppb	1.140 ppb	2.509 ppb	91.020 %
Concentration per Run 3	94.097 %	94.267 %	0.017 ppb	-15.266 ppb	-0.038 ppb	0.398 ppb	-0.881 ppb	4.670 ppb	88.686 %
Recovery Percentage 1			2.228 %	-19.214 %	-0.048 %	3.905 %	-0.928 %	3.285 %	
Concentration RSD	1.4 %	3.8 %	50.8 %	17.9 %	652.9 %	27.0 %	225.4 %	36.6 %	1.3 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.216 ppb	-0.064 ppb	-0.055 ppb	0.023 ppb	26.465 ppb	0.006 ppb	-0.037 ppb	0.002 ppb	-0.126 ppb
Concentration per Run 1	0.233 ppb	-0.071 ppb	-0.033 ppb	0.023 ppb	24.163 ppb	0.002 ppb	-0.030 ppb	-0.030 ppb	-0.094 ppb
Concentration per Run 2	0.133 ppb	-0.061 ppb	-0.084 ppb	0.033 ppb	25.696 ppb	0.013 ppb	-0.090 ppb	0.054 ppb	-0.172 ppb
Concentration per Run 3	0.283 ppb	-0.059 ppb	-0.047 ppb	0.012 ppb	29.537 ppb	0.004 ppb	0.008 ppb	-0.017 ppb	-0.112 ppb
Recovery Percentage 1	43.263 %	-1.272 %	-5.477 %	2.287 %	52.930 %	1.288 %	-1.866 %	0.228 %	-1.259 %
Concentration RSD	35.3 %	10.4 %	48.0 %	47.8 %	10.5 %	94.7 %	132.7 %	1,987.6 %	32.8 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	92.930 %	0.106 ppb	0.180 ppb	-0.002 ppb	4.629 ppb	96.577 %	0.002 ppb	0.001 ppb	96.788 %
Concentration per Run 1	92.957 %	0.092 ppb	0.087 ppb	-0.001 ppb	3.770 ppb	95.280 %	0.002 ppb	-0.002 ppb	94.801 %
Concentration per Run 2	93.257 %	0.092 ppb	0.209 ppb	-0.003 ppb	4.962 ppb	97.414 %	0.002 ppb	-0.001 ppb	98.797 %
Concentration per Run 3	92.575 %	0.133 ppb	0.243 ppb	-0.003 ppb	5.156 ppb	97.037 %	0.001 ppb	0.005 ppb	96.768 %
Recovery Percentage 1		21.169 %	3.596 %	-0.473 %	231.471 %		0.400 %	0.318 %	
Concentration RSD	0.4 %	22.6 %	45.5 %	58.2 %	16.2 %	1.2 %	41.2 %	559.2 %	2.1 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	1.069 ppb	0.461 ppb	-0.010 ppb	97.149 %	102.893 %	3.575 ppb	0.719 ppb	0.010 ppb	96.770 %
Concentration per Run 1	1.030 ppb	0.449 ppb	-0.010 ppb	95.741 %	92.294 %	3.472 ppb	0.752 ppb	0.015 ppb	96.460 %
Concentration per Run 2	1.075 ppb	0.419 ppb	-0.001 ppb	97.920 %	108.137 %	3.448 ppb	0.748 ppb	0.009 ppb	96.524 %
Concentration per Run 3	1.101 ppb	0.514 ppb	-0.017 ppb	97.787 %	108.248 %	3.804 ppb	0.656 ppb	0.008 ppb	97.326 %
Recovery Percentage 1	35.622 %	11.520 %	-1.915 %			178.733 %	143.706 %	1.032 %	
Concentration RSD	3.4 %	10.6 %	87.7 %	1.3 %	8.9 %	5.6 %	7.6 %	36.1 %	0.5 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 10
Analysis label: WG1356738-1 6020TL
Analysis started at: 3/31/2020 9:48:45 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	97.376 %	95.730 %	0.008 ppb	-6.232 ppb	1.945 ppb	0.850 ppb	-1.554 ppb	7.202 ppb	91.315 %
Concentration per Run 1	96.626 %	94.763 %	0.014 ppb	-8.220 ppb	1.160 ppb	0.773 ppb	-4.432 ppb	2.303 ppb	91.121 %
Concentration per Run 2	98.357 %	96.249 %	0.012 ppb	-6.179 ppb	1.937 ppb	0.808 ppb	-1.760 ppb	9.169 ppb	92.340 %
Concentration per Run 3	97.146 %	96.178 %	-0.001 ppb	-4.297 ppb	2.739 ppb	0.968 ppb	1.531 ppb	10.135 ppb	90.485 %
Concentration RSD	0.9 %	0.9 %	99.5 %	31.5 %	40.6 %	12.2 %	192.2 %	59.3 %	1.0 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.050 ppb	-0.064 ppb	0.715 ppb	0.222 ppb	3.593 ppb	0.007 ppb	0.363 ppb	0.084 ppb	0.307 ppb
Concentration per Run 1	0.025 ppb	-0.095 ppb	0.669 ppb	0.183 ppb	3.362 ppb	0.002 ppb	0.332 ppb	0.055 ppb	0.270 ppb
Concentration per Run 2	0.085 ppb	-0.064 ppb	0.784 ppb	0.268 ppb	3.431 ppb	0.004 ppb	0.386 ppb	0.085 ppb	0.284 ppb
Concentration per Run 3	0.040 ppb	-0.032 ppb	0.693 ppb	0.215 ppb	3.986 ppb	0.015 ppb	0.370 ppb	0.111 ppb	0.367 ppb
Concentration RSD	61.9 %	49.4 %	8.5 %	19.4 %	9.5 %	106.5 %	7.6 %	33.7 %	17.2 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	98.865 %	0.021 ppb	0.124 ppb	0.015 ppb	0.391 ppb	99.836 %	-0.001 ppb	0.001 ppb	100.265 %
Concentration per Run 1	99.020 %	0.017 ppb	0.187 ppb	0.013 ppb	0.131 ppb	99.971 %	0.001 ppb	0.003 ppb	100.755 %
Concentration per Run 2	99.085 %	0.033 ppb	0.042 ppb	0.011 ppb	0.532 ppb	99.259 %	-0.003 ppb	-0.001 ppb	99.363 %
Concentration per Run 3	98.490 %	0.012 ppb	0.144 ppb	0.022 ppb	0.511 ppb	100.278 %	-0.001 ppb	-0.001 ppb	100.679 %
Concentration RSD	0.3 %	53.3 %	59.9 %	36.7 %	57.7 %	0.5 %	258.1 %	345.8 %	0.8 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.090 ppb	0.095 ppb	0.019 ppb	99.191 %	99.652 %	0.827 ppb	0.123 ppb	0.013 ppb	99.652 %
Concentration per Run 1	-0.012 ppb	0.067 ppb	0.015 ppb	99.564 %	95.055 %	0.633 ppb	0.107 ppb	0.014 ppb	98.714 %
Concentration per Run 2	0.144 ppb	0.097 ppb	0.016 ppb	97.875 %	108.633 %	0.720 ppb	0.124 ppb	0.013 ppb	99.889 %
Concentration per Run 3	0.139 ppb	0.120 ppb	0.025 ppb	100.135 %	95.267 %	1.127 ppb	0.137 ppb	0.013 ppb	100.354 %
Concentration RSD	98.5 %	28.3 %	29.2 %	1.2 %	7.8 %	31.9 %	12.3 %	5.5 %	0.8 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 11
Analysis label: WG1356738-2D5 6020TL
Analysis started at: 3/31/2020 9:53:51 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	98.892 %	97.830 %	10.767 ppb	1,857.806 ppb	2,037.722 ppb	431.415 ppb	1,872.126 ppb	1,938.166 ppb	98.399 %
Concentration per Run 1	99.168 %	100.071 %	10.548 ppb	1,811.284 ppb	1,977.833 ppb	421.662 ppb	1,902.080 ppb	1,907.962 ppb	98.863 %
Concentration per Run 2	98.457 %	98.372 %	10.771 ppb	1,878.454 ppb	2,048.401 ppb	429.597 ppb	1,841.464 ppb	1,938.734 ppb	97.813 %
Concentration per Run 3	99.050 %	95.046 %	10.982 ppb	1,883.679 ppb	2,086.932 ppb	442.985 ppb	1,872.833 ppb	1,967.802 ppb	98.520 %
Concentration RSD	0.4 %	2.6 %	2.0 %	2.2 %	2.7 %	2.5 %	1.6 %	1.5 %	0.5 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	159.947 ppb	106.042 ppb	42.058 ppb	103.615 ppb	222.327 ppb	106.889 ppb	108.846 ppb	52.261 ppb	111.560 ppb
Concentration per Run 1	156.727 ppb	104.632 ppb	40.949 ppb	103.277 ppb	234.434 ppb	108.337 ppb	109.473 ppb	53.124 ppb	110.462 ppb
Concentration per Run 2	159.726 ppb	103.263 ppb	41.554 ppb	102.756 ppb	210.021 ppb	105.233 ppb	107.952 ppb	51.193 ppb	112.585 ppb
Concentration per Run 3	163.389 ppb	110.232 ppb	43.672 ppb	104.813 ppb	222.527 ppb	107.098 ppb	109.111 ppb	52.467 ppb	111.634 ppb
Concentration RSD	2.1 %	3.5 %	3.4 %	1.0 %	5.5 %	1.5 %	0.7 %	1.9 %	1.0 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	99.006 %	24.435 ppb	24.043 ppb	190.524 ppb	182.108 ppb	98.498 %	10.783 ppb	11.103 ppb	100.289 %
Concentration per Run 1	98.138 %	24.413 ppb	25.269 ppb	193.178 ppb	184.334 ppb	99.063 %	10.854 ppb	11.104 ppb	100.440 %
Concentration per Run 2	100.090 %	24.645 ppb	23.079 ppb	187.457 ppb	183.216 ppb	98.784 %	10.649 ppb	11.087 ppb	100.652 %
Concentration per Run 3	98.790 %	24.247 ppb	23.782 ppb	190.936 ppb	178.773 ppb	97.647 %	10.848 ppb	11.120 ppb	99.774 %
Concentration RSD	1.0 %	0.8 %	4.7 %	1.5 %	1.6 %	0.8 %	1.1 %	0.1 %	0.5 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	185.588 ppb	84.485 ppb	421.867 ppb	99.825 %	105.241 %	0.789 ppb	25.975 ppb	110.541 ppb	99.537 %
Concentration per Run 1	186.524 ppb	83.226 ppb	418.625 ppb	100.241 %	95.565 %	0.564 ppb	25.864 ppb	110.234 ppb	100.240 %
Concentration per Run 2	185.179 ppb	84.681 ppb	426.501 ppb	100.314 %	110.774 %	0.736 ppb	26.011 ppb	109.996 ppb	99.209 %
Concentration per Run 3	185.062 ppb	85.550 ppb	420.477 ppb	98.919 %	109.385 %	1.069 ppb	26.051 ppb	111.393 ppb	99.161 %
Concentration RSD	0.4 %	1.4 %	1.0 %	0.8 %	8.0 %	32.6 %	0.4 %	0.7 %	0.6 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 12
Analysis label: WG1356738-5D10 6020TL
Analysis started at: 3/31/2020 9:58:58 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	97.196 %	96.131 %	51.160 ppb	13,854.794 ppb	7,424.892 ppb	66.274 ppb	6,086.955 ppb	16,688.398 ppb	97.412 %
Concentration per Run 1	97.553 %	93.913 %	50.887 ppb	13,955.050 ppb	7,464.072 ppb	62.402 ppb	6,108.553 ppb	16,605.934 ppb	96.888 %
Concentration per Run 2	97.102 %	96.461 %	51.821 ppb	13,706.226 ppb	7,346.031 ppb	64.214 ppb	6,056.067 ppb	16,370.225 ppb	98.171 %
Concentration per Run 3	96.934 %	98.018 %	50.774 ppb	13,903.105 ppb	7,464.573 ppb	72.206 ppb	6,096.245 ppb	17,089.036 ppb	97.178 %
Concentration RSD	0.3 %	2.2 %	1.1 %	0.9 %	0.9 %	7.9 %	0.5 %	2.2 %	0.7 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	71.642 ppb	49.074 ppb	50.059 ppb	121.978 ppb	8,137.978 ppb	50.485 ppb	49.996 ppb	49.328 ppb	52.141 ppb
Concentration per Run 1	71.195 ppb	48.618 ppb	49.161 ppb	121.942 ppb	8,197.557 ppb	51.621 ppb	50.246 ppb	49.664 ppb	51.631 ppb
Concentration per Run 2	70.865 ppb	49.986 ppb	50.696 ppb	121.303 ppb	8,102.201 ppb	49.850 ppb	50.122 ppb	48.599 ppb	52.197 ppb
Concentration per Run 3	72.865 ppb	48.618 ppb	50.322 ppb	122.688 ppb	8,114.175 ppb	49.984 ppb	49.621 ppb	49.720 ppb	52.596 ppb
Concentration RSD	1.5 %	1.6 %	1.6 %	0.6 %	0.6 %	2.0 %	0.7 %	1.3 %	0.9 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	96.234 %	49.373 ppb	50.019 ppb	111.632 ppb	67.236 ppb	95.773 %	2.575 ppb	49.358 ppb	98.189 %
Concentration per Run 1	95.452 %	49.610 ppb	48.752 ppb	112.146 ppb	66.994 ppb	95.896 %	2.577 ppb	49.352 ppb	96.307 %
Concentration per Run 2	95.679 %	50.004 ppb	49.869 ppb	109.925 ppb	66.945 ppb	95.716 %	2.584 ppb	49.102 ppb	98.369 %
Concentration per Run 3	97.572 %	48.505 ppb	51.435 ppb	112.826 ppb	67.769 ppb	95.706 %	2.564 ppb	49.619 ppb	99.892 %
Concentration RSD	1.2 %	1.6 %	2.7 %	1.4 %	0.7 %	0.1 %	0.4 %	0.5 %	1.8 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	54.464 ppb	54.632 ppb	71.460 ppb	96.863 %	91.490 %	45.533 ppb	50.879 ppb	51.232 ppb	96.297 %
Concentration per Run 1	54.738 ppb	54.727 ppb	70.229 ppb	96.404 %	91.135 %	46.891 ppb	50.595 ppb	51.370 ppb	96.367 %
Concentration per Run 2	53.970 ppb	54.785 ppb	72.598 ppb	96.421 %	91.601 %	45.477 ppb	51.295 ppb	51.360 ppb	95.727 %
Concentration per Run 3	54.684 ppb	54.383 ppb	71.552 ppb	97.764 %	91.736 %	44.230 ppb	50.747 ppb	50.967 ppb	96.797 %
Concentration RSD	0.8 %	0.4 %	1.7 %	0.8 %	0.3 %	2.9 %	0.7 %	0.4 %	0.6 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 13
Analysis label: WG1356738-3D10 6020TL
Analysis started at: 3/31/2020 10:04:01 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	96.790 %	99.269 %	5.434 ppb	9,555.628 ppb	3,500.381 ppb	222.902 ppb	1,970.159 ppb	12,164.099 ppb	94.803 %
Concentration per Run 1	96.954 %	97.664 %	5.246 ppb	9,578.866 ppb	3,462.805 ppb	220.260 ppb	1,962.710 ppb	11,969.900 ppb	96.110 %
Concentration per Run 2	97.686 %	104.105 %	5.430 ppb	9,373.057 ppb	3,469.399 ppb	225.512 ppb	2,015.865 ppb	12,550.007 ppb	95.346 %
Concentration per Run 3	95.728 %	96.037 %	5.625 ppb	9,714.961 ppb	3,568.940 ppb	222.932 ppb	1,931.903 ppb	11,972.388 ppb	92.953 %
Concentration RSD	1.0 %	4.3 %	3.5 %	1.8 %	1.7 %	1.2 %	2.2 %	2.7 %	1.7 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	102.489 ppb	51.822 ppb	21.294 ppb	121.877 ppb	3,140.947 ppb	52.688 ppb	52.314 ppb	25.414 ppb	56.793 ppb
Concentration per Run 1	100.908 ppb	52.365 ppb	21.240 ppb	120.655 ppb	3,103.519 ppb	52.098 ppb	52.831 ppb	25.637 ppb	57.120 ppb
Concentration per Run 2	104.438 ppb	51.739 ppb	21.289 ppb	124.697 ppb	3,115.720 ppb	52.386 ppb	52.303 ppb	24.867 ppb	57.188 ppb
Concentration per Run 3	102.122 ppb	51.362 ppb	21.352 ppb	120.279 ppb	3,203.601 ppb	53.579 ppb	51.809 ppb	25.740 ppb	56.070 ppb
Concentration RSD	1.7 %	1.0 %	0.3 %	2.0 %	1.7 %	1.5 %	1.0 %	1.9 %	1.1 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	97.264 %	13.326 ppb	12.822 ppb	153.470 ppb	97.430 ppb	96.846 %	5.465 ppb	5.563 ppb	99.129 %
Concentration per Run 1	97.771 %	12.958 ppb	13.367 ppb	153.440 ppb	98.373 ppb	96.040 %	5.540 ppb	5.593 ppb	98.190 %
Concentration per Run 2	98.912 %	13.383 ppb	13.179 ppb	156.362 ppb	97.808 ppb	98.222 %	5.351 ppb	5.557 ppb	101.738 %
Concentration per Run 3	95.109 %	13.636 ppb	11.920 ppb	150.608 ppb	96.110 ppb	96.275 %	5.505 ppb	5.540 ppb	97.458 %
Concentration RSD	2.0 %	2.6 %	6.1 %	1.9 %	1.2 %	1.2 %	1.8 %	0.5 %	2.3 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	96.785 ppb	55.198 ppb	231.071 ppb	97.202 %	96.274 %	3.746 ppb	13.631 ppb	56.510 ppb	96.814 %
Concentration per Run 1	96.972 ppb	54.901 ppb	232.639 ppb	97.634 %	91.616 %	3.347 ppb	13.906 ppb	57.241 ppb	96.177 %
Concentration per Run 2	96.415 ppb	55.046 ppb	231.038 ppb	97.477 %	106.060 %	3.394 ppb	13.541 ppb	56.330 ppb	97.130 %
Concentration per Run 3	96.969 ppb	55.647 ppb	229.536 ppb	96.496 %	91.145 %	4.497 ppb	13.446 ppb	55.959 ppb	97.133 %
Concentration RSD	0.3 %	0.7 %	0.7 %	0.6 %	8.8 %	17.4 %	1.8 %	1.2 %	0.6 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 14
Analysis label: WG1356738-4D10 6020TL
Analysis started at: 3/31/2020 10:09:05 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	96.985 %	93.866 %	5.455 ppb	10,161.715 ppb	3,683.953 ppb	235.674 ppb	2,097.764 ppb	12,704.928 ppb	94.410 %
Concentration per Run 1	97.359 %	95.612 %	5.471 ppb	10,329.347 ppb	3,808.295 ppb	245.211 ppb	2,278.585 ppb	13,500.237 ppb	94.186 %
Concentration per Run 2	95.862 %	89.950 %	5.476 ppb	10,154.708 ppb	3,621.091 ppb	230.595 ppb	1,950.264 ppb	12,047.729 ppb	93.061 %
Concentration per Run 3	97.733 %	96.037 %	5.418 ppb	10,001.089 ppb	3,622.473 ppb	231.217 ppb	2,064.442 ppb	12,566.819 ppb	95.985 %
Concentration RSD	1.0 %	3.6 %	0.6 %	1.6 %	2.9 %	3.5 %	7.9 %	5.8 %	1.6 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	105.923 ppb	54.658 ppb	21.657 ppb	124.520 ppb	3,166.893 ppb	53.686 ppb	54.424 ppb	25.999 ppb	58.186 ppb
Concentration per Run 1	108.629 ppb	55.113 ppb	21.731 ppb	127.900 ppb	3,218.539 ppb	53.607 ppb	54.064 ppb	25.293 ppb	58.192 ppb
Concentration per Run 2	102.117 ppb	55.581 ppb	21.761 ppb	121.336 ppb	3,145.409 ppb	54.110 ppb	54.148 ppb	26.764 ppb	57.879 ppb
Concentration per Run 3	107.024 ppb	53.280 ppb	21.479 ppb	124.325 ppb	3,136.731 ppb	53.340 ppb	55.061 ppb	25.941 ppb	58.486 ppb
Concentration RSD	3.2 %	2.2 %	0.7 %	2.6 %	1.4 %	0.7 %	1.0 %	2.8 %	0.5 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	98.081 %	13.297 ppb	12.436 ppb	158.168 ppb	104.486 ppb	97.287 %	5.497 ppb	5.467 ppb	99.407 %
Concentration per Run 1	101.224 %	13.349 ppb	11.984 ppb	166.657 ppb	105.063 ppb	98.596 %	5.360 ppb	5.399 ppb	103.882 %
Concentration per Run 2	94.637 %	13.190 ppb	12.140 ppb	149.493 ppb	105.185 ppb	95.609 %	5.565 ppb	5.424 ppb	94.320 %
Concentration per Run 3	98.383 %	13.352 ppb	13.184 ppb	158.354 ppb	103.211 ppb	97.656 %	5.566 ppb	5.578 ppb	100.019 %
Concentration RSD	3.4 %	0.7 %	5.2 %	5.4 %	1.1 %	1.6 %	2.2 %	1.8 %	4.8 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	100.663 ppb	54.531 ppb	234.709 ppb	98.090 %	101.774 %	0.831 ppb	13.251 ppb	57.493 ppb	97.192 %
Concentration per Run 1	100.222 ppb	54.670 ppb	239.836 ppb	100.651 %	109.999 %	0.379 ppb	13.025 ppb	57.142 ppb	98.890 %
Concentration per Run 2	100.929 ppb	54.759 ppb	233.787 ppb	94.595 %	101.882 %	0.808 ppb	13.248 ppb	57.471 ppb	95.742 %
Concentration per Run 3	100.839 ppb	54.163 ppb	230.504 ppb	99.023 %	93.443 %	1.305 ppb	13.479 ppb	57.865 ppb	96.943 %
Concentration RSD	0.4 %	0.6 %	2.0 %	3.2 %	8.1 %	55.8 %	1.7 %	0.6 %	1.6 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 15
Analysis label: L2013614-09 2008TL
Analysis started at: 3/31/2020 10:14:09 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	97.227 %	96.744 %	0.033 ppb	151,127.931 ppb	4,274.629 ppb	237.610 ppb	8,944.168 ppb	29,090.619 ppb	90.289 %
Concentration per Run 1	96.888 %	89.738 %	0.032 ppb	152,084.980 ppb	4,240.023 ppb	231.388 ppb	8,600.690 ppb	28,193.172 ppb	90.101 %
Concentration per Run 2	96.687 %	94.975 %	0.039 ppb	155,954.409 ppb	4,423.195 ppb	245.097 ppb	9,238.811 ppb	29,928.175 ppb	90.545 %
Concentration per Run 3	98.105 %	105.520 %	0.027 ppb	145,344.405 ppb	4,160.668 ppb	236.344 ppb	8,993.003 ppb	29,150.510 ppb	90.222 %
Concentration RSD	0.8 %	8.3 %	17.8 %	3.6 %	3.1 %	2.9 %	3.6 %	3.0 %	0.3 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	59.197 ppb	0.873 ppb	2.875 ppb	98.466 ppb	921.250 ppb	1.069 ppb	9.230 ppb	28.155 ppb	65.189 ppb
Concentration per Run 1	60.194 ppb	0.833 ppb	3.014 ppb	97.653 ppb	916.439 ppb	1.115 ppb	9.795 ppb	28.168 ppb	65.027 ppb
Concentration per Run 2	60.707 ppb	0.814 ppb	2.853 ppb	99.979 ppb	926.287 ppb	1.083 ppb	8.814 ppb	28.027 ppb	65.633 ppb
Concentration per Run 3	56.690 ppb	0.971 ppb	2.757 ppb	97.767 ppb	921.026 ppb	1.010 ppb	9.082 ppb	28.271 ppb	64.906 ppb
Concentration RSD	3.7 %	9.8 %	4.5 %	1.3 %	0.5 %	5.0 %	5.5 %	0.4 %	0.6 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	95.665 %	3.594 ppb	0.683 ppb	176.867 ppb	19.238 ppb	92.739 %	0.117 ppb	0.406 ppb	93.748 %
Concentration per Run 1	92.204 %	3.466 ppb	0.599 ppb	170.975 ppb	17.196 ppb	91.255 %	0.116 ppb	0.423 ppb	90.679 %
Concentration per Run 2	97.888 %	3.680 ppb	1.024 ppb	176.892 ppb	19.460 ppb	94.550 %	0.113 ppb	0.431 ppb	96.759 %
Concentration per Run 3	96.904 %	3.637 ppb	0.425 ppb	182.734 ppb	21.057 ppb	92.413 %	0.122 ppb	0.364 ppb	93.808 %
Concentration RSD	3.2 %	3.1 %	45.1 %	3.3 %	10.1 %	1.8 %	3.8 %	9.0 %	3.2 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	4.534 ppb	1.121 ppb	43.675 ppb	92.627 %	85.778 %	2.188 ppb	0.305 ppb	7.949 ppb	89.474 %
Concentration per Run 1	4.324 ppb	1.041 ppb	43.364 ppb	91.267 %	84.293 %	1.910 ppb	0.305 ppb	7.933 ppb	89.103 %
Concentration per Run 2	4.463 ppb	1.099 ppb	43.874 ppb	94.492 %	86.916 %	2.158 ppb	0.300 ppb	7.975 ppb	89.906 %
Concentration per Run 3	4.816 ppb	1.223 ppb	43.786 ppb	92.120 %	86.125 %	2.496 ppb	0.309 ppb	7.938 ppb	89.413 %
Concentration RSD	5.6 %	8.3 %	0.6 %	1.8 %	1.6 %	13.4 %	1.5 %	0.3 %	0.5 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 16
Analysis label: L2013614-10 2008TL
Analysis started at: 3/31/2020 10:19:12 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	104.325 %	103.609 %	0.004 ppb	229,622.531 ppb	13,837.166 ppb	19.000 ppb	7,913.694 ppb	25,314.950 ppb	100.546 %
Concentration per Run 1	106.810 %	98.938 %	0.004 ppb	234,918.536 ppb	14,323.031 ppb	18.560 ppb	7,939.016 ppb	25,767.921 ppb	102.631 %
Concentration per Run 2	102.941 %	104.246 %	0.009 ppb	225,427.853 ppb	13,452.690 ppb	19.446 ppb	7,906.224 ppb	24,730.417 ppb	99.626 %
Concentration per Run 3	103.224 %	107.644 %	-0.002 ppb	228,521.203 ppb	13,735.778 ppb	18.994 ppb	7,895.842 ppb	25,446.511 ppb	99.380 %
Concentration RSD	2.1 %	4.2 %	140.4 %	2.1 %	3.2 %	2.3 %	0.3 %	2.1 %	1.8 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	50.356 ppb	0.501 ppb	0.991 ppb	62.660 ppb	86.751 ppb	0.614 ppb	3.080 ppb	3.094 ppb	26.297 ppb
Concentration per Run 1	44.100 ppb	0.561 ppb	0.964 ppb	62.840 ppb	88.284 ppb	0.565 ppb	3.220 ppb	3.181 ppb	26.647 ppb
Concentration per Run 2	44.964 ppb	0.575 ppb	1.023 ppb	61.798 ppb	86.113 ppb	0.660 ppb	3.042 ppb	2.997 ppb	25.993 ppb
Concentration per Run 3	62.004 ppb	0.365 ppb	0.986 ppb	63.343 ppb	85.856 ppb	0.617 ppb	2.978 ppb	3.104 ppb	26.249 ppb
Concentration RSD	20.1 %	23.4 %	3.0 %	1.3 %	1.5 %	7.7 %	4.1 %	3.0 %	1.3 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	104.134 %	2.826 ppb	0.857 ppb	151.146 ppb	8.182 ppb	98.209 %	0.032 ppb	0.146 ppb	101.238 %
Concentration per Run 1	102.096 %	2.759 ppb	0.892 ppb	151.798 ppb	6.944 ppb	97.584 %	0.039 ppb	0.151 ppb	100.278 %
Concentration per Run 2	105.347 %	2.852 ppb	0.837 ppb	148.917 ppb	8.242 ppb	98.052 %	0.027 ppb	0.141 ppb	101.662 %
Concentration per Run 3	104.960 %	2.866 ppb	0.841 ppb	152.722 ppb	9.359 ppb	98.992 %	0.029 ppb	0.147 ppb	101.774 %
Concentration RSD	1.7 %	2.1 %	3.6 %	1.3 %	14.8 %	0.7 %	20.5 %	3.4 %	0.8 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	2.038 ppb	0.694 ppb	18.975 ppb	99.232 %	93.758 %	0.121 ppb	0.059 ppb	0.327 ppb	91.710 %
Concentration per Run 1	1.746 ppb	0.597 ppb	19.029 ppb	99.570 %	94.346 %	-0.047 ppb	0.044 ppb	0.324 ppb	90.888 %
Concentration per Run 2	1.976 ppb	0.702 ppb	19.058 ppb	98.774 %	93.558 %	0.093 ppb	0.058 ppb	0.330 ppb	92.343 %
Concentration per Run 3	2.393 ppb	0.783 ppb	18.839 ppb	99.352 %	93.369 %	0.316 ppb	0.076 ppb	0.328 ppb	91.900 %
Concentration RSD	16.1 %	13.5 %	0.6 %	0.4 %	0.6 %	151.9 %	27.1 %	0.9 %	0.8 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 17
Analysis label: L2013845-07 6020TL
Analysis started at: 3/31/2020 10:24:17 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	112.696 %	110.758 %	0.008 ppb	103,535.975 ppb	24,440.711 ppb	135.415 ppb	10,691.605 ppb	111,015.384 ppb	107.795 %
Concentration per Run 1	111.729 %	104.600 %	0.005 ppb	107,083.080 ppb	25,507.994 ppb	140.135 ppb	10,919.457 ppb	114,966.091 ppb	107.515 %
Concentration per Run 2	113.819 %	116.207 %	0.011 ppb	101,535.282 ppb	23,640.255 ppb	124.719 ppb	10,393.294 ppb	107,093.731 ppb	107.983 %
Concentration per Run 3	112.539 %	111.465 %	0.007 ppb	101,989.564 ppb	24,173.883 ppb	141.392 ppb	10,762.065 ppb	110,986.329 ppb	107.888 %
Concentration RSD	0.9 %	5.3 %	35.3 %	3.0 %	3.9 %	6.9 %	2.5 %	3.5 %	0.2 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	200.390 ppb	1.162 ppb	1.764 ppb	689.108 ppb	31,433.804 ppb	1.173 ppb	3.864 ppb	1.796 ppb	23.649 ppb
Concentration per Run 1	202.423 ppb	1.134 ppb	1.701 ppb	691.464 ppb	35,893.464 ppb	1.185 ppb	4.068 ppb	1.724 ppb	23.450 ppb
Concentration per Run 2	196.129 ppb	1.019 ppb	1.806 ppb	691.721 ppb	28,748.398 ppb	1.183 ppb	3.919 ppb	1.778 ppb	24.018 ppb
Concentration per Run 3	202.618 ppb	1.332 ppb	1.786 ppb	684.140 ppb	29,659.552 ppb	1.151 ppb	3.605 ppb	1.887 ppb	23.478 ppb
Concentration RSD	1.8 %	13.6 %	3.2 %	0.6 %	12.4 %	1.7 %	6.1 %	4.6 %	1.4 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	105.103 %	5.739 ppb	0.156 ppb	607.027 ppb	4.462 ppb	97.960 %	0.009 ppb	0.019 ppb	101.999 %
Concentration per Run 1	104.964 %	5.901 ppb	0.288 ppb	610.824 ppb	4.229 ppb	98.487 %	0.007 ppb	0.019 ppb	102.786 %
Concentration per Run 2	104.258 %	5.798 ppb	0.089 ppb	608.547 ppb	4.326 ppb	97.363 %	0.011 ppb	0.013 ppb	102.065 %
Concentration per Run 3	106.085 %	5.517 ppb	0.093 ppb	601.708 ppb	4.830 ppb	98.030 %	0.008 ppb	0.024 ppb	101.147 %
Concentration RSD	0.9 %	3.5 %	72.7 %	0.8 %	7.2 %	0.6 %	25.8 %	31.3 %	0.8 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	1.116 ppb	0.506 ppb	230.089 ppb	91.181 %	85.212 %	0.012 ppb	-0.019 ppb	11.858 ppb	92.146 %
Concentration per Run 1	1.041 ppb	0.409 ppb	230.195 ppb	91.315 %	85.951 %	-0.081 ppb	-0.028 ppb	11.928 ppb	91.794 %
Concentration per Run 2	1.139 ppb	0.539 ppb	228.559 ppb	91.947 %	85.220 %	0.033 ppb	-0.016 ppb	11.769 ppb	92.904 %
Concentration per Run 3	1.169 ppb	0.569 ppb	231.512 ppb	90.283 %	84.465 %	0.083 ppb	-0.014 ppb	11.876 ppb	91.739 %
Concentration RSD	6.0 %	16.8 %	0.6 %	0.9 %	0.9 %	717.7 %	39.8 %	0.7 %	0.7 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 18
Analysis label: WG1356738-6D5 6020TL
Analysis started at: 3/31/2020 10:29:21 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	106.270 %	104.577 %	0.005 ppb	21,741.618 ppb	5,279.557 ppb	30.064 ppb	2,187.842 ppb	23,012.733 ppb	104.894 %
Concentration per Run 1	107.764 %	105.025 %	0.004 ppb	21,489.920 ppb	5,210.453 ppb	32.358 ppb	2,178.614 ppb	22,976.794 ppb	106.476 %
Concentration per Run 2	105.438 %	103.751 %	0.008 ppb	22,093.865 ppb	5,340.313 ppb	30.099 ppb	2,205.376 ppb	22,903.002 ppb	103.149 %
Concentration per Run 3	105.607 %	104.954 %	0.004 ppb	21,641.070 ppb	5,287.906 ppb	27.736 ppb	2,179.536 ppb	23,158.404 ppb	105.056 %
Concentration RSD	1.2 %	0.7 %	44.8 %	1.4 %	1.2 %	7.7 %	0.7 %	0.6 %	1.6 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	42.538 ppb	0.294 ppb	0.410 ppb	146.847 ppb	6,291.983 ppb	0.227 ppb	0.902 ppb	0.378 ppb	4.779 ppb
Concentration per Run 1	42.221 ppb	0.480 ppb	0.395 ppb	145.625 ppb	6,363.737 ppb	0.205 ppb	0.850 ppb	0.354 ppb	4.852 ppb
Concentration per Run 2	43.481 ppb	0.158 ppb	0.402 ppb	150.558 ppb	6,287.751 ppb	0.199 ppb	0.833 ppb	0.371 ppb	4.663 ppb
Concentration per Run 3	41.913 ppb	0.244 ppb	0.432 ppb	144.358 ppb	6,224.461 ppb	0.278 ppb	1.024 ppb	0.409 ppb	4.823 ppb
Concentration RSD	2.0 %	56.6 %	4.8 %	2.2 %	1.1 %	19.5 %	11.7 %	7.5 %	2.1 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	105.785 %	1.114 ppb	0.147 ppb	120.427 ppb	1.510 ppb	103.573 %	0.006 ppb	0.006 ppb	104.945 %
Concentration per Run 1	105.424 %	1.064 ppb	-0.138 ppb	122.017 ppb	1.134 ppb	103.671 %	0.009 ppb	0.009 ppb	103.912 %
Concentration per Run 2	105.764 %	1.081 ppb	0.179 ppb	119.784 ppb	1.711 ppb	103.324 %	0.006 ppb	0.004 ppb	104.634 %
Concentration per Run 3	106.168 %	1.198 ppb	0.401 ppb	119.479 ppb	1.684 ppb	103.725 %	0.004 ppb	0.006 ppb	106.291 %
Concentration RSD	0.4 %	6.5 %	184.0 %	1.2 %	21.5 %	0.2 %	43.5 %	39.3 %	1.2 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.612 ppb	0.211 ppb	44.591 ppb	101.079 %	95.540 %	-0.459 ppb	-0.071 ppb	2.406 ppb	100.177 %
Concentration per Run 1	0.539 ppb	0.189 ppb	44.255 ppb	101.345 %	96.371 %	-0.508 ppb	-0.083 ppb	2.401 ppb	100.745 %
Concentration per Run 2	0.650 ppb	0.199 ppb	44.546 ppb	100.546 %	94.808 %	-0.475 ppb	-0.072 ppb	2.397 ppb	99.823 %
Concentration per Run 3	0.646 ppb	0.245 ppb	44.971 ppb	101.345 %	95.440 %	-0.396 ppb	-0.059 ppb	2.418 ppb	99.963 %
Concentration RSD	10.2 %	14.2 %	0.8 %	0.5 %	0.8 %	12.5 %	16.8 %	0.5 %	0.5 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 19 Analysis started at: 3/31/2020 10:34:25 PM
Analysis label: SCAN User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	101.215 %	101.604 %	0.005 ppb	-10.515 ppb	-0.196 ppb	0.459 ppb	0.660 ppb	2.458 ppb	99.246 %
Concentration per Run 1	101.456 %	101.132 %	0.009 ppb	-16.351 ppb	-0.449 ppb	0.376 ppb	-2.428 ppb	1.175 ppb	98.932 %
Concentration per Run 2	98.025 %	101.132 %	0.001 ppb	-9.928 ppb	0.121 ppb	0.429 ppb	1.708 ppb	4.050 ppb	96.952 %
Concentration per Run 3	104.165 %	102.548 %	0.004 ppb	-5.265 ppb	-0.260 ppb	0.573 ppb	2.701 ppb	2.148 ppb	101.853 %
Concentration RSD	3.0 %	0.8 %	84.7 %	52.9 %	148.2 %	22.2 %	412.0 %	59.5 %	2.5 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.026 ppb	-0.044 ppb	0.019 ppb	0.057 ppb	52.963 ppb	0.003 ppb	0.044 ppb	0.017 ppb	0.010 ppb
Concentration per Run 1	-0.022 ppb	-0.074 ppb	0.025 ppb	0.049 ppb	47.964 ppb	-0.001 ppb	0.045 ppb	-0.004 ppb	0.094 ppb
Concentration per Run 2	0.089 ppb	0.053 ppb	0.006 ppb	0.044 ppb	54.166 ppb	0.006 ppb	0.047 ppb	0.014 ppb	0.025 ppb
Concentration per Run 3	0.010 ppb	-0.109 ppb	0.024 ppb	0.077 ppb	56.760 ppb	0.004 ppb	0.041 ppb	0.040 ppb	-0.088 ppb
Concentration RSD	222.2 %	196.1 %	58.0 %	30.8 %	8.5 %	117.1 %	7.5 %	131.9 %	885.1 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	102.322 %	0.014 ppb	-0.024 ppb	0.002 ppb	0.113 ppb	101.940 %	0.003 ppb	-0.002 ppb	102.363 %
Concentration per Run 1	103.835 %	0.033 ppb	-0.101 ppb	0.001 ppb	-0.337 ppb	102.888 %	0.001 ppb	-0.002 ppb	102.924 %
Concentration per Run 2	102.569 %	0.024 ppb	-0.019 ppb	-0.001 ppb	0.122 ppb	102.134 %	0.003 ppb	-0.002 ppb	102.785 %
Concentration per Run 3	100.562 %	-0.016 ppb	0.049 ppb	0.005 ppb	0.553 ppb	100.799 %	0.007 ppb	-0.001 ppb	101.379 %
Concentration RSD	1.6 %	194.4 %	316.1 %	197.4 %	394.9 %	1.0 %	91.8 %	57.0 %	0.8 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.324 ppb	0.120 ppb	-0.002 ppb	101.095 %	110.794 %	-0.791 ppb	-0.098 ppb	0.000 ppb	99.837 %
Concentration per Run 1	0.246 ppb	0.043 ppb	-0.005 ppb	102.477 %	110.859 %	-0.846 ppb	-0.107 ppb	0.000 ppb	101.011 %
Concentration per Run 2	0.376 ppb	0.158 ppb	-0.005 ppb	101.345 %	111.643 %	-0.792 ppb	-0.099 ppb	0.001 ppb	98.659 %
Concentration per Run 3	0.349 ppb	0.158 ppb	0.002 ppb	99.463 %	109.879 %	-0.734 ppb	-0.087 ppb	-0.001 ppb	99.841 %
Concentration RSD	21.2 %	55.3 %	160.3 %	1.5 %	0.8 %	7.1 %	10.6 %	899.2 %	1.2 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 20 Analysis started at: 3/31/2020 10:39:31 PM
Analysis label: CCV User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	102.360 %	104.506 %	60.882 ppb	5,930.766 ppb	6,047.520 ppb	61.198 ppb	6,117.108 ppb	6,083.273 ppb	113.785 %
Concentration per Run 1	103.580 %	101.840 %	61.312 ppb	6,084.858 ppb	6,169.971 ppb	59.773 ppb	6,154.689 ppb	6,099.057 ppb	114.467 %
Concentration per Run 2	102.124 %	105.733 %	60.453 ppb	5,709.499 ppb	5,758.290 ppb	59.760 ppb	5,868.338 ppb	5,938.301 ppb	114.735 %
Concentration per Run 3	101.375 %	105.945 %	60.880 ppb	5,997.941 ppb	6,214.299 ppb	64.059 ppb	6,328.298 ppb	6,212.460 ppb	112.153 %
Recovery Percentage 1			101.469 %	98.846 %	100.792 %	101.996 %	101.952 %	101.388 %	
Concentration RSD	1.1 %	2.2 %	0.7 %	3.3 %	4.2 %	4.0 %	3.8 %	2.3 %	1.2 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	60.658 ppb	60.023 ppb	60.922 ppb	61.636 ppb	6,095.637 ppb	61.174 ppb	60.259 ppb	61.845 ppb	60.858 ppb
Concentration per Run 1	58.893 ppb	61.997 ppb	61.443 ppb	61.645 ppb	6,132.918 ppb	62.848 ppb	61.119 ppb	63.977 ppb	61.698 ppb
Concentration per Run 2	60.747 ppb	58.467 ppb	60.478 ppb	61.048 ppb	6,091.262 ppb	60.306 ppb	59.819 ppb	61.864 ppb	60.529 ppb
Concentration per Run 3	62.335 ppb	59.603 ppb	60.845 ppb	62.216 ppb	6,062.730 ppb	60.368 ppb	59.838 ppb	59.695 ppb	60.346 ppb
Recovery Percentage 1	101.097 %	100.038 %	101.536 %	102.727 %	101.594 %	101.956 %	100.431 %	103.076 %	101.430 %
Concentration RSD	2.8 %	3.0 %	0.8 %	0.9 %	0.6 %	2.4 %	1.2 %	3.5 %	1.2 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	102.212 %	59.723 ppb	60.990 ppb	60.936 ppb	61.605 ppb	101.979 %	62.907 ppb	59.075 ppb	103.530 %
Concentration per Run 1	99.431 %	60.335 ppb	61.976 ppb	60.987 ppb	61.509 ppb	101.552 %	63.347 ppb	59.394 ppb	102.217 %
Concentration per Run 2	100.576 %	59.212 ppb	60.068 ppb	59.629 ppb	61.728 ppb	101.857 %	62.836 ppb	58.817 ppb	102.037 %
Concentration per Run 3	106.628 %	59.622 ppb	60.926 ppb	62.193 ppb	61.579 ppb	102.530 %	62.537 ppb	59.014 ppb	106.336 %
Recovery Percentage 1		99.538 %	101.650 %	101.560 %	102.675 %		104.844 %	98.459 %	
Concentration RSD	3.8 %	1.0 %	1.6 %	2.1 %	0.2 %	0.5 %	0.7 %	0.5 %	2.3 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	59.847 ppb	56.290 ppb	61.465 ppb	103.124 %	107.911 %	57.178 ppb	61.567 ppb	60.239 ppb	99.355 %
Concentration per Run 1	60.094 ppb	56.255 ppb	61.753 ppb	103.432 %	112.240 %	55.874 ppb	60.952 ppb	60.075 ppb	100.541 %
Concentration per Run 2	59.496 ppb	56.335 ppb	61.593 ppb	102.995 %	96.892 %	62.173 ppb	62.525 ppb	60.333 ppb	98.363 %
Concentration per Run 3	59.952 ppb	56.279 ppb	61.048 ppb	102.946 %	114.601 %	53.486 ppb	61.224 ppb	60.309 ppb	99.161 %
Recovery Percentage 1	99.746 %	93.816 %	102.442 %			95.296 %	102.612 %	100.399 %	
Concentration RSD	0.5 %	0.1 %	0.6 %	0.3 %	8.9 %	7.8 %	1.4 %	0.2 %	1.1 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 21 Analysis started at: 3/31/2020 10:44:40 PM
Analysis label: CCB User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	97.940 %	99.151 %	0.016 ppb	-21.112 ppb	0.083 ppb	0.312 ppb	-2.969 ppb	-0.958 ppb	92.716 %
Concentration per Run 1	97.894 %	102.972 %	0.027 ppb	-23.886 ppb	-0.449 ppb	0.332 ppb	-3.788 ppb	-2.595 ppb	91.933 %
Concentration per Run 2	96.729 %	99.717 %	0.021 ppb	-17.224 ppb	0.126 ppb	0.306 ppb	0.020 ppb	0.278 ppb	92.584 %
Concentration per Run 3	99.198 %	94.763 %	0.001 ppb	-22.225 ppb	0.570 ppb	0.300 ppb	-5.141 ppb	-0.556 ppb	93.630 %
Recovery Percentage 1			3.254 %	-21.112 %	0.118 %	3.124 %	-2.969 %	-0.958 %	
Concentration RSD	1.3 %	4.2 %	84.3 %	16.4 %	618.5 %	5.5 %	90.1 %	154.4 %	0.9 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.253 ppb	-0.044 ppb	-0.025 ppb	0.040 ppb	41.639 ppb	0.001 ppb	-0.016 ppb	0.016 ppb	-0.110 ppb
Concentration per Run 1	0.132 ppb	-0.078 ppb	-0.031 ppb	0.030 ppb	40.332 ppb	0.004 ppb	-0.029 ppb	0.024 ppb	-0.119 ppb
Concentration per Run 2	0.332 ppb	-0.025 ppb	-0.023 ppb	0.044 ppb	45.777 ppb	0.001 ppb	-0.015 ppb	0.002 ppb	-0.123 ppb
Concentration per Run 3	0.293 ppb	-0.028 ppb	-0.020 ppb	0.045 ppb	38.808 ppb	-0.001 ppb	-0.004 ppb	0.021 ppb	-0.088 ppb
Recovery Percentage 1	50.531 %	-0.871 %	-2.463 %	3.989 %	83.278 %	0.298 %	-0.790 %	1.569 %	-1.100 %
Concentration RSD	41.9 %	68.3 %	23.5 %	20.5 %	8.8 %	144.7 %	79.8 %	73.9 %	17.6 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	98.381 %	0.041 ppb	0.269 ppb	0.003 ppb	3.825 ppb	100.727 %	0.006 ppb	0.003 ppb	101.897 %
Concentration per Run 1	97.978 %	0.045 ppb	0.319 ppb	0.005 ppb	3.129 ppb	100.985 %	0.005 ppb	0.001 ppb	101.724 %
Concentration per Run 2	103.000 %	0.060 ppb	0.421 ppb	-0.001 ppb	3.593 ppb	101.927 %	0.006 ppb	0.004 ppb	107.181 %
Concentration per Run 3	94.164 %	0.016 ppb	0.068 ppb	0.004 ppb	4.753 ppb	99.270 %	0.007 ppb	0.003 ppb	96.787 %
Recovery Percentage 1		8.102 %	5.385 %	0.550 %	191.243 %		1.495 %	1.334 %	
Concentration RSD	4.5 %	55.2 %	67.6 %	106.0 %	21.9 %	1.3 %	16.2 %	56.8 %	5.1 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	1.161 ppb	0.091 ppb	0.002 ppb	100.122 %	105.691 %	1.927 ppb	0.682 ppb	0.012 ppb	97.824 %
Concentration per Run 1	1.170 ppb	0.058 ppb	-0.014 ppb	99.774 %	109.415 %	1.481 ppb	0.752 ppb	0.013 ppb	97.199 %
Concentration per Run 2	1.108 ppb	0.083 ppb	-0.002 ppb	102.911 %	114.632 %	1.743 ppb	0.671 ppb	0.010 ppb	99.556 %
Concentration per Run 3	1.206 ppb	0.131 ppb	0.023 ppb	97.682 %	93.026 %	2.556 ppb	0.625 ppb	0.012 ppb	96.716 %
Recovery Percentage 1	38.714 %	2.266 %	0.455 %			96.348 %	136.486 %	1.162 %	
Concentration RSD	4.2 %	40.8 %	840.1 %	2.6 %	10.7 %	29.1 %	9.5 %	9.3 %	1.6 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 22
Analysis label: L2013720-31 6020TL
Analysis started at: 3/31/2020 10:50:03 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	101.544 %	99.575 %	0.001 ppb	-18.936 ppb	2.181 ppb	3.825 ppb	-2.491 ppb	14.657 ppb	96.140 %
Concentration per Run 1	101.236 %	99.009 %	0.001 ppb	-19.602 ppb	2.065 ppb	3.889 ppb	-4.040 ppb	17.552 ppb	97.368 %
Concentration per Run 2	101.080 %	100.708 %	0.007 ppb	-21.167 ppb	2.229 ppb	3.362 ppb	-6.656 ppb	18.486 ppb	94.539 %
Concentration per Run 3	102.315 %	99.009 %	-0.006 ppb	-16.040 ppb	2.250 ppb	4.223 ppb	3.224 ppb	7.932 ppb	96.511 %
Concentration RSD	0.7 %	1.0 %	1,036.7 %	13.9 %	4.6 %	11.4 %	205.5 %	39.9 %	1.5 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.094 ppb	-0.069 ppb	0.806 ppb	0.300 ppb	18.921 ppb	0.010 ppb	0.385 ppb	0.087 ppb	7.441 ppb
Concentration per Run 1	0.085 ppb	-0.054 ppb	0.786 ppb	0.339 ppb	18.132 ppb	0.010 ppb	0.443 ppb	0.088 ppb	7.080 ppb
Concentration per Run 2	0.048 ppb	-0.048 ppb	0.816 ppb	0.260 ppb	19.474 ppb	0.010 ppb	0.318 ppb	0.088 ppb	7.425 ppb
Concentration per Run 3	0.150 ppb	-0.104 ppb	0.815 ppb	0.300 ppb	19.158 ppb	0.010 ppb	0.394 ppb	0.086 ppb	7.817 ppb
Concentration RSD	54.8 %	44.1 %	2.1 %	13.2 %	3.7 %	0.7 %	16.3 %	1.2 %	5.0 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	101.914 %	0.007 ppb	-0.022 ppb	0.152 ppb	0.652 ppb	102.530 %	0.003 ppb	0.000 ppb	102.588 %
Concentration per Run 1	101.701 %	0.014 ppb	0.036 ppb	0.158 ppb	0.125 ppb	102.304 %	0.002 ppb	0.001 ppb	103.330 %
Concentration per Run 2	101.138 %	0.026 ppb	-0.030 ppb	0.147 ppb	0.763 ppb	101.997 %	0.002 ppb	-0.001 ppb	101.380 %
Concentration per Run 3	102.904 %	-0.018 ppb	-0.071 ppb	0.152 ppb	1.067 ppb	103.290 %	0.003 ppb	0.001 ppb	103.054 %
Concentration RSD	0.9 %	307.7 %	248.8 %	3.4 %	73.8 %	0.7 %	22.6 %	189.7 %	1.0 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.298 ppb	0.006 ppb	0.424 ppb	100.700 %	100.444 %	0.093 ppb	0.064 ppb	0.011 ppb	112.155 %
Concentration per Run 1	0.239 ppb	-0.023 ppb	0.363 ppb	101.194 %	109.542 %	-0.188 ppb	0.032 ppb	0.010 ppb	118.595 %
Concentration per Run 2	0.362 ppb	0.015 ppb	0.432 ppb	99.614 %	95.621 %	0.159 ppb	0.092 ppb	0.014 ppb	100.855 %
Concentration per Run 3	0.293 ppb	0.025 ppb	0.479 ppb	101.292 %	96.170 %	0.309 ppb	0.068 ppb	0.010 ppb	117.013 %
Concentration RSD	20.6 %	447.4 %	13.8 %	0.9 %	7.8 %	274.1 %	47.6 %	20.4 %	8.8 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 23
Analysis label: L2013642-02D5 6020TL
Analysis started at: 3/31/2020 10:55:08 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	99.945 %	103.633 %	0.333 ppb	25,527.038 ppb	3,041.669 ppb	2,857.520 ppb	2,474.076 ppb	46,461.306 ppb	90.412 %
Concentration per Run 1	100.566 %	101.557 %	0.332 ppb	25,745.577 ppb	3,019.849 ppb	2,801.136 ppb	2,441.357 ppb	46,164.332 ppb	91.286 %
Concentration per Run 2	99.773 %	105.025 %	0.311 ppb	24,971.000 ppb	3,055.684 ppb	2,858.114 ppb	2,478.566 ppb	46,083.423 ppb	89.524 %
Concentration per Run 3	99.497 %	104.317 %	0.355 ppb	25,864.538 ppb	3,049.472 ppb	2,913.309 ppb	2,502.305 ppb	47,136.165 ppb	90.426 %
Concentration RSD	0.6 %	1.8 %	6.5 %	1.9 %	0.6 %	2.0 %	1.2 %	1.3 %	1.0 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	124.499 ppb	15.975 ppb	9.833 ppb	125.237 ppb	3,378.635 ppb	2.963 ppb	9.761 ppb	30.414 ppb	181.809 ppb
Concentration per Run 1	119.839 ppb	15.982 ppb	9.694 ppb	122.207 ppb	3,332.285 ppb	2.942 ppb	10.161 ppb	31.298 ppb	181.682 ppb
Concentration per Run 2	126.752 ppb	15.874 ppb	9.760 ppb	127.959 ppb	3,380.494 ppb	2.987 ppb	9.505 ppb	30.200 ppb	180.873 ppb
Concentration per Run 3	126.907 ppb	16.070 ppb	10.045 ppb	125.545 ppb	3,423.125 ppb	2.959 ppb	9.618 ppb	29.744 ppb	182.873 ppb
Concentration RSD	3.2 %	0.6 %	1.9 %	2.3 %	1.3 %	0.8 %	3.6 %	2.6 %	0.6 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	99.936 %	5.144 ppb	2.621 ppb	161.772 ppb	9.107 ppb	98.544 %	0.008 ppb	0.455 ppb	100.009 %
Concentration per Run 1	98.775 %	4.940 ppb	2.677 ppb	160.721 ppb	9.318 ppb	98.118 %	0.010 ppb	0.459 ppb	98.674 %
Concentration per Run 2	100.460 %	5.221 ppb	2.860 ppb	160.528 ppb	9.124 ppb	98.594 %	0.007 ppb	0.470 ppb	100.726 %
Concentration per Run 3	100.572 %	5.273 ppb	2.327 ppb	164.068 ppb	8.879 ppb	98.919 %	0.008 ppb	0.437 ppb	100.627 %
Concentration RSD	1.0 %	3.5 %	10.3 %	1.2 %	2.4 %	0.4 %	20.3 %	3.7 %	1.2 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	2.347 ppb	0.383 ppb	20.794 ppb	90.920 %	83.565 %	0.886 ppb	0.059 ppb	18.607 ppb	95.871 %
Concentration per Run 1	2.179 ppb	0.339 ppb	20.532 ppb	90.437 %	82.750 %	0.732 ppb	0.044 ppb	18.546 ppb	95.912 %
Concentration per Run 2	2.387 ppb	0.421 ppb	20.974 ppb	90.126 %	82.893 %	0.913 ppb	0.064 ppb	18.761 ppb	94.967 %
Concentration per Run 3	2.476 ppb	0.388 ppb	20.876 ppb	92.197 %	85.051 %	1.014 ppb	0.068 ppb	18.513 ppb	96.735 %
Concentration RSD	6.5 %	10.8 %	1.1 %	1.2 %	1.5 %	16.1 %	22.2 %	0.7 %	0.9 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 24
Analysis label: L2013706-01 6020TL
Analysis started at: 3/31/2020 11:00:13 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	103.705 %	104.034 %	0.154 ppb	31,877.811 ppb	19,133.198 ppb	2,406.032 ppb	4,455.359 ppb	81,055.294 ppb	95.667 %
Concentration per Run 1	103.155 %	102.477 %	0.166 ppb	31,748.946 ppb	19,040.360 ppb	2,372.308 ppb	4,431.062 ppb	80,967.743 ppb	94.470 %
Concentration per Run 2	104.661 %	105.591 %	0.159 ppb	31,634.103 ppb	19,218.477 ppb	2,405.296 ppb	4,402.693 ppb	80,222.109 ppb	97.383 %
Concentration per Run 3	103.300 %	104.034 %	0.137 ppb	32,250.384 ppb	19,140.757 ppb	2,440.492 ppb	4,532.320 ppb	81,976.029 ppb	95.149 %
Concentration RSD	0.8 %	1.5 %	9.9 %	1.0 %	0.5 %	1.4 %	1.5 %	1.1 %	1.6 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	231.556 ppb	7.480 ppb	20.487 ppb	602.836 ppb	7,129.079 ppb	5.498 ppb	14.613 ppb	31.022 ppb	202.433 ppb
Concentration per Run 1	228.395 ppb	7.341 ppb	20.405 ppb	608.412 ppb	7,197.493 ppb	5.431 ppb	14.766 ppb	30.819 ppb	205.778 ppb
Concentration per Run 2	234.892 ppb	7.590 ppb	20.473 ppb	589.362 ppb	6,970.662 ppb	5.449 ppb	14.141 ppb	31.211 ppb	200.233 ppb
Concentration per Run 3	231.380 ppb	7.511 ppb	20.584 ppb	610.733 ppb	7,219.080 ppb	5.613 ppb	14.933 ppb	31.036 ppb	201.288 ppb
Concentration RSD	1.4 %	1.7 %	0.4 %	1.9 %	1.9 %	1.8 %	2.9 %	0.6 %	1.5 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	106.362 %	3.095 ppb	1.081 ppb	278.941 ppb	14.024 ppb	101.119 %	0.211 ppb	0.375 ppb	104.014 %
Concentration per Run 1	103.701 %	3.033 ppb	1.274 ppb	282.802 ppb	14.476 ppb	101.303 %	0.209 ppb	0.382 ppb	102.732 %
Concentration per Run 2	107.554 %	3.275 ppb	0.931 ppb	275.457 ppb	13.597 ppb	100.904 %	0.219 ppb	0.366 ppb	105.104 %
Concentration per Run 3	107.830 %	2.978 ppb	1.038 ppb	278.563 ppb	14.000 ppb	101.150 %	0.205 ppb	0.379 ppb	104.204 %
Concentration RSD	2.2 %	5.1 %	16.2 %	1.3 %	3.1 %	0.2 %	3.4 %	2.3 %	1.2 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	2.803 ppb	1.063 ppb	275.008 ppb	91.596 %	84.634 %	0.673 ppb	-0.005 ppb	133.440 ppb	97.494 %
Concentration per Run 1	2.856 ppb	1.056 ppb	273.535 ppb	92.330 %	83.923 %	0.588 ppb	-0.023 ppb	131.644 ppb	98.628 %
Concentration per Run 2	2.742 ppb	1.039 ppb	274.360 ppb	91.383 %	84.411 %	0.628 ppb	0.002 ppb	134.407 ppb	97.381 %
Concentration per Run 3	2.812 ppb	1.094 ppb	277.130 ppb	91.075 %	85.567 %	0.802 ppb	0.008 ppb	134.269 ppb	96.473 %
Concentration RSD	2.1 %	2.6 %	0.7 %	0.7 %	1.0 %	16.9 %	367.2 %	1.2 %	1.1 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 25
Analysis label: L2013706-02 6020TL
Analysis started at: 3/31/2020 11:05:18 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	110.172 %	108.587 %	0.009 ppb	99,643.240 ppb	20,920.103 ppb	65.728 ppb	3,826.112 ppb	64,407.643 ppb	104.204 %
Concentration per Run 1	110.758 %	99.505 %	0.009 ppb	102,221.733 ppb	21,189.456 ppb	65.756 ppb	3,867.567 ppb	64,699.056 ppb	103.364 %
Concentration per Run 2	108.757 %	115.570 %	0.016 ppb	95,966.343 ppb	20,208.090 ppb	64.196 ppb	3,858.206 ppb	64,769.597 ppb	105.065 %
Concentration per Run 3	111.001 %	110.687 %	0.002 ppb	100,741.645 ppb	21,362.763 ppb	67.232 ppb	3,752.562 ppb	63,754.275 ppb	104.185 %
Concentration RSD	1.1 %	7.6 %	78.9 %	3.3 %	3.0 %	2.3 %	1.7 %	0.9 %	0.8 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	113.448 ppb	0.149 ppb	1.238 ppb	2,839.030 ppb	684.268 ppb	10.914 ppb	13.348 ppb	0.690 ppb	1.579 ppb
Concentration per Run 1	110.737 ppb	0.142 ppb	1.288 ppb	2,837.564 ppb	682.830 ppb	11.132 ppb	13.563 ppb	0.766 ppb	1.634 ppb
Concentration per Run 2	115.091 ppb	0.088 ppb	1.222 ppb	2,825.288 ppb	680.715 ppb	10.916 ppb	14.058 ppb	0.653 ppb	1.524 ppb
Concentration per Run 3	114.515 ppb	0.216 ppb	1.203 ppb	2,854.237 ppb	689.260 ppb	10.696 ppb	12.424 ppb	0.650 ppb	1.578 ppb
Concentration RSD	2.1 %	43.3 %	3.6 %	0.5 %	0.7 %	2.0 %	6.3 %	9.6 %	3.5 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	106.915 %	0.163 ppb	0.924 ppb	232.346 ppb	10.771 ppb	103.409 %	0.006 ppb	0.083 ppb	104.897 %
Concentration per Run 1	101.156 %	0.174 ppb	1.110 ppb	226.290 ppb	10.850 ppb	101.779 %	0.005 ppb	0.087 ppb	99.714 %
Concentration per Run 2	107.191 %	0.195 ppb	0.858 ppb	235.905 ppb	10.434 ppb	105.188 %	0.009 ppb	0.078 ppb	108.274 %
Concentration per Run 3	112.397 %	0.120 ppb	0.805 ppb	234.843 ppb	11.029 ppb	103.259 %	0.003 ppb	0.085 ppb	106.703 %
Concentration RSD	5.3 %	23.5 %	17.6 %	2.3 %	2.8 %	1.7 %	56.9 %	5.7 %	4.3 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.143 ppb	0.075 ppb	57.133 ppb	99.121 %	96.365 %	-0.443 ppb	-0.033 ppb	0.243 ppb	95.885 %
Concentration per Run 1	0.095 ppb	0.062 ppb	56.137 ppb	97.872 %	102.433 %	-0.593 ppb	-0.041 ppb	0.244 ppb	95.286 %
Concentration per Run 2	0.196 ppb	0.060 ppb	57.348 ppb	99.698 %	93.732 %	-0.437 ppb	-0.032 ppb	0.246 ppb	96.916 %
Concentration per Run 3	0.139 ppb	0.101 ppb	57.913 ppb	99.794 %	92.930 %	-0.301 ppb	-0.027 ppb	0.240 ppb	95.455 %
Concentration RSD	35.5 %	31.3 %	1.6 %	1.1 %	5.5 %	33.0 %	22.0 %	1.2 %	0.9 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 26
Analysis label: L2013733-01 6020TL
Analysis started at: 3/31/2020 11:10:23 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	113.348 %	115.429 %	0.004 ppb	31,512.978 ppb	10,641.404 ppb	35.262 ppb	3,595.403 ppb	52,073.421 ppb	105.558 %
Concentration per Run 1	112.645 %	119.038 %	0.001 ppb	30,283.123 ppb	10,152.501 ppb	31.996 ppb	3,535.103 ppb	50,466.517 ppb	105.259 %
Concentration per Run 2	113.306 %	112.173 %	0.007 ppb	32,132.614 ppb	10,891.735 ppb	36.473 ppb	3,716.437 ppb	54,050.309 ppb	106.403 %
Concentration per Run 3	114.091 %	115.075 %	0.003 ppb	32,123.198 ppb	10,879.975 ppb	37.316 ppb	3,534.668 ppb	51,703.438 ppb	105.011 %
Concentration RSD	0.6 %	3.0 %	73.3 %	3.4 %	4.0 %	8.1 %	2.9 %	3.5 %	0.7 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	90.735 ppb	0.297 ppb	0.888 ppb	202.430 ppb	291.407 ppb	0.076 ppb	0.721 ppb	1.356 ppb	11.801 ppb
Concentration per Run 1	87.630 ppb	0.270 ppb	0.953 ppb	194.818 ppb	279.129 ppb	0.071 ppb	0.676 ppb	1.402 ppb	11.441 ppb
Concentration per Run 2	91.972 ppb	0.265 ppb	0.799 ppb	205.011 ppb	293.528 ppb	0.073 ppb	0.791 ppb	1.241 ppb	12.247 ppb
Concentration per Run 3	92.604 ppb	0.355 ppb	0.914 ppb	207.463 ppb	301.565 ppb	0.084 ppb	0.696 ppb	1.425 ppb	11.714 ppb
Concentration RSD	3.0 %	17.0 %	9.0 %	3.3 %	3.9 %	8.6 %	8.5 %	7.4 %	3.5 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	114.231 %	85.587 ppb	0.527 ppb	176.276 ppb	2.370 ppb	110.271 %	0.005 ppb	0.005 ppb	111.631 %
Concentration per Run 1	117.343 %	82.597 ppb	0.757 ppb	172.376 ppb	1.886 ppb	111.981 %	0.004 ppb	0.005 ppb	113.024 %
Concentration per Run 2	111.880 %	87.376 ppb	0.433 ppb	179.469 ppb	2.360 ppb	109.159 %	0.005 ppb	0.005 ppb	110.941 %
Concentration per Run 3	113.469 %	86.789 ppb	0.392 ppb	176.984 ppb	2.865 ppb	109.672 %	0.005 ppb	0.004 ppb	110.928 %
Concentration RSD	2.5 %	3.0 %	38.0 %	2.0 %	20.6 %	1.4 %	18.4 %	17.5 %	1.1 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.106 ppb	0.062 ppb	22.275 ppb	103.567 %	100.861 %	-0.614 ppb	-0.094 ppb	0.141 ppb	101.940 %
Concentration per Run 1	-0.153 ppb	0.059 ppb	21.218 ppb	105.171 %	97.328 %	-0.723 ppb	-0.105 ppb	0.140 ppb	103.821 %
Concentration per Run 2	-0.115 ppb	0.050 ppb	22.447 ppb	103.045 %	108.635 %	-0.628 ppb	-0.092 ppb	0.143 ppb	100.244 %
Concentration per Run 3	-0.049 ppb	0.076 ppb	23.160 ppb	102.485 %	96.620 %	-0.490 ppb	-0.084 ppb	0.142 ppb	101.755 %
Concentration RSD	49.8 %	21.9 %	4.4 %	1.4 %	6.7 %	19.1 %	11.2 %	1.2 %	1.8 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 27
Analysis label: L2013789-01 6020TL
Analysis started at: 3/31/2020 11:15:29 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	111.776 %	107.266 %	0.024 ppb	352,924.628 ppb	49,855.368 ppb	341.128 ppb	5,408.511 ppb	131,936.320 ppb	100.370 %
Concentration per Run 1	112.147 %	107.290 %	0.023 ppb	348,472.288 ppb	49,698.985 ppb	343.541 ppb	5,433.934 ppb	133,597.321 ppb	99.780 %
Concentration per Run 2	112.887 %	108.634 %	0.024 ppb	354,406.735 ppb	49,794.088 ppb	332.551 ppb	5,264.860 ppb	130,877.689 ppb	101.913 %
Concentration per Run 3	110.293 %	105.874 %	0.025 ppb	355,894.860 ppb	50,073.030 ppb	347.290 ppb	5,526.739 ppb	131,333.951 ppb	99.416 %
Concentration RSD	1.2 %	1.3 %	5.2 %	1.1 %	0.4 %	2.2 %	2.5 %	1.1 %	1.3 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	236.994 ppb	0.857 ppb	2.860 ppb	1,217.793 ppb	1,058.189 ppb	15.095 ppb	22.416 ppb	2.211 ppb	4.081 ppb
Concentration per Run 1	238.426 ppb	0.803 ppb	2.849 ppb	1,215.436 ppb	1,040.919 ppb	15.021 ppb	22.252 ppb	2.136 ppb	3.847 ppb
Concentration per Run 2	232.409 ppb	0.922 ppb	2.797 ppb	1,210.371 ppb	1,045.592 ppb	14.718 ppb	22.456 ppb	2.349 ppb	4.057 ppb
Concentration per Run 3	240.146 ppb	0.845 ppb	2.933 ppb	1,227.570 ppb	1,088.056 ppb	15.545 ppb	22.539 ppb	2.146 ppb	4.340 ppb
Concentration RSD	1.7 %	7.0 %	2.4 %	0.7 %	2.5 %	2.8 %	0.7 %	5.4 %	6.1 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	102.316 %	0.401 ppb	0.678 ppb	765.207 ppb	1.865 ppb	93.376 %	0.008 ppb	0.189 ppb	97.663 %
Concentration per Run 1	102.056 %	0.415 ppb	0.809 ppb	775.812 ppb	1.708 ppb	93.305 %	0.011 ppb	0.169 ppb	97.781 %
Concentration per Run 2	102.197 %	0.377 ppb	0.783 ppb	761.563 ppb	1.934 ppb	93.165 %	0.008 ppb	0.194 ppb	97.512 %
Concentration per Run 3	102.693 %	0.412 ppb	0.442 ppb	758.247 ppb	1.955 ppb	93.658 %	0.005 ppb	0.203 ppb	97.695 %
Concentration RSD	0.3 %	5.2 %	30.2 %	1.2 %	7.3 %	0.3 %	36.1 %	9.3 %	0.1 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.021 ppb	-0.002 ppb	203.973 ppb	89.742 %	82.842 %	-0.528 ppb	-0.070 ppb	0.629 ppb	85.206 %
Concentration per Run 1	-0.029 ppb	-0.033 ppb	201.376 ppb	90.562 %	83.629 %	-0.618 ppb	-0.081 ppb	0.645 ppb	85.816 %
Concentration per Run 2	-0.027 ppb	-0.015 ppb	205.388 ppb	89.014 %	82.462 %	-0.531 ppb	-0.071 ppb	0.628 ppb	84.741 %
Concentration per Run 3	-0.007 ppb	0.042 ppb	205.154 ppb	89.649 %	82.435 %	-0.435 ppb	-0.059 ppb	0.615 ppb	85.063 %
Concentration RSD	56.5 %	1,796.1 %	1.1 %	0.9 %	0.8 %	17.3 %	15.7 %	2.4 %	0.6 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 28
Analysis label: L2013789-02 6020TL
Analysis started at: 3/31/2020 11:20:35 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	106.774 %	104.624 %	0.181 ppb	117,320.397 ppb	9,956.136 ppb	3,028.472 ppb	3,515.730 ppb	37,062.761 ppb	100.844 %
Concentration per Run 1	107.445 %	104.813 %	0.190 ppb	117,398.111 ppb	9,914.233 ppb	2,936.188 ppb	3,503.689 ppb	37,029.081 ppb	102.192 %
Concentration per Run 2	105.931 %	103.256 %	0.177 ppb	117,501.372 ppb	10,101.133 ppb	3,089.890 ppb	3,561.889 ppb	37,740.259 ppb	100.901 %
Concentration per Run 3	106.945 %	105.803 %	0.175 ppb	117,061.708 ppb	9,853.042 ppb	3,059.338 ppb	3,481.611 ppb	36,418.941 ppb	99.438 %
Concentration RSD	0.7 %	1.2 %	4.5 %	0.2 %	1.3 %	2.7 %	1.2 %	1.8 %	1.4 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	203.849 ppb	9.501 ppb	32.720 ppb	901.306 ppb	10,081.546 ppb	18.935 ppb	18.037 ppb	24.635 ppb	14.623 ppb
Concentration per Run 1	195.308 ppb	9.896 ppb	32.512 ppb	885.112 ppb	9,947.550 ppb	18.596 ppb	17.900 ppb	24.551 ppb	14.359 ppb
Concentration per Run 2	209.998 ppb	9.509 ppb	33.312 ppb	925.333 ppb	10,263.861 ppb	19.474 ppb	18.549 ppb	25.091 ppb	14.654 ppb
Concentration per Run 3	206.241 ppb	9.097 ppb	32.335 ppb	893.474 ppb	10,033.229 ppb	18.734 ppb	17.663 ppb	24.263 ppb	14.856 ppb
Concentration RSD	3.7 %	4.2 %	1.6 %	2.4 %	1.6 %	2.5 %	2.5 %	1.7 %	1.7 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	105.259 %	2.020 ppb	2.130 ppb	200.626 ppb	6.873 ppb	99.348 %	0.019 ppb	0.067 ppb	103.466 %
Concentration per Run 1	104.262 %	1.985 ppb	1.923 ppb	202.422 ppb	6.927 ppb	98.145 %	0.017 ppb	0.070 ppb	101.609 %
Concentration per Run 2	105.115 %	2.147 ppb	2.059 ppb	200.054 ppb	6.939 ppb	99.279 %	0.021 ppb	0.067 ppb	104.525 %
Concentration per Run 3	106.401 %	1.928 ppb	2.407 ppb	199.401 ppb	6.751 ppb	100.620 %	0.018 ppb	0.065 ppb	104.265 %
Concentration RSD	1.0 %	5.6 %	11.7 %	0.8 %	1.5 %	1.2 %	10.8 %	3.8 %	1.6 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.664 ppb	0.383 ppb	81.131 ppb	92.105 %	84.972 %	0.803 ppb	-0.029 ppb	5.359 ppb	95.494 %
Concentration per Run 1	0.708 ppb	0.367 ppb	81.304 ppb	91.748 %	84.442 %	0.777 ppb	-0.042 ppb	5.285 ppb	96.363 %
Concentration per Run 2	0.635 ppb	0.381 ppb	80.924 ppb	92.280 %	85.344 %	0.819 ppb	-0.026 ppb	5.299 ppb	96.101 %
Concentration per Run 3	0.648 ppb	0.403 ppb	81.166 ppb	92.287 %	85.130 %	0.812 ppb	-0.019 ppb	5.494 ppb	94.017 %
Concentration RSD	5.9 %	4.8 %	0.2 %	0.3 %	0.6 %	2.8 %	41.4 %	2.2 %	1.3 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 29
Analysis label: L2013789-03 6020TL
Analysis started at: 3/31/2020 11:25:42 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	108.310 %	109.555 %	0.089 ppb	116,170.518 ppb	9,225.867 ppb	1,190.775 ppb	3,065.197 ppb	36,198.137 ppb	99.626 %
Concentration per Run 1	109.717 %	105.379 %	0.064 ppb	119,226.936 ppb	9,459.748 ppb	1,203.510 ppb	3,133.893 ppb	36,968.044 ppb	101.566 %
Concentration per Run 2	107.180 %	108.776 %	0.126 ppb	116,476.587 ppb	9,364.494 ppb	1,186.984 ppb	3,073.036 ppb	36,361.527 ppb	97.424 %
Concentration per Run 3	108.032 %	114.509 %	0.079 ppb	112,808.032 ppb	8,853.359 ppb	1,181.830 ppb	2,988.661 ppb	35,264.840 ppb	99.889 %
Concentration RSD	1.2 %	4.2 %	35.9 %	2.8 %	3.5 %	1.0 %	2.4 %	2.4 %	2.1 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	107.286 ppb	3.366 ppb	18.801 ppb	769.271 ppb	4,590.071 ppb	17.181 ppb	12.836 ppb	8.717 ppb	12.573 ppb
Concentration per Run 1	106.902 ppb	3.456 ppb	18.853 ppb	765.492 ppb	4,576.863 ppb	17.422 ppb	12.914 ppb	8.701 ppb	12.500 ppb
Concentration per Run 2	109.387 ppb	3.112 ppb	18.823 ppb	764.766 ppb	4,510.693 ppb	17.327 ppb	12.482 ppb	8.727 ppb	12.531 ppb
Concentration per Run 3	105.570 ppb	3.529 ppb	18.727 ppb	777.556 ppb	4,682.658 ppb	16.793 ppb	13.112 ppb	8.723 ppb	12.689 ppb
Concentration RSD	1.8 %	6.6 %	0.4 %	0.9 %	1.9 %	2.0 %	2.5 %	0.2 %	0.8 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	109.210 %	1.024 ppb	1.577 ppb	197.057 ppb	6.315 ppb	103.372 %	0.010 ppb	0.056 ppb	105.488 %
Concentration per Run 1	109.434 %	0.930 ppb	1.445 ppb	197.009 ppb	6.580 ppb	104.083 %	0.004 ppb	0.048 ppb	105.278 %
Concentration per Run 2	110.068 %	1.037 ppb	1.698 ppb	196.489 ppb	6.099 ppb	103.728 %	0.011 ppb	0.059 ppb	106.748 %
Concentration per Run 3	108.129 %	1.106 ppb	1.589 ppb	197.672 ppb	6.266 ppb	102.306 %	0.015 ppb	0.061 ppb	104.439 %
Concentration RSD	0.9 %	8.7 %	8.0 %	0.3 %	3.9 %	0.9 %	54.1 %	12.5 %	1.1 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.112 ppb	0.212 ppb	67.111 ppb	96.537 %	89.112 %	-0.022 ppb	-0.085 ppb	3.661 ppb	96.994 %
Concentration per Run 1	0.099 ppb	0.190 ppb	66.989 ppb	96.864 %	88.751 %	-0.020 ppb	-0.091 ppb	3.633 ppb	97.568 %
Concentration per Run 2	0.082 ppb	0.219 ppb	67.227 ppb	96.867 %	90.525 %	-0.050 ppb	-0.083 ppb	3.642 ppb	97.101 %
Concentration per Run 3	0.156 ppb	0.226 ppb	67.116 ppb	95.880 %	88.059 %	0.005 ppb	-0.082 ppb	3.708 ppb	96.312 %
Concentration RSD	34.5 %	8.8 %	0.2 %	0.6 %	1.4 %	127.6 %	6.2 %	1.1 %	0.7 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 30
Analysis label: L2013836-01 6020TL
Analysis started at: 3/31/2020 11:30:46 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	117.040 %	118.543 %	0.008 ppb	388,470.791 ppb	54,782.099 ppb	90.968 ppb	996.576 ppb	188,068.477 ppb	104.020 %
Concentration per Run 1	118.338 %	117.694 %	0.006 ppb	385,086.616 ppb	53,778.862 ppb	89.362 ppb	956.226 ppb	183,762.523 ppb	105.003 %
Concentration per Run 2	116.810 %	117.411 %	0.005 ppb	384,956.534 ppb	54,370.204 ppb	87.907 ppb	967.634 ppb	181,823.216 ppb	104.163 %
Concentration per Run 3	115.971 %	120.525 %	0.012 ppb	395,369.222 ppb	56,197.230 ppb	95.634 ppb	1,065.869 ppb	198,619.691 ppb	102.894 %
Concentration RSD	1.0 %	1.5 %	50.6 %	1.5 %	2.3 %	4.5 %	6.0 %	4.9 %	1.0 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	331.273 ppb	0.170 ppb	1.074 ppb	5.154 ppb	221.037 ppb	0.128 ppb	0.625 ppb	0.601 ppb	1.797 ppb
Concentration per Run 1	322.575 ppb	0.182 ppb	1.073 ppb	5.137 ppb	216.164 ppb	0.128 ppb	0.445 ppb	0.588 ppb	1.741 ppb
Concentration per Run 2	328.844 ppb	0.171 ppb	1.118 ppb	5.130 ppb	218.495 ppb	0.120 ppb	0.667 ppb	0.549 ppb	1.682 ppb
Concentration per Run 3	342.398 ppb	0.156 ppb	1.033 ppb	5.196 ppb	228.451 ppb	0.135 ppb	0.764 ppb	0.665 ppb	1.969 ppb
Concentration RSD	3.1 %	7.6 %	3.9 %	0.7 %	3.0 %	6.0 %	26.1 %	9.8 %	8.4 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	106.135 %	0.175 ppb	0.631 ppb	620.187 ppb	0.654 ppb	95.033 %	0.010 ppb	0.033 ppb	101.390 %
Concentration per Run 1	104.152 %	0.136 ppb	0.700 ppb	617.261 ppb	0.304 ppb	95.341 %	0.009 ppb	0.028 ppb	99.332 %
Concentration per Run 2	104.023 %	0.168 ppb	0.471 ppb	601.482 ppb	0.566 ppb	94.183 %	0.008 ppb	0.035 ppb	99.983 %
Concentration per Run 3	110.229 %	0.222 ppb	0.724 ppb	641.819 ppb	1.091 ppb	95.576 %	0.013 ppb	0.037 ppb	104.855 %
Concentration RSD	3.3 %	24.8 %	22.1 %	3.3 %	61.4 %	0.8 %	24.0 %	13.6 %	3.0 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.238 ppb	-0.035 ppb	148.732 ppb	88.747 %	83.136 %	-0.753 ppb	-0.120 ppb	0.129 ppb	83.319 %
Concentration per Run 1	-0.255 ppb	-0.066 ppb	147.781 ppb	89.110 %	82.136 %	-0.805 ppb	-0.127 ppb	0.133 ppb	84.448 %
Concentration per Run 2	-0.248 ppb	-0.023 ppb	148.424 ppb	88.316 %	82.920 %	-0.756 ppb	-0.117 ppb	0.121 ppb	81.808 %
Concentration per Run 3	-0.210 ppb	-0.017 ppb	149.991 ppb	88.816 %	84.352 %	-0.700 ppb	-0.117 ppb	0.133 ppb	83.701 %
Concentration RSD	10.1 %	75.4 %	0.8 %	0.5 %	1.4 %	7.0 %	4.8 %	5.6 %	1.6 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 31 Analysis started at: 3/31/2020 11:35:51 PM
Analysis label: SCAN User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	112.103 %	112.621 %	-0.002 ppb	2.891 ppb	0.075 ppb	0.586 ppb	2.078 ppb	6.739 ppb	107.803 %
Concentration per Run 1	111.946 %	111.041 %	-0.002 ppb	0.542 ppb	0.253 ppb	0.574 ppb	1.966 ppb	4.449 ppb	105.977 %
Concentration per Run 2	111.493 %	116.986 %	-0.002 ppb	3.795 ppb	-0.116 ppb	0.657 ppb	0.997 ppb	8.368 ppb	109.005 %
Concentration per Run 3	112.870 %	109.838 %	-0.002 ppb	4.337 ppb	0.089 ppb	0.527 ppb	3.271 ppb	7.401 ppb	108.426 %
Concentration RSD	0.6 %	3.4 %	1.9 %	71.0 %	244.6 %	11.1 %	54.9 %	30.3 %	1.5 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.235 ppb	0.044 ppb	0.018 ppb	0.131 ppb	14.731 ppb	0.005 ppb	0.064 ppb	0.028 ppb	0.068 ppb
Concentration per Run 1	0.238 ppb	0.041 ppb	0.031 ppb	0.085 ppb	17.731 ppb	0.003 ppb	0.029 ppb	0.039 ppb	0.106 ppb
Concentration per Run 2	0.192 ppb	0.031 ppb	-0.005 ppb	0.163 ppb	13.170 ppb	0.005 ppb	0.100 ppb	0.018 ppb	0.000 ppb
Concentration per Run 3	0.276 ppb	0.061 ppb	0.026 ppb	0.146 ppb	13.292 ppb	0.006 ppb	0.064 ppb	0.026 ppb	0.098 ppb
Concentration RSD	18.0 %	34.1 %	109.9 %	31.5 %	17.6 %	27.2 %	55.8 %	38.1 %	86.8 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	106.757 %	0.011 ppb	0.308 ppb	0.012 ppb	-0.985 ppb	107.466 %	0.003 ppb	-0.001 ppb	107.775 %
Concentration per Run 1	106.945 %	-0.005 ppb	0.454 ppb	0.012 ppb	-1.020 ppb	106.563 %	0.002 ppb	0.001 ppb	107.576 %
Concentration per Run 2	112.229 %	0.030 ppb	0.107 ppb	0.003 ppb	-1.071 ppb	108.570 %	0.002 ppb	-0.001 ppb	113.621 %
Concentration per Run 3	101.097 %	0.010 ppb	0.364 ppb	0.021 ppb	-0.863 ppb	107.265 %	0.005 ppb	-0.002 ppb	102.129 %
Concentration RSD	5.2 %	154.9 %	58.4 %	76.3 %	11.0 %	0.9 %	56.3 %	226.8 %	5.3 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.315 ppb	-0.040 ppb	0.001 ppb	104.358 %	113.878 %	-0.937 ppb	-0.140 ppb	-0.001 ppb	100.923 %
Concentration per Run 1	-0.320 ppb	-0.046 ppb	-0.002 ppb	104.637 %	113.609 %	-0.972 ppb	-0.147 ppb	-0.002 ppb	101.750 %
Concentration per Run 2	-0.314 ppb	-0.043 ppb	-0.009 ppb	105.846 %	117.710 %	-0.937 ppb	-0.136 ppb	-0.001 ppb	101.083 %
Concentration per Run 3	-0.309 ppb	-0.030 ppb	0.015 ppb	102.593 %	110.315 %	-0.903 ppb	-0.136 ppb	0.001 ppb	99.936 %
Concentration RSD	1.7 %	20.9 %	1,043.5 %	1.6 %	3.3 %	3.7 %	4.7 %	262.6 %	0.9 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 32 Analysis started at: 3/31/2020 11:40:57 PM
Analysis label: CCV User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	101.401 %	98.349 %	58.488 ppb	5,794.717 ppb	5,989.911 ppb	61.658 ppb	5,996.114 ppb	6,068.720 ppb	108.146 %
Concentration per Run 1	102.330 %	101.415 %	58.175 ppb	5,806.115 ppb	6,227.858 ppb	64.843 ppb	6,396.686 ppb	6,275.704 ppb	109.685 %
Concentration per Run 2	101.401 %	94.055 %	58.100 ppb	5,905.355 ppb	5,898.813 ppb	60.255 ppb	5,767.033 ppb	5,962.542 ppb	109.561 %
Concentration per Run 3	100.472 %	99.575 %	59.189 ppb	5,672.682 ppb	5,843.061 ppb	59.875 ppb	5,824.623 ppb	5,967.915 ppb	105.191 %
Recovery Percentage 1			97.480 %	96.579 %	99.832 %	102.763 %	99.935 %	101.145 %	
Concentration RSD	0.9 %	3.9 %	1.0 %	2.0 %	3.5 %	4.5 %	5.8 %	3.0 %	2.4 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	60.955 ppb	59.259 ppb	60.211 ppb	60.770 ppb	5,897.343 ppb	60.803 ppb	60.458 ppb	60.437 ppb	58.901 ppb
Concentration per Run 1	61.558 ppb	57.973 ppb	59.307 ppb	60.903 ppb	5,801.510 ppb	59.730 ppb	58.101 ppb	58.676 ppb	57.492 ppb
Concentration per Run 2	60.467 ppb	59.930 ppb	61.296 ppb	60.620 ppb	5,957.932 ppb	62.306 ppb	63.817 ppb	62.761 ppb	59.805 ppb
Concentration per Run 3	60.839 ppb	59.873 ppb	60.030 ppb	60.787 ppb	5,932.587 ppb	60.372 ppb	59.457 ppb	59.874 ppb	59.405 ppb
Recovery Percentage 1	101.591 %	98.764 %	100.352 %	101.283 %	98.289 %	101.338 %	100.764 %	100.728 %	98.168 %
Concentration RSD	0.9 %	1.9 %	1.7 %	0.2 %	1.4 %	2.2 %	4.9 %	3.5 %	2.1 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	96.367 %	57.113 ppb	57.122 ppb	58.388 ppb	56.534 ppb	102.015 %	61.088 ppb	57.211 ppb	99.711 %
Concentration per Run 1	102.799 %	55.837 ppb	58.194 ppb	63.025 ppb	58.589 ppb	97.826 %	62.010 ppb	57.551 ppb	105.297 %
Concentration per Run 2	89.519 %	58.581 ppb	55.388 ppb	57.348 ppb	59.487 ppb	96.052 %	64.012 ppb	58.640 ppb	93.665 %
Concentration per Run 3	96.784 %	56.921 ppb	57.784 ppb	54.792 ppb	51.524 ppb	112.167 %	57.242 ppb	55.441 ppb	100.172 %
Recovery Percentage 1		95.188 %	95.203 %	97.314 %	94.223 %		101.813 %	95.351 %	
Concentration RSD	6.9 %	2.4 %	2.7 %	7.2 %	7.7 %	8.7 %	5.7 %	2.8 %	5.8 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	58.783 ppb	55.547 ppb	60.667 ppb	98.390 %	98.640 %	59.066 ppb	61.985 ppb	60.222 ppb	95.747 %
Concentration per Run 1	58.089 ppb	55.122 ppb	62.264 ppb	101.729 %	112.972 %	53.632 ppb	60.870 ppb	59.685 ppb	98.084 %
Concentration per Run 2	59.503 ppb	56.257 ppb	59.690 ppb	95.128 %	89.548 %	63.030 ppb	62.457 ppb	60.864 ppb	94.284 %
Concentration per Run 3	58.758 ppb	55.263 ppb	60.048 ppb	98.312 %	93.399 %	60.536 ppb	62.626 ppb	60.116 ppb	94.874 %
Recovery Percentage 1	97.972 %	92.578 %	101.112 %			98.443 %	103.308 %	100.369 %	
Concentration RSD	1.2 %	1.1 %	2.3 %	3.4 %	12.7 %	8.2 %	1.6 %	1.0 %	2.1 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 33 Analysis started at: 3/31/2020 11:46:06 PM
Analysis label: CCB User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	93.987 %	92.640 %	0.004 ppb	-11.656 ppb	-0.100 ppb	0.165 ppb	-2.137 ppb	3.234 ppb	87.921 %
Concentration per Run 1	93.887 %	87.473 %	-0.001 ppb	-14.460 ppb	-0.011 ppb	-0.009 ppb	-1.842 ppb	0.659 ppb	88.085 %
Concentration per Run 2	95.440 %	95.400 %	0.008 ppb	-11.459 ppb	-0.044 ppb	0.294 ppb	-0.670 ppb	5.506 ppb	89.146 %
Concentration per Run 3	92.632 %	95.046 %	0.006 ppb	-9.048 ppb	-0.246 ppb	0.208 ppb	-3.898 ppb	3.536 ppb	86.531 %
Recovery Percentage 1			0.890 %	-11.656 %	-0.143 %	1.645 %	-2.137 %	3.234 %	
Concentration RSD	1.5 %	4.8 %	104.5 %	23.3 %	126.8 %	94.9 %	76.5 %	75.4 %	1.5 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.341 ppb	-0.050 ppb	-0.056 ppb	0.109 ppb	39.604 ppb	0.004 ppb	-0.014 ppb	0.030 ppb	-0.142 ppb
Concentration per Run 1	0.322 ppb	-0.082 ppb	-0.046 ppb	0.114 ppb	34.434 ppb	0.007 ppb	0.034 ppb	-0.022 ppb	-0.166 ppb
Concentration per Run 2	0.409 ppb	-0.061 ppb	-0.080 ppb	0.112 ppb	42.394 ppb	-0.001 ppb	-0.071 ppb	0.053 ppb	-0.145 ppb
Concentration per Run 3	0.292 ppb	-0.008 ppb	-0.042 ppb	0.101 ppb	41.985 ppb	0.006 ppb	-0.004 ppb	0.060 ppb	-0.115 ppb
Recovery Percentage 1	68.183 %	-1.009 %	-5.597 %	10.877 %	79.209 %	0.840 %	-0.680 %	3.015 %	-1.421 %
Concentration RSD	17.9 %	75.1 %	37.7 %	6.6 %	11.3 %	99.3 %	393.1 %	150.9 %	18.0 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	92.984 %	0.045 ppb	0.228 ppb	0.003 ppb	3.436 ppb	95.372 %	0.007 ppb	0.001 ppb	95.876 %
Concentration per Run 1	90.008 %	0.074 ppb	0.466 ppb	0.002 ppb	3.052 ppb	95.073 %	0.005 ppb	0.003 ppb	94.472 %
Concentration per Run 2	94.487 %	0.044 ppb	0.174 ppb	0.007 ppb	3.260 ppb	94.370 %	0.008 ppb	0.000 ppb	95.371 %
Concentration per Run 3	94.457 %	0.016 ppb	0.044 ppb	-0.001 ppb	3.996 ppb	96.674 %	0.006 ppb	0.001 ppb	97.785 %
Recovery Percentage 1		8.961 %	4.556 %	0.557 %	171.816 %		1.634 %	0.628 %	
Concentration RSD	2.8 %	64.9 %	94.8 %	151.8 %	14.4 %	1.2 %	17.6 %	139.2 %	1.8 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.798 ppb	-0.024 ppb	-0.008 ppb	96.965 %	96.790 %	1.954 ppb	0.751 ppb	0.009 ppb	94.219 %
Concentration per Run 1	0.781 ppb	-0.044 ppb	-0.007 ppb	96.554 %	91.659 %	1.754 ppb	0.880 ppb	0.010 ppb	93.742 %
Concentration per Run 2	0.827 ppb	-0.028 ppb	-0.017 ppb	96.788 %	105.566 %	1.800 ppb	0.720 ppb	0.008 ppb	93.648 %
Concentration per Run 3	0.787 ppb	-0.001 ppb	-0.001 ppb	97.555 %	93.145 %	2.309 ppb	0.653 ppb	0.010 ppb	95.268 %
Recovery Percentage 1	26.605 %	-0.607 %	-1.674 %			97.713 %	150.179 %	0.934 %	
Concentration RSD	3.1 %	90.9 %	101.3 %	0.5 %	7.9 %	15.8 %	15.5 %	10.6 %	1.0 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 34
Analysis label: L2013845-11 6020TL
Analysis started at: 3/31/2020 11:53:17 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	98.605 %	100.519 %	-0.001 ppb	-8.847 ppb	2.063 ppb	2.039 ppb	-0.234 ppb	13.670 ppb	91.550 %
Concentration per Run 1	98.920 %	97.877 %	0.001 ppb	-11.230 ppb	2.142 ppb	2.084 ppb	-8.077 ppb	10.852 ppb	91.366 %
Concentration per Run 2	98.427 %	100.708 %	-0.001 ppb	-8.590 ppb	1.483 ppb	2.333 ppb	5.381 ppb	18.228 ppb	91.756 %
Concentration per Run 3	98.470 %	102.972 %	-0.001 ppb	-6.720 ppb	2.565 ppb	1.699 ppb	1.995 ppb	11.928 ppb	91.527 %
Concentration RSD	0.3 %	2.5 %	230.8 %	25.6 %	26.4 %	15.7 %	2,995.7 %	29.1 %	0.2 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.121 ppb	-0.043 ppb	0.787 ppb	0.156 ppb	7.101 ppb	0.011 ppb	0.379 ppb	0.102 ppb	8.195 ppb
Concentration per Run 1	0.085 ppb	-0.119 ppb	0.762 ppb	0.100 ppb	8.491 ppb	0.006 ppb	0.514 ppb	0.138 ppb	8.156 ppb
Concentration per Run 2	0.182 ppb	-0.014 ppb	0.842 ppb	0.171 ppb	6.380 ppb	0.013 ppb	0.286 ppb	0.087 ppb	8.328 ppb
Concentration per Run 3	0.098 ppb	0.006 ppb	0.756 ppb	0.197 ppb	6.432 ppb	0.014 ppb	0.336 ppb	0.082 ppb	8.101 ppb
Concentration RSD	43.4 %	157.4 %	6.1 %	32.0 %	17.0 %	38.1 %	31.6 %	30.3 %	1.4 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	97.260 %	-0.008 ppb	0.311 ppb	0.112 ppb	-0.163 ppb	98.415 %	0.004 ppb	-0.001 ppb	101.333 %
Concentration per Run 1	93.663 %	0.011 ppb	0.458 ppb	0.116 ppb	-0.331 ppb	97.626 %	0.002 ppb	0.001 ppb	99.617 %
Concentration per Run 2	97.377 %	0.002 ppb	0.283 ppb	0.108 ppb	-0.310 ppb	98.317 %	0.008 ppb	-0.002 ppb	99.056 %
Concentration per Run 3	100.739 %	-0.038 ppb	0.193 ppb	0.111 ppb	0.151 ppb	99.303 %	0.001 ppb	-0.001 ppb	105.327 %
Concentration RSD	3.6 %	315.5 %	43.4 %	3.9 %	166.9 %	0.9 %	104.2 %	302.2 %	3.4 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.112 ppb	-0.091 ppb	0.286 ppb	99.568 %	99.540 %	-0.176 ppb	0.019 ppb	0.007 ppb	98.018 %
Concentration per Run 1	-0.168 ppb	-0.110 ppb	0.345 ppb	98.419 %	93.254 %	-0.261 ppb	0.004 ppb	0.005 ppb	96.725 %
Concentration per Run 2	-0.081 ppb	-0.097 ppb	0.259 ppb	98.788 %	93.311 %	-0.112 ppb	0.023 ppb	0.010 ppb	97.435 %
Concentration per Run 3	-0.087 ppb	-0.065 ppb	0.253 ppb	101.496 %	112.054 %	-0.156 ppb	0.029 ppb	0.008 ppb	99.895 %
Concentration RSD	43.2 %	25.4 %	18.0 %	1.7 %	10.9 %	43.3 %	71.1 %	30.1 %	1.7 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 35
Analysis label: L2013808-09 6020TL
Analysis started at: 3/31/2020 11:58:23 PM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	98.508 %	97.900 %	-0.001 ppb	-9.830 ppb	1.126 ppb	2.082 ppb	-1.393 ppb	6.370 ppb	92.465 %
Concentration per Run 1	98.571 %	95.541 %	-0.001 ppb	-12.354 ppb	0.959 ppb	2.172 ppb	-4.913 ppb	9.180 ppb	91.091 %
Concentration per Run 2	97.577 %	101.840 %	0.001 ppb	-7.919 ppb	1.260 ppb	2.147 ppb	0.332 ppb	3.721 ppb	92.191 %
Concentration per Run 3	99.375 %	96.320 %	-0.003 ppb	-9.217 ppb	1.158 ppb	1.927 ppb	0.404 ppb	6.208 ppb	94.114 %
Concentration RSD	0.9 %	3.5 %	181.8 %	23.2 %	13.6 %	6.5 %	219.0 %	42.9 %	1.7 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.027 ppb	0.000 ppb	0.799 ppb	0.173 ppb	4.334 ppb	0.017 ppb	0.480 ppb	0.263 ppb	7.531 ppb
Concentration per Run 1	0.004 ppb	0.040 ppb	0.849 ppb	0.197 ppb	4.747 ppb	0.015 ppb	0.471 ppb	0.284 ppb	7.520 ppb
Concentration per Run 2	0.040 ppb	-0.036 ppb	0.780 ppb	0.155 ppb	2.470 ppb	0.010 ppb	0.472 ppb	0.203 ppb	7.379 ppb
Concentration per Run 3	0.037 ppb	-0.003 ppb	0.768 ppb	0.166 ppb	5.784 ppb	0.025 ppb	0.498 ppb	0.302 ppb	7.694 ppb
Concentration RSD	72.9 %	54,333.2 %	5.5 %	12.5 %	39.1 %	44.3 %	3.2 %	20.0 %	2.1 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	97.554 %	-0.007 ppb	0.256 ppb	0.219 ppb	-0.804 ppb	97.254 %	0.006 ppb	-0.002 ppb	99.159 %
Concentration per Run 1	96.848 %	0.008 ppb	0.068 ppb	0.210 ppb	-0.925 ppb	97.177 %	0.001 ppb	-0.002 ppb	99.461 %
Concentration per Run 2	100.716 %	-0.011 ppb	0.413 ppb	0.229 ppb	-0.767 ppb	97.113 %	0.008 ppb	-0.001 ppb	103.212 %
Concentration per Run 3	95.100 %	-0.018 ppb	0.287 ppb	0.217 ppb	-0.722 ppb	97.473 %	0.010 ppb	-0.002 ppb	94.806 %
Concentration RSD	2.9 %	191.4 %	68.2 %	4.5 %	13.3 %	0.2 %	69.8 %	57.0 %	4.2 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.266 ppb	-0.096 ppb	0.603 ppb	97.405 %	101.213 %	-0.564 ppb	-0.056 ppb	0.014 ppb	96.348 %
Concentration per Run 1	-0.316 ppb	-0.099 ppb	0.644 ppb	97.851 %	105.731 %	-0.684 ppb	-0.070 ppb	0.013 ppb	96.274 %
Concentration per Run 2	-0.273 ppb	-0.097 ppb	0.582 ppb	98.972 %	108.046 %	-0.623 ppb	-0.060 ppb	0.013 ppb	97.518 %
Concentration per Run 3	-0.209 ppb	-0.092 ppb	0.582 ppb	95.391 %	89.862 %	-0.384 ppb	-0.039 ppb	0.016 ppb	95.252 %
Concentration RSD	20.3 %	3.7 %	5.9 %	1.9 %	9.8 %	28.2 %	27.6 %	11.7 %	1.2 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 36
Analysis label: L2013614-01 2008TL
Analysis started at: 4/1/2020 12:03:28 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	99.529 %	98.820 %	0.016 ppb	121,421.703 ppb	4,380.752 ppb	293.430 ppb	10,216.722 ppb	27,868.684 ppb	99.134 %
Concentration per Run 1	98.486 %	102.265 %	0.012 ppb	121,764.938 ppb	4,442.609 ppb	300.470 ppb	10,492.777 ppb	29,163.615 ppb	97.007 %
Concentration per Run 2	100.442 %	94.338 %	0.011 ppb	120,346.835 ppb	4,332.467 ppb	288.699 ppb	9,915.332 ppb	26,714.027 ppb	101.206 %
Concentration per Run 3	99.661 %	99.858 %	0.024 ppb	122,153.337 ppb	4,367.178 ppb	291.122 ppb	10,242.057 ppb	27,728.410 ppb	99.189 %
Concentration RSD	1.0 %	4.1 %	46.9 %	0.8 %	1.3 %	2.1 %	2.8 %	4.4 %	2.1 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	64.045 ppb	0.829 ppb	3.530 ppb	106.259 ppb	1,041.330 ppb	0.690 ppb	5.388 ppb	33.417 ppb	77.303 ppb
Concentration per Run 1	55.674 ppb	0.932 ppb	3.577 ppb	106.044 ppb	1,006.279 ppb	0.680 ppb	5.303 ppb	32.886 ppb	75.188 ppb
Concentration per Run 2	80.556 ppb	0.876 ppb	3.599 ppb	104.997 ppb	1,042.121 ppb	0.682 ppb	5.702 ppb	33.729 ppb	78.148 ppb
Concentration per Run 3	55.904 ppb	0.679 ppb	3.414 ppb	107.737 ppb	1,075.589 ppb	0.707 ppb	5.160 ppb	33.636 ppb	78.573 ppb
Concentration RSD	22.3 %	16.0 %	2.8 %	1.3 %	3.3 %	2.2 %	5.2 %	1.4 %	2.4 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	97.426 %	2.998 ppb	0.973 ppb	157.820 ppb	1.968 ppb	91.756 %	0.113 ppb	0.218 ppb	95.298 %
Concentration per Run 1	102.245 %	2.917 ppb	1.020 ppb	164.567 ppb	1.493 ppb	93.176 %	0.108 ppb	0.227 ppb	100.466 %
Concentration per Run 2	93.163 %	2.822 ppb	0.897 ppb	150.825 ppb	2.186 ppb	90.248 %	0.120 ppb	0.218 ppb	89.637 %
Concentration per Run 3	96.868 %	3.256 ppb	1.001 ppb	158.069 ppb	2.224 ppb	91.845 %	0.112 ppb	0.209 ppb	95.791 %
Concentration RSD	4.7 %	7.6 %	6.8 %	4.4 %	20.9 %	1.6 %	5.3 %	4.0 %	5.7 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	4.464 ppb	0.405 ppb	43.611 ppb	92.970 %	87.675 %	2.205 ppb	-0.001 ppb	8.590 ppb	89.722 %
Concentration per Run 1	1.939 ppb	0.374 ppb	44.709 ppb	95.432 %	91.393 %	1.757 ppb	-0.010 ppb	8.581 ppb	91.445 %
Concentration per Run 2	2.056 ppb	0.425 ppb	43.251 ppb	91.272 %	84.296 %	2.212 ppb	-0.002 ppb	8.615 ppb	87.652 %
Concentration per Run 3	9.398 ppb	0.418 ppb	42.871 ppb	92.204 %	87.337 %	2.647 ppb	0.008 ppb	8.574 ppb	90.070 %
Concentration RSD	95.7 %	6.8 %	2.2 %	2.3 %	4.1 %	20.2 %	830.0 %	0.3 %	2.1 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 37
Analysis label: L2013836-02 6020TL
Analysis started at: 4/1/2020 12:08:33 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	97.362 %	97.075 %	-0.001 ppb	99,105.323 ppb	23,502.245 ppb	2.484 ppb	2,977.508 ppb	68,055.098 ppb	113.767 %
Concentration per Run 1	98.100 %	96.744 %	0.003 ppb	95,177.051 ppb	22,382.406 ppb	2.289 ppb	2,903.299 ppb	66,006.184 ppb	111.436 %
Concentration per Run 2	97.286 %	97.098 %	-0.003 ppb	100,881.698 ppb	24,110.583 ppb	2.708 ppb	2,990.453 ppb	69,021.964 ppb	115.607 %
Concentration per Run 3	96.701 %	97.381 %	-0.001 ppb	101,257.221 ppb	24,013.747 ppb	2.455 ppb	3,038.773 ppb	69,137.147 ppb	114.259 %
Concentration RSD	0.7 %	0.3 %	551.7 %	3.4 %	4.1 %	8.5 %	2.3 %	2.6 %	1.9 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	120.936 ppb	0.180 ppb	0.846 ppb	7,170.918 ppb	182,165.079 ppb	8.131 ppb	1.910 ppb	0.366 ppb	1.072 ppb
Concentration per Run 1	115.274 ppb	0.114 ppb	0.842 ppb	7,087.609 ppb	181,895.588 ppb	8.267 ppb	1.926 ppb	0.369 ppb	1.137 ppb
Concentration per Run 2	124.205 ppb	0.156 ppb	0.844 ppb	7,157.627 ppb	181,728.127 ppb	7.909 ppb	1.963 ppb	0.396 ppb	0.912 ppb
Concentration per Run 3	123.328 ppb	0.272 ppb	0.853 ppb	7,267.519 ppb	182,871.523 ppb	8.216 ppb	1.841 ppb	0.331 ppb	1.167 ppb
Concentration RSD	4.1 %	45.4 %	0.7 %	1.3 %	0.3 %	2.4 %	3.3 %	8.9 %	13.0 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	95.720 %	89.512 ppb	0.348 ppb	219.760 ppb	0.332 ppb	91.374 %	0.005 ppb	0.005 ppb	96.124 %
Concentration per Run 1	91.025 %	89.516 ppb	0.224 ppb	215.249 ppb	0.321 ppb	89.999 %	0.005 ppb	0.003 ppb	92.311 %
Concentration per Run 2	98.594 %	87.077 ppb	0.330 ppb	220.003 ppb	0.216 ppb	91.686 %	0.003 ppb	0.012 ppb	97.966 %
Concentration per Run 3	97.539 %	91.944 ppb	0.491 ppb	224.027 ppb	0.459 ppb	92.438 %	0.006 ppb	0.001 ppb	98.094 %
Concentration RSD	4.3 %	2.7 %	38.5 %	2.0 %	36.7 %	1.4 %	25.1 %	102.8 %	3.4 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.151 ppb	0.637 ppb	399.954 ppb	88.038 %	82.354 %	-0.629 ppb	-0.078 ppb	0.075 ppb	87.345 %
Concentration per Run 1	-0.186 ppb	0.630 ppb	394.588 ppb	86.854 %	80.661 %	-0.691 ppb	-0.092 ppb	0.077 ppb	86.579 %
Concentration per Run 2	-0.150 ppb	0.634 ppb	405.178 ppb	88.159 %	83.443 %	-0.608 ppb	-0.072 ppb	0.071 ppb	88.029 %
Concentration per Run 3	-0.118 ppb	0.648 ppb	400.095 ppb	89.103 %	82.957 %	-0.588 ppb	-0.070 ppb	0.076 ppb	87.427 %
Concentration RSD	22.5 %	1.5 %	1.3 %	1.3 %	1.8 %	8.7 %	16.0 %	4.0 %	0.8 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 38
Analysis label: L2013836-03 6020TL
Analysis started at: 4/1/2020 12:13:37 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	102.127 %	100.896 %	0.007 ppb	42,458.244 ppb	29,531.658 ppb	5.869 ppb	884.636 ppb	123,735.366 ppb	101.570 %
Concentration per Run 1	103.139 %	99.575 %	0.002 ppb	42,632.221 ppb	29,716.194 ppb	5.260 ppb	880.692 ppb	123,848.699 ppb	101.675 %
Concentration per Run 2	100.509 %	100.071 %	0.005 ppb	42,602.184 ppb	29,265.021 ppb	5.643 ppb	871.665 ppb	122,706.446 ppb	100.409 %
Concentration per Run 3	102.733 %	103.043 %	0.013 ppb	42,140.325 ppb	29,613.759 ppb	6.703 ppb	901.552 ppb	124,650.953 ppb	102.627 %
Concentration RSD	1.4 %	1.9 %	80.7 %	0.6 %	0.8 %	12.7 %	1.7 %	0.8 %	1.1 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	220.028 ppb	0.110 ppb	0.844 ppb	8,802.888 ppb	56,067.591 ppb	9.812 ppb	3.348 ppb	0.574 ppb	1.061 ppb
Concentration per Run 1	219.147 ppb	0.110 ppb	0.813 ppb	8,768.405 ppb	56,525.572 ppb	9.789 ppb	3.264 ppb	0.546 ppb	1.007 ppb
Concentration per Run 2	218.059 ppb	0.047 ppb	0.849 ppb	8,796.688 ppb	55,576.641 ppb	9.691 ppb	3.361 ppb	0.573 ppb	1.108 ppb
Concentration per Run 3	222.879 ppb	0.172 ppb	0.871 ppb	8,843.571 ppb	56,100.560 ppb	9.958 ppb	3.421 ppb	0.604 ppb	1.069 ppb
Concentration RSD	1.1 %	56.9 %	3.5 %	0.4 %	0.8 %	1.4 %	2.4 %	5.1 %	4.8 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	102.415 %	38.391 ppb	0.416 ppb	288.246 ppb	2.352 ppb	96.881 %	0.004 ppb	0.003 ppb	100.993 %
Concentration per Run 1	101.610 %	37.610 ppb	0.546 ppb	288.561 ppb	2.427 ppb	96.555 %	0.004 ppb	0.001 ppb	100.869 %
Concentration per Run 2	103.162 %	38.370 ppb	0.501 ppb	286.917 ppb	2.329 ppb	96.459 %	0.000 ppb	0.001 ppb	100.612 %
Concentration per Run 3	102.472 %	39.192 ppb	0.201 ppb	289.260 ppb	2.300 ppb	97.629 %	0.007 ppb	0.008 ppb	101.497 %
Concentration RSD	0.8 %	2.1 %	45.1 %	0.4 %	2.8 %	0.7 %	88.2 %	114.3 %	0.5 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.333 ppb	-0.047 ppb	128.206 ppb	90.423 %	85.007 %	-0.789 ppb	-0.104 ppb	0.147 ppb	91.860 %
Concentration per Run 1	-0.369 ppb	-0.080 ppb	128.672 ppb	90.814 %	85.323 %	-0.856 ppb	-0.112 ppb	0.148 ppb	92.994 %
Concentration per Run 2	-0.356 ppb	-0.047 ppb	127.447 ppb	90.866 %	84.587 %	-0.777 ppb	-0.101 ppb	0.148 ppb	90.829 %
Concentration per Run 3	-0.273 ppb	-0.014 ppb	128.498 ppb	89.589 %	85.110 %	-0.733 ppb	-0.100 ppb	0.146 ppb	91.757 %
Concentration RSD	15.7 %	70.2 %	0.5 %	0.8 %	0.4 %	7.9 %	6.6 %	0.9 %	1.2 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 39
Analysis label: L2013836-04 6020TL
Analysis started at: 4/1/2020 12:18:42 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	112.449 %	113.046 %	0.001 ppb	389,812.253 ppb	55,214.919 ppb	100.716 ppb	966.934 ppb	186,698.180 ppb	99.991 %
Concentration per Run 1	113.588 %	115.429 %	0.001 ppb	387,920.175 ppb	54,768.540 ppb	94.091 ppb	947.992 ppb	185,464.463 ppb	100.692 %
Concentration per Run 2	112.262 %	115.004 %	0.002 ppb	382,707.710 ppb	55,656.353 ppb	97.947 ppb	981.332 ppb	184,358.293 ppb	100.166 %
Concentration per Run 3	111.498 %	108.705 %	0.000 ppb	398,808.874 ppb	55,219.865 ppb	110.109 ppb	971.477 ppb	190,271.783 ppb	99.117 %
Concentration RSD	0.9 %	3.3 %	117.3 %	2.1 %	0.8 %	8.3 %	1.8 %	1.7 %	0.8 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	327.669 ppb	0.148 ppb	1.151 ppb	5.351 ppb	360.714 ppb	0.121 ppb	0.636 ppb	2.220 ppb	2.042 ppb
Concentration per Run 1	319.769 ppb	0.123 ppb	1.157 ppb	5.162 ppb	345.530 ppb	0.115 ppb	0.582 ppb	2.248 ppb	2.052 ppb
Concentration per Run 2	330.240 ppb	0.153 ppb	1.103 ppb	5.371 ppb	370.770 ppb	0.126 ppb	0.627 ppb	2.178 ppb	2.012 ppb
Concentration per Run 3	332.999 ppb	0.166 ppb	1.192 ppb	5.520 ppb	365.841 ppb	0.123 ppb	0.700 ppb	2.233 ppb	2.061 ppb
Concentration RSD	2.1 %	14.9 %	3.9 %	3.4 %	3.7 %	4.6 %	9.4 %	1.7 %	1.3 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	103.639 %	0.314 ppb	0.433 ppb	595.655 ppb	-0.354 ppb	95.632 %	0.008 ppb	0.032 ppb	99.616 %
Concentration per Run 1	103.022 %	0.290 ppb	0.434 ppb	603.473 ppb	-0.453 ppb	95.652 %	0.007 ppb	0.035 ppb	98.382 %
Concentration per Run 2	102.776 %	0.322 ppb	0.366 ppb	589.833 ppb	-0.503 ppb	95.897 %	0.006 ppb	0.033 ppb	99.848 %
Concentration per Run 3	105.118 %	0.329 ppb	0.500 ppb	593.659 ppb	-0.105 ppb	95.346 %	0.010 ppb	0.028 ppb	100.618 %
Concentration RSD	1.2 %	6.6 %	15.5 %	1.2 %	61.3 %	0.3 %	26.5 %	11.6 %	1.1 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.360 ppb	-0.077 ppb	147.463 ppb	88.633 %	82.445 %	-0.825 ppb	-0.112 ppb	0.139 ppb	82.730 %
Concentration per Run 1	-0.407 ppb	-0.066 ppb	146.902 ppb	88.761 %	81.581 %	-0.882 ppb	-0.123 ppb	0.136 ppb	83.173 %
Concentration per Run 2	-0.363 ppb	-0.086 ppb	147.458 ppb	88.771 %	83.018 %	-0.827 ppb	-0.108 ppb	0.140 ppb	82.437 %
Concentration per Run 3	-0.311 ppb	-0.080 ppb	148.028 ppb	88.368 %	82.734 %	-0.766 ppb	-0.107 ppb	0.140 ppb	82.579 %
Concentration RSD	13.3 %	12.8 %	0.4 %	0.3 %	0.9 %	7.0 %	7.9 %	1.9 %	0.5 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 40
Analysis label: L2013845-08 6020TL
Analysis started at: 4/1/2020 12:23:46 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	114.018 %	111.230 %	-0.002 ppb	62,500.333 ppb	22,942.611 ppb	10.466 ppb	11,685.258 ppb	122,470.009 ppb	96.298 %
Concentration per Run 1	114.446 %	114.509 %	0.001 ppb	61,272.767 ppb	22,477.451 ppb	6.771 ppb	11,349.069 ppb	121,173.761 ppb	95.524 %
Concentration per Run 2	113.657 %	106.724 %	-0.002 ppb	64,610.520 ppb	23,576.531 ppb	9.366 ppb	11,865.526 ppb	122,643.873 ppb	96.740 %
Concentration per Run 3	113.950 %	112.456 %	-0.004 ppb	61,617.713 ppb	22,773.851 ppb	15.262 ppb	11,841.179 ppb	123,592.393 ppb	96.630 %
Concentration RSD	0.3 %	3.6 %	163.5 %	2.9 %	2.5 %	41.6 %	2.5 %	1.0 %	0.7 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	216.392 ppb	0.427 ppb	1.087 ppb	743.035 ppb	22,347.581 ppb	0.477 ppb	0.801 ppb	0.243 ppb	8.542 ppb
Concentration per Run 1	212.711 ppb	0.421 ppb	0.986 ppb	731.486 ppb	22,144.466 ppb	0.486 ppb	0.796 ppb	0.237 ppb	8.493 ppb
Concentration per Run 2	215.340 ppb	0.438 ppb	1.239 ppb	749.547 ppb	22,181.307 ppb	0.493 ppb	0.792 ppb	0.228 ppb	8.524 ppb
Concentration per Run 3	221.123 ppb	0.421 ppb	1.037 ppb	748.072 ppb	22,716.970 ppb	0.452 ppb	0.817 ppb	0.264 ppb	8.610 ppb
Concentration RSD	2.0 %	2.3 %	12.3 %	1.3 %	1.4 %	4.5 %	1.7 %	7.7 %	0.7 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	103.401 %	0.756 ppb	0.339 ppb	566.676 ppb	-1.263 ppb	97.426 %	0.001 ppb	0.001 ppb	101.345 %
Concentration per Run 1	102.106 %	0.719 ppb	0.254 ppb	570.652 ppb	-1.352 ppb	96.611 %	0.002 ppb	0.001 ppb	100.496 %
Concentration per Run 2	104.735 %	0.694 ppb	0.339 ppb	562.330 ppb	-1.161 ppb	97.572 %	0.000 ppb	-0.001 ppb	101.132 %
Concentration per Run 3	103.362 %	0.855 ppb	0.424 ppb	567.048 ppb	-1.275 ppb	98.095 %	0.002 ppb	0.001 ppb	102.405 %
Concentration RSD	1.3 %	11.4 %	25.1 %	0.7 %	7.6 %	0.8 %	110.7 %	172.1 %	1.0 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.252 ppb	-0.051 ppb	227.123 ppb	91.016 %	84.675 %	-0.510 ppb	-0.122 ppb	0.528 ppb	93.276 %
Concentration per Run 1	-0.240 ppb	-0.047 ppb	227.544 ppb	89.823 %	84.786 %	-0.500 ppb	-0.133 ppb	0.518 ppb	93.787 %
Concentration per Run 2	-0.299 ppb	-0.059 ppb	225.683 ppb	91.001 %	83.756 %	-0.519 ppb	-0.120 ppb	0.537 ppb	93.597 %
Concentration per Run 3	-0.218 ppb	-0.048 ppb	228.140 ppb	92.222 %	85.482 %	-0.511 ppb	-0.113 ppb	0.529 ppb	92.443 %
Concentration RSD	16.5 %	13.5 %	0.6 %	1.3 %	1.0 %	1.9 %	8.3 %	1.9 %	0.8 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 41
Analysis label: L2013845-09 6020TL
Analysis started at: 4/1/2020 12:28:51 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	109.392 %	107.997 %	-0.004 ppb	147,710.852 ppb	17,964.122 ppb	25.608 ppb	11,321.694 ppb	94,717.785 ppb	97.830 %
Concentration per Run 1	109.879 %	105.662 %	-0.008 ppb	147,474.355 ppb	18,165.544 ppb	28.203 ppb	11,412.634 ppb	95,450.413 ppb	97.690 %
Concentration per Run 2	108.727 %	108.351 %	-0.004 ppb	146,388.129 ppb	17,568.492 ppb	25.685 ppb	11,192.873 ppb	95,408.346 ppb	97.656 %
Concentration per Run 3	109.570 %	109.979 %	0.000 ppb	149,270.073 ppb	18,158.331 ppb	22.935 ppb	11,359.574 ppb	93,294.595 ppb	98.145 %
Concentration RSD	0.5 %	2.0 %	96.8 %	1.0 %	1.9 %	10.3 %	1.0 %	1.3 %	0.3 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	169.135 ppb	0.187 ppb	0.955 ppb	389.217 ppb	13,681.616 ppb	0.536 ppb	0.795 ppb	0.766 ppb	11.466 ppb
Concentration per Run 1	168.564 ppb	0.208 ppb	1.020 ppb	387.005 ppb	13,694.136 ppb	0.488 ppb	0.706 ppb	0.854 ppb	11.586 ppb
Concentration per Run 2	168.732 ppb	0.198 ppb	0.983 ppb	391.835 ppb	13,675.848 ppb	0.660 ppb	0.784 ppb	0.795 ppb	11.376 ppb
Concentration per Run 3	170.111 ppb	0.156 ppb	0.861 ppb	388.811 ppb	13,674.863 ppb	0.459 ppb	0.895 ppb	0.649 ppb	11.436 ppb
Concentration RSD	0.5 %	14.8 %	8.7 %	0.6 %	0.1 %	20.3 %	12.0 %	13.8 %	0.9 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	103.829 %	1.250 ppb	0.407 ppb	447.014 ppb	-0.593 ppb	96.252 %	0.004 ppb	0.002 ppb	100.290 %
Concentration per Run 1	103.573 %	1.315 ppb	0.213 ppb	448.929 ppb	-0.647 ppb	97.001 %	0.005 ppb	0.006 ppb	99.989 %
Concentration per Run 2	104.095 %	1.221 ppb	0.303 ppb	446.381 ppb	-0.711 ppb	95.720 %	0.007 ppb	0.001 ppb	100.625 %
Concentration per Run 3	103.818 %	1.213 ppb	0.703 ppb	445.732 ppb	-0.421 ppb	96.034 %	0.001 ppb	-0.001 ppb	100.258 %
Concentration RSD	0.3 %	4.5 %	64.2 %	0.4 %	25.7 %	0.7 %	75.1 %	154.2 %	0.3 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.125 ppb	-0.038 ppb	267.961 ppb	92.532 %	85.979 %	-0.650 ppb	-0.129 ppb	2.452 ppb	89.570 %
Concentration per Run 1	-0.163 ppb	-0.022 ppb	267.667 ppb	92.744 %	86.239 %	-0.664 ppb	-0.135 ppb	2.273 ppb	90.592 %
Concentration per Run 2	-0.121 ppb	-0.042 ppb	267.477 ppb	92.020 %	85.643 %	-0.663 ppb	-0.128 ppb	2.321 ppb	88.007 %
Concentration per Run 3	-0.092 ppb	-0.049 ppb	268.738 ppb	92.832 %	86.054 %	-0.623 ppb	-0.124 ppb	2.762 ppb	90.112 %
Concentration RSD	28.2 %	37.5 %	0.3 %	0.5 %	0.4 %	3.6 %	4.4 %	11.0 %	1.5 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 42
Analysis label: L2013845-10 6020TL
Analysis started at: 4/1/2020 12:33:56 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	110.662 %	112.268 %	-0.001 ppb	147,925.002 ppb	17,988.228 ppb	23.015 ppb	11,382.011 ppb	95,312.913 ppb	97.771 %
Concentration per Run 1	110.597 %	107.007 %	-0.008 ppb	150,981.470 ppb	18,509.230 ppb	20.634 ppb	11,685.702 ppb	97,019.349 ppb	96.091 %
Concentration per Run 2	111.362 %	113.376 %	0.000 ppb	146,472.190 ppb	17,478.007 ppb	28.117 ppb	10,965.128 ppb	92,492.179 ppb	98.319 %
Concentration per Run 3	110.028 %	116.420 %	0.006 ppb	146,321.346 ppb	17,977.447 ppb	20.294 ppb	11,495.202 ppb	96,427.211 ppb	98.903 %
Concentration RSD	0.6 %	4.3 %	783.0 %	1.8 %	2.9 %	19.2 %	3.3 %	2.6 %	1.5 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	186.649 ppb	0.235 ppb	0.852 ppb	392.514 ppb	13,974.873 ppb	0.450 ppb	1.069 ppb	0.573 ppb	10.616 ppb
Concentration per Run 1	172.576 ppb	0.490 ppb	0.848 ppb	392.466 ppb	14,066.025 ppb	0.496 ppb	1.072 ppb	0.602 ppb	10.820 ppb
Concentration per Run 2	171.178 ppb	0.151 ppb	0.876 ppb	392.979 ppb	14,068.525 ppb	0.407 ppb	1.033 ppb	0.605 ppb	10.502 ppb
Concentration per Run 3	216.192 ppb	0.063 ppb	0.832 ppb	392.097 ppb	13,790.068 ppb	0.448 ppb	1.102 ppb	0.511 ppb	10.526 ppb
Concentration RSD	13.7 %	96.1 %	2.6 %	0.1 %	1.1 %	9.8 %	3.2 %	9.4 %	1.7 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	105.566 %	1.242 ppb	0.312 ppb	448.463 ppb	-0.555 ppb	97.272 %	0.003 ppb	0.004 ppb	102.915 %
Concentration per Run 1	103.206 %	1.195 ppb	0.194 ppb	454.877 ppb	-0.602 ppb	96.695 %	0.001 ppb	0.008 ppb	101.816 %
Concentration per Run 2	104.864 %	1.333 ppb	0.313 ppb	439.397 ppb	-0.575 ppb	97.949 %	0.006 ppb	0.001 ppb	101.767 %
Concentration per Run 3	108.630 %	1.197 ppb	0.429 ppb	451.114 ppb	-0.489 ppb	97.173 %	0.002 ppb	0.004 ppb	105.163 %
Concentration RSD	2.6 %	6.4 %	37.6 %	1.8 %	10.7 %	0.7 %	80.8 %	76.1 %	1.9 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.232 ppb	-0.046 ppb	273.102 ppb	93.485 %	86.902 %	-0.681 ppb	-0.133 ppb	1.699 ppb	90.390 %
Concentration per Run 1	-0.275 ppb	-0.060 ppb	273.009 ppb	93.560 %	86.115 %	-0.718 ppb	-0.135 ppb	1.738 ppb	90.671 %
Concentration per Run 2	-0.159 ppb	-0.044 ppb	272.965 ppb	92.893 %	86.546 %	-0.672 ppb	-0.135 ppb	1.666 ppb	90.029 %
Concentration per Run 3	-0.263 ppb	-0.033 ppb	273.331 ppb	94.002 %	88.043 %	-0.652 ppb	-0.127 ppb	1.692 ppb	90.470 %
Concentration RSD	27.4 %	29.5 %	0.1 %	0.6 %	1.2 %	5.0 %	3.6 %	2.1 %	0.4 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 43 Analysis started at: 4/1/2020 12:39:02 AM
Analysis label: SCAN User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	101.641 %	105.450 %	-0.003 ppb	-3.476 ppb	0.418 ppb	0.479 ppb	-5.486 ppb	5.130 ppb	97.267 %
Concentration per Run 1	102.497 %	100.708 %	-0.004 ppb	-4.791 ppb	0.504 ppb	0.599 ppb	-6.788 ppb	4.968 ppb	98.848 %
Concentration per Run 2	99.996 %	109.342 %	0.003 ppb	-4.223 ppb	-0.092 ppb	0.550 ppb	-6.196 ppb	5.538 ppb	95.495 %
Concentration per Run 3	102.430 %	106.299 %	-0.008 ppb	-1.413 ppb	0.843 ppb	0.289 ppb	-3.472 ppb	4.885 ppb	97.459 %
Concentration RSD	1.4 %	4.2 %	187.4 %	52.0 %	113.2 %	34.8 %	32.2 %	6.9 %	1.7 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	-0.110 ppb	-0.066 ppb	0.028 ppb	0.121 ppb	120.787 ppb	0.004 ppb	0.036 ppb	0.023 ppb	0.034 ppb
Concentration per Run 1	-0.094 ppb	-0.031 ppb	0.070 ppb	0.102 ppb	112.900 ppb	0.010 ppb	0.039 ppb	0.033 ppb	0.026 ppb
Concentration per Run 2	-0.112 ppb	-0.083 ppb	0.018 ppb	0.127 ppb	120.640 ppb	-0.001 ppb	0.084 ppb	-0.017 ppb	-0.021 ppb
Concentration per Run 3	-0.123 ppb	-0.086 ppb	-0.004 ppb	0.134 ppb	128.821 ppb	0.004 ppb	-0.013 ppb	0.052 ppb	0.097 ppb
Concentration RSD	13.6 %	46.1 %	137.0 %	13.9 %	6.6 %	128.4 %	132.8 %	156.6 %	174.4 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	102.192 %	0.036 ppb	0.331 ppb	0.007 ppb	-1.496 ppb	103.518 %	0.001 ppb	-0.002 ppb	104.907 %
Concentration per Run 1	102.381 %	0.035 ppb	0.423 ppb	0.006 ppb	-1.501 ppb	104.849 %	-0.001 ppb	-0.001 ppb	104.080 %
Concentration per Run 2	104.739 %	0.053 ppb	0.466 ppb	0.002 ppb	-1.485 ppb	103.026 %	0.003 ppb	-0.002 ppb	108.294 %
Concentration per Run 3	99.457 %	0.022 ppb	0.105 ppb	0.011 ppb	-1.502 ppb	102.678 %	0.001 ppb	-0.002 ppb	102.346 %
Concentration RSD	2.6 %	42.6 %	59.5 %	67.6 %	0.6 %	1.1 %	144.7 %	54.7 %	2.9 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.431 ppb	-0.086 ppb	0.005 ppb	103.694 %	113.888 %	-0.965 ppb	-0.148 ppb	-0.003 ppb	100.901 %
Concentration per Run 1	-0.472 ppb	-0.100 ppb	-0.002 ppb	103.616 %	113.601 %	-0.996 ppb	-0.152 ppb	-0.003 ppb	100.484 %
Concentration per Run 2	-0.418 ppb	-0.092 ppb	0.001 ppb	105.413 %	116.439 %	-0.980 ppb	-0.148 ppb	-0.004 ppb	101.765 %
Concentration per Run 3	-0.402 ppb	-0.066 ppb	0.015 ppb	102.053 %	111.626 %	-0.918 ppb	-0.145 ppb	-0.003 ppb	100.452 %
Concentration RSD	8.5 %	20.3 %	196.4 %	1.6 %	2.1 %	4.3 %	2.5 %	18.2 %	0.7 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 44 Analysis started at: 4/1/2020 12:44:07 AM
Analysis label: CCV User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	103.932 %	101.250 %	59.044 ppb	5,970.757 ppb	6,007.355 ppb	63.283 ppb	6,071.566 ppb	5,989.734 ppb	110.449 %
Concentration per Run 1	104.626 %	102.477 %	58.592 ppb	6,040.217 ppb	6,093.362 ppb	64.977 ppb	6,242.661 ppb	6,186.608 ppb	111.714 %
Concentration per Run 2	103.450 %	98.231 %	59.175 ppb	5,921.995 ppb	5,888.568 ppb	62.872 ppb	5,780.724 ppb	5,710.366 ppb	109.606 %
Concentration per Run 3	103.719 %	103.043 %	59.364 ppb	5,950.059 ppb	6,040.135 ppb	62.000 ppb	6,191.312 ppb	6,072.227 ppb	110.029 %
Recovery Percentage 1			98.406 %	99.513 %	100.123 %	105.472 %	101.193 %	99.829 %	
Concentration RSD	0.6 %	2.6 %	0.7 %	1.0 %	1.8 %	2.4 %	4.2 %	4.2 %	1.0 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	62.148 ppb	60.607 ppb	61.715 ppb	61.595 ppb	6,052.205 ppb	61.477 ppb	61.226 ppb	60.369 ppb	58.355 ppb
Concentration per Run 1	62.223 ppb	59.765 ppb	60.915 ppb	60.900 ppb	5,933.746 ppb	60.955 ppb	59.820 ppb	59.175 ppb	56.913 ppb
Concentration per Run 2	63.307 ppb	62.175 ppb	62.547 ppb	62.082 ppb	6,229.854 ppb	62.247 ppb	63.156 ppb	60.844 ppb	59.419 ppb
Concentration per Run 3	60.914 ppb	59.880 ppb	61.685 ppb	61.802 ppb	5,993.016 ppb	61.229 ppb	60.701 ppb	61.089 ppb	58.733 ppb
Recovery Percentage 1	103.579 %	101.011 %	102.859 %	102.658 %	100.870 %	102.462 %	102.043 %	100.615 %	97.258 %
Concentration RSD	1.9 %	2.2 %	1.3 %	1.0 %	2.6 %	1.1 %	2.8 %	1.7 %	2.2 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	103.372 %	57.140 ppb	57.352 ppb	59.075 ppb	56.695 ppb	102.130 %	63.589 ppb	58.158 ppb	104.790 %
Concentration per Run 1	107.435 %	55.866 ppb	57.726 ppb	61.273 ppb	58.297 ppb	103.771 %	63.328 ppb	57.637 ppb	108.062 %
Concentration per Run 2	100.517 %	57.668 ppb	57.172 ppb	56.737 ppb	57.314 ppb	99.953 %	64.510 ppb	58.553 ppb	101.147 %
Concentration per Run 3	102.165 %	57.885 ppb	57.160 ppb	59.215 ppb	54.473 ppb	102.666 %	62.931 ppb	58.286 ppb	105.161 %
Recovery Percentage 1		95.233 %	95.587 %	98.458 %	94.491 %		105.982 %	96.931 %	
Concentration RSD	3.5 %	1.9 %	0.6 %	3.8 %	3.5 %	1.9 %	1.3 %	0.8 %	3.3 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	58.574 ppb	55.055 ppb	61.236 ppb	103.518 %	111.807 %	55.174 ppb	61.539 ppb	61.040 ppb	99.596 %
Concentration per Run 1	58.840 ppb	55.449 ppb	62.330 ppb	104.547 %	115.664 %	54.613 ppb	60.468 ppb	60.711 ppb	101.338 %
Concentration per Run 2	59.642 ppb	55.264 ppb	60.083 ppb	102.813 %	108.459 %	56.620 ppb	63.125 ppb	61.973 ppb	96.836 %
Concentration per Run 3	57.240 ppb	54.451 ppb	61.294 ppb	103.194 %	111.298 %	54.288 ppb	61.024 ppb	60.437 ppb	100.614 %
Recovery Percentage 1	97.624 %	91.758 %	102.060 %			91.956 %	102.565 %	101.734 %	
Concentration RSD	2.1 %	1.0 %	1.8 %	0.9 %	3.2 %	2.3 %	2.3 %	1.3 %	2.4 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 45 Analysis started at: 4/1/2020 12:49:59 AM
Analysis label: CCB User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	97.419 %	99.104 %	0.000 ppb	-15.715 ppb	-0.055 ppb	0.239 ppb	-8.121 ppb	2.984 ppb	91.927 %
Concentration per Run 1	97.300 %	96.461 %	-0.001 ppb	-21.011 ppb	-0.045 ppb	0.205 ppb	-9.777 ppb	3.570 ppb	92.948 %
Concentration per Run 2	98.975 %	98.372 %	-0.001 ppb	-12.546 ppb	0.141 ppb	0.315 ppb	-5.669 ppb	-0.624 ppb	92.284 %
Concentration per Run 3	95.981 %	102.477 %	0.001 ppb	-13.588 ppb	-0.260 ppb	0.196 ppb	-8.918 ppb	6.007 ppb	90.549 %
Recovery Percentage 1			-0.083 %	-15.715 %	-0.078 %	2.387 %	-8.121 %	2.984 %	
Concentration RSD	1.5 %	3.1 %	337.8 %	29.4 %	367.0 %	27.8 %	26.7 %	112.4 %	1.3 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.157 ppb	-0.061 ppb	-0.011 ppb	0.118 ppb	46.986 ppb	0.003 ppb	-0.038 ppb	-0.004 ppb	-0.070 ppb
Concentration per Run 1	0.160 ppb	-0.047 ppb	-0.031 ppb	0.074 ppb	42.804 ppb	0.002 ppb	-0.012 ppb	-0.004 ppb	0.084 ppb
Concentration per Run 2	0.116 ppb	-0.057 ppb	0.016 ppb	0.178 ppb	43.196 ppb	0.006 ppb	-0.018 ppb	-0.007 ppb	-0.124 ppb
Concentration per Run 3	0.195 ppb	-0.079 ppb	-0.019 ppb	0.103 ppb	54.959 ppb	0.001 ppb	-0.085 ppb	-0.002 ppb	-0.172 ppb
Recovery Percentage 1	31.388 %	-1.220 %	-1.123 %	11.811 %	93.972 %	0.616 %	-1.912 %	-0.444 %	-0.704 %
Concentration RSD	25.2 %	26.9 %	219.5 %	45.4 %	14.7 %	83.6 %	105.8 %	50.1 %	193.1 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	96.813 %	0.064 ppb	0.178 ppb	-0.001 ppb	2.994 ppb	99.660 %	0.004 ppb	0.000 ppb	99.810 %
Concentration per Run 1	92.579 %	0.035 ppb	0.007 ppb	-0.003 ppb	2.334 ppb	99.299 %	0.008 ppb	-0.001 ppb	96.859 %
Concentration per Run 2	97.535 %	0.068 ppb	0.426 ppb	0.004 ppb	2.982 ppb	99.503 %	0.002 ppb	-0.002 ppb	101.251 %
Concentration per Run 3	100.324 %	0.091 ppb	0.100 ppb	-0.003 ppb	3.666 ppb	100.177 %	0.001 ppb	0.003 ppb	101.321 %
Recovery Percentage 1		12.896 %	3.557 %	-0.136 %	149.700 %		0.996 %	0.001 %	
Concentration RSD	4.1 %	43.2 %	123.5 %	568.3 %	22.2 %	0.5 %	97.3 %	131,507.2 %	2.6 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.515 ppb	-0.036 ppb	-0.008 ppb	99.536 %	99.369 %	1.615 ppb	0.682 ppb	0.010 ppb	96.541 %
Concentration per Run 1	0.499 ppb	-0.040 ppb	-0.011 ppb	98.533 %	93.108 %	1.419 ppb	0.787 ppb	0.005 ppb	96.365 %
Concentration per Run 2	0.544 ppb	-0.055 ppb	-0.001 ppb	100.173 %	96.371 %	1.724 ppb	0.679 ppb	0.012 ppb	95.468 %
Concentration per Run 3	0.502 ppb	-0.015 ppb	-0.011 ppb	99.901 %	108.627 %	1.701 ppb	0.580 ppb	0.012 ppb	97.790 %
Recovery Percentage 1	17.167 %	-0.912 %	-1.534 %			80.736 %	136.413 %	0.957 %	
Concentration RSD	4.9 %	55.4 %	72.7 %	0.9 %	8.2 %	10.5 %	15.1 %	39.4 %	1.2 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 46
Analysis label: WG1356826-1 6020TL
Analysis started at: 4/1/2020 12:56:08 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	99.413 %	98.325 %	-0.001 ppb	-15.630 ppb	1.498 ppb	1.196 ppb	-8.401 ppb	7.182 ppb	91.320 %
Concentration per Run 1	97.943 %	91.082 %	-0.003 ppb	-19.876 ppb	1.024 ppb	0.969 ppb	-7.586 ppb	6.790 ppb	90.353 %
Concentration per Run 2	99.185 %	99.292 %	0.003 ppb	-16.897 ppb	2.056 ppb	1.381 ppb	-9.094 ppb	11.699 ppb	90.633 %
Concentration per Run 3	101.110 %	104.600 %	-0.001 ppb	-10.116 ppb	1.415 ppb	1.238 ppb	-8.523 ppb	3.056 ppb	92.975 %
Concentration RSD	1.6 %	6.9 %	543.5 %	32.0 %	34.8 %	17.5 %	9.1 %	60.4 %	1.6 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.049 ppb	-0.064 ppb	0.790 ppb	0.223 ppb	14.856 ppb	0.012 ppb	0.383 ppb	0.384 ppb	0.456 ppb
Concentration per Run 1	-0.004 ppb	-0.045 ppb	0.792 ppb	0.172 ppb	11.132 ppb	0.007 ppb	0.408 ppb	0.416 ppb	0.504 ppb
Concentration per Run 2	0.128 ppb	-0.061 ppb	0.773 ppb	0.296 ppb	17.359 ppb	0.012 ppb	0.449 ppb	0.392 ppb	0.499 ppb
Concentration per Run 3	0.023 ppb	-0.086 ppb	0.807 ppb	0.201 ppb	16.077 ppb	0.017 ppb	0.291 ppb	0.343 ppb	0.365 ppb
Concentration RSD	141.8 %	32.0 %	2.1 %	29.0 %	22.1 %	42.8 %	21.5 %	9.8 %	17.3 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	98.641 %	0.042 ppb	0.125 ppb	0.004 ppb	-0.424 ppb	100.807 %	0.003 ppb	0.001 ppb	99.889 %
Concentration per Run 1	93.300 %	0.029 ppb	-0.177 ppb	0.003 ppb	-0.534 ppb	98.042 %	0.002 ppb	0.000 ppb	94.189 %
Concentration per Run 2	102.309 %	0.040 ppb	0.289 ppb	0.005 ppb	-0.364 ppb	101.892 %	0.002 ppb	0.001 ppb	102.460 %
Concentration per Run 3	100.315 %	0.058 ppb	0.264 ppb	0.005 ppb	-0.375 ppb	102.487 %	0.005 ppb	0.001 ppb	103.017 %
Concentration RSD	4.8 %	35.6 %	209.0 %	22.6 %	22.5 %	2.4 %	67.7 %	163.7 %	4.9 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.243 ppb	-0.134 ppb	0.005 ppb	100.055 %	99.275 %	-0.175 ppb	0.010 ppb	0.005 ppb	98.422 %
Concentration per Run 1	-0.241 ppb	-0.131 ppb	0.003 ppb	97.538 %	104.140 %	-0.351 ppb	-0.005 ppb	0.006 ppb	97.699 %
Concentration per Run 2	-0.252 ppb	-0.128 ppb	0.002 ppb	101.092 %	96.813 %	-0.157 ppb	0.015 ppb	0.004 ppb	99.698 %
Concentration per Run 3	-0.238 ppb	-0.142 ppb	0.011 ppb	101.534 %	96.870 %	-0.018 ppb	0.021 ppb	0.006 ppb	97.870 %
Concentration RSD	3.0 %	5.5 %	94.7 %	2.2 %	4.2 %	95.5 %	128.9 %	16.8 %	1.1 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 47
Analysis label: WG1356826-2D10 6020TL
Analysis started at: 4/1/2020 1:01:14 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	99.704 %	100.307 %	5.223 ppb	1,005.787 ppb	1,081.500 ppb	215.589 ppb	1,018.257 ppb	1,057.615 ppb	95.165 %
Concentration per Run 1	99.608 %	93.701 %	5.164 ppb	1,045.804 ppb	1,143.971 ppb	223.225 ppb	1,056.535 ppb	1,126.112 ppb	94.308 %
Concentration per Run 2	100.523 %	106.511 %	5.231 ppb	955.367 ppb	1,021.486 ppb	206.866 ppb	985.674 ppb	999.649 ppb	97.310 %
Concentration per Run 3	98.982 %	100.708 %	5.275 ppb	1,016.189 ppb	1,079.044 ppb	216.674 ppb	1,012.560 ppb	1,047.085 ppb	93.876 %
Concentration RSD	0.8 %	6.4 %	1.1 %	4.6 %	5.7 %	3.8 %	3.5 %	6.0 %	2.0 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	85.989 ppb	51.965 ppb	20.599 ppb	51.454 ppb	120.312 ppb	52.499 ppb	51.939 ppb	25.275 ppb	51.929 ppb
Concentration per Run 1	86.796 ppb	52.422 ppb	21.329 ppb	52.630 ppb	115.526 ppb	53.331 ppb	53.413 ppb	25.942 ppb	52.112 ppb
Concentration per Run 2	86.512 ppb	51.531 ppb	20.127 ppb	51.192 ppb	119.154 ppb	52.458 ppb	52.240 ppb	24.901 ppb	51.778 ppb
Concentration per Run 3	84.660 ppb	51.941 ppb	20.341 ppb	50.541 ppb	126.255 ppb	51.709 ppb	50.163 ppb	24.981 ppb	51.896 ppb
Concentration RSD	1.3 %	0.9 %	3.1 %	2.1 %	4.5 %	1.5 %	3.2 %	2.3 %	0.3 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	101.869 %	9.628 ppb	12.047 ppb	97.928 ppb	85.023 ppb	102.766 %	5.309 ppb	5.202 ppb	104.285 %
Concentration per Run 1	101.095 %	9.440 ppb	12.509 ppb	98.724 ppb	87.214 ppb	101.954 %	5.301 ppb	5.155 ppb	105.035 %
Concentration per Run 2	101.889 %	9.562 ppb	12.562 ppb	97.665 ppb	86.427 ppb	103.059 %	5.328 ppb	5.111 ppb	104.616 %
Concentration per Run 3	102.622 %	9.882 ppb	11.070 ppb	97.397 ppb	81.429 ppb	103.286 %	5.299 ppb	5.338 ppb	103.203 %
Concentration RSD	0.7 %	2.4 %	7.0 %	0.7 %	3.7 %	0.7 %	0.3 %	2.3 %	0.9 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	95.276 ppb	34.916 ppb	206.452 ppb	102.431 %	107.144 %	-0.436 ppb	12.516 ppb	53.718 ppb	105.720 %
Concentration per Run 1	95.008 ppb	33.841 ppb	205.536 ppb	102.952 %	111.276 %	-0.580 ppb	13.042 ppb	56.392 ppb	99.712 %
Concentration per Run 2	95.229 ppb	35.350 ppb	204.895 ppb	102.668 %	97.461 %	-0.402 ppb	11.321 ppb	48.218 ppb	118.298 %
Concentration per Run 3	95.591 ppb	35.557 ppb	208.925 ppb	101.674 %	112.694 %	-0.325 ppb	13.184 ppb	56.543 ppb	99.149 %
Concentration RSD	0.3 %	2.7 %	1.0 %	0.7 %	7.9 %	30.0 %	8.3 %	8.9 %	10.3 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 48
Analysis label: WG1356826-3D10 6020TL
Analysis started at: 4/1/2020 1:06:19 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	98.889 %	104.270 %	5.164 ppb	76,142.010 ppb	11,102.878 ppb	226.218 ppb	5,468.726 ppb	8,384.497 ppb	92.426 %
Concentration per Run 1	99.767 %	105.237 %	5.038 ppb	75,250.573 ppb	11,087.209 ppb	217.985 ppb	5,466.463 ppb	8,372.612 ppb	94.508 %
Concentration per Run 2	99.115 %	102.477 %	5.246 ppb	77,532.192 ppb	11,120.391 ppb	232.710 ppb	5,413.517 ppb	8,418.711 ppb	92.638 %
Concentration per Run 3	97.784 %	105.096 %	5.209 ppb	75,643.264 ppb	11,101.033 ppb	227.960 ppb	5,526.198 ppb	8,362.167 ppb	90.132 %
Concentration RSD	1.0 %	1.5 %	2.2 %	1.6 %	0.2 %	3.3 %	1.0 %	0.4 %	2.4 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	97.388 ppb	51.457 ppb	20.638 ppb	176.236 ppb	1,205.240 ppb	52.110 ppb	52.368 ppb	29.062 ppb	52.641 ppb
Concentration per Run 1	94.677 ppb	50.778 ppb	20.488 ppb	174.411 ppb	1,196.662 ppb	51.477 ppb	52.176 ppb	28.880 ppb	52.893 ppb
Concentration per Run 2	99.222 ppb	51.889 ppb	20.919 ppb	179.848 ppb	1,236.847 ppb	51.685 ppb	52.955 ppb	28.934 ppb	53.132 ppb
Concentration per Run 3	98.265 ppb	51.704 ppb	20.508 ppb	174.448 ppb	1,182.210 ppb	53.169 ppb	51.974 ppb	29.371 ppb	51.897 ppb
Concentration RSD	2.5 %	1.2 %	1.2 %	1.8 %	2.3 %	1.8 %	1.0 %	0.9 %	1.2 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	100.743 %	13.180 ppb	11.553 ppb	189.735 ppb	113.900 ppb	97.729 %	5.438 ppb	5.409 ppb	100.199 %
Concentration per Run 1	100.300 %	13.003 ppb	12.229 ppb	192.144 ppb	114.472 ppb	97.469 %	5.386 ppb	5.547 ppb	99.088 %
Concentration per Run 2	100.504 %	13.318 ppb	11.289 ppb	188.151 ppb	113.912 ppb	97.735 %	5.464 ppb	5.287 ppb	100.868 %
Concentration per Run 3	101.425 %	13.220 ppb	11.140 ppb	188.908 ppb	113.314 ppb	97.982 %	5.464 ppb	5.393 ppb	100.640 %
Concentration RSD	0.6 %	1.2 %	5.1 %	1.1 %	0.5 %	0.3 %	0.8 %	2.4 %	1.0 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	104.840 ppb	56.485 ppb	224.319 ppb	99.760 %	102.863 %	-0.569 ppb	13.810 ppb	58.672 ppb	93.987 %
Concentration per Run 1	105.881 ppb	56.882 ppb	224.871 ppb	100.290 %	106.279 %	-0.664 ppb	13.662 ppb	58.745 ppb	94.184 %
Concentration per Run 2	104.326 ppb	56.172 ppb	223.165 ppb	99.947 %	94.996 %	-0.543 ppb	13.992 ppb	58.154 ppb	94.351 %
Concentration per Run 3	104.312 ppb	56.402 ppb	224.923 ppb	99.042 %	107.314 %	-0.499 ppb	13.775 ppb	59.118 ppb	93.426 %
Concentration RSD	0.9 %	0.6 %	0.4 %	0.6 %	6.6 %	15.0 %	1.2 %	0.8 %	0.5 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 49
Analysis label: WG1356826-5D10 6020TL
Analysis started at: 4/1/2020 1:11:24 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	98.860 %	99.623 %	48.447 ppb	81,948.727 ppb	14,917.576 ppb	68.025 ppb	9,430.997 ppb	12,239.137 ppb	96.260 %
Concentration per Run 1	100.030 %	99.292 %	47.737 ppb	79,830.689 ppb	14,704.524 ppb	65.596 ppb	9,358.810 ppb	11,891.141 ppb	98.363 %
Concentration per Run 2	98.487 %	96.674 %	48.564 ppb	83,095.711 ppb	15,106.453 ppb	67.681 ppb	9,404.833 ppb	12,351.233 ppb	95.739 %
Concentration per Run 3	98.064 %	102.902 %	49.039 ppb	82,919.781 ppb	14,941.752 ppb	70.799 ppb	9,529.350 ppb	12,475.036 ppb	94.679 %
Concentration RSD	1.0 %	3.1 %	1.4 %	2.2 %	1.4 %	3.8 %	0.9 %	2.5 %	2.0 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	63.436 ppb	49.864 ppb	49.131 ppb	175.782 ppb	6,043.009 ppb	49.803 ppb	48.056 ppb	52.106 ppb	47.964 ppb
Concentration per Run 1	61.615 ppb	49.732 ppb	48.658 ppb	175.898 ppb	6,080.411 ppb	50.309 ppb	47.507 ppb	52.146 ppb	47.963 ppb
Concentration per Run 2	66.181 ppb	51.281 ppb	49.809 ppb	177.002 ppb	6,176.549 ppb	49.846 ppb	49.281 ppb	52.207 ppb	47.312 ppb
Concentration per Run 3	62.512 ppb	48.581 ppb	48.926 ppb	174.446 ppb	5,872.065 ppb	49.254 ppb	47.379 ppb	51.965 ppb	48.616 ppb
Concentration RSD	3.8 %	2.7 %	1.2 %	0.7 %	2.6 %	1.1 %	2.2 %	0.2 %	1.4 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	100.208 %	47.887 ppb	45.921 ppb	137.312 ppb	69.900 ppb	98.260 %	8.544 ppb	47.803 ppb	101.091 %
Concentration per Run 1	100.368 %	47.386 ppb	44.588 ppb	137.408 ppb	69.498 ppb	97.781 %	8.496 ppb	47.112 ppb	100.748 %
Concentration per Run 2	99.644 %	48.765 ppb	47.302 ppb	136.891 ppb	69.630 ppb	98.363 %	8.695 ppb	48.288 ppb	101.116 %
Concentration per Run 3	100.613 %	47.511 ppb	45.875 ppb	137.639 ppb	70.573 ppb	98.637 %	8.441 ppb	48.008 ppb	101.408 %
Concentration RSD	0.5 %	1.6 %	3.0 %	0.3 %	0.8 %	0.4 %	1.6 %	1.3 %	0.3 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	52.920 ppb	48.178 ppb	56.796 ppb	99.809 %	93.750 %	45.868 ppb	51.870 ppb	51.533 ppb	94.244 %
Concentration per Run 1	52.528 ppb	48.350 ppb	56.556 ppb	99.711 %	93.191 %	46.904 ppb	50.984 ppb	51.304 ppb	95.044 %
Concentration per Run 2	53.050 ppb	47.901 ppb	57.371 ppb	99.508 %	93.924 %	45.650 ppb	52.183 ppb	51.479 ppb	93.314 %
Concentration per Run 3	53.182 ppb	48.282 ppb	56.461 ppb	100.210 %	94.134 %	45.050 ppb	52.443 ppb	51.816 ppb	94.375 %
Concentration RSD	0.7 %	0.5 %	0.9 %	0.4 %	0.5 %	2.1 %	1.5 %	0.5 %	0.9 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 50
Analysis label: WG1356826-4 6020TL
Analysis started at: 4/1/2020 1:16:28 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	109.766 %	112.574 %	0.032 ppb	751,583.585 ppb	106,608.316 ppb	172.987 ppb	42,838.389 ppb	67,214.842 ppb	101.322 %
Concentration per Run 1	110.575 %	104.246 %	0.036 ppb	797,895.071 ppb	111,352.138 ppb	176.583 ppb	44,122.208 ppb	69,605.107 ppb	100.669 %
Concentration per Run 2	108.664 %	113.518 %	0.043 ppb	737,058.087 ppb	105,266.768 ppb	166.942 ppb	42,876.819 ppb	66,161.928 ppb	102.775 %
Concentration per Run 3	110.058 %	119.958 %	0.015 ppb	719,797.598 ppb	103,206.044 ppb	175.436 ppb	41,516.141 ppb	65,877.492 ppb	100.522 %
Concentration RSD	0.9 %	7.0 %	45.8 %	5.5 %	4.0 %	3.0 %	3.0 %	3.1 %	1.2 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	121.875 ppb	6.284 ppb	2.821 ppb	1,147.627 ppb	10,380.199 ppb	0.313 ppb	3.990 ppb	40.034 ppb	8.541 ppb
Concentration per Run 1	123.084 ppb	6.224 ppb	2.789 ppb	1,166.687 ppb	10,685.567 ppb	0.308 ppb	4.090 ppb	41.292 ppb	8.530 ppb
Concentration per Run 2	122.684 ppb	6.183 ppb	2.884 ppb	1,146.759 ppb	10,311.297 ppb	0.309 ppb	4.136 ppb	39.625 ppb	8.185 ppb
Concentration per Run 3	119.859 ppb	6.445 ppb	2.790 ppb	1,129.435 ppb	10,143.732 ppb	0.322 ppb	3.743 ppb	39.184 ppb	8.907 ppb
Concentration RSD	1.4 %	2.2 %	1.9 %	1.6 %	2.7 %	2.5 %	5.4 %	2.8 %	4.2 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	98.685 %	7.324 ppb	1.370 ppb	905.570 ppb	94.740 ppb	89.055 %	0.032 ppb	0.027 ppb	94.438 %
Concentration per Run 1	96.824 %	7.409 ppb	1.314 ppb	913.678 ppb	94.649 ppb	88.484 %	0.030 ppb	0.021 ppb	92.835 %
Concentration per Run 2	99.236 %	7.150 ppb	1.285 ppb	897.201 ppb	94.974 ppb	89.098 %	0.031 ppb	0.036 ppb	93.205 %
Concentration per Run 3	99.995 %	7.413 ppb	1.511 ppb	905.830 ppb	94.598 ppb	89.582 %	0.033 ppb	0.024 ppb	97.274 %
Concentration RSD	1.7 %	2.1 %	9.0 %	0.9 %	0.2 %	0.6 %	4.3 %	28.2 %	2.6 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	2.598 ppb	0.782 ppb	59.227 ppb	88.641 %	81.667 %	4.593 ppb	0.976 ppb	1.491 ppb	77.700 %
Concentration per Run 1	2.361 ppb	0.768 ppb	58.920 ppb	87.453 %	80.650 %	4.114 ppb	1.076 ppb	1.498 ppb	77.778 %
Concentration per Run 2	2.646 ppb	0.783 ppb	60.526 ppb	88.609 %	82.170 %	4.542 ppb	0.983 ppb	1.462 ppb	77.836 %
Concentration per Run 3	2.786 ppb	0.795 ppb	58.235 ppb	89.860 %	82.182 %	5.124 ppb	0.868 ppb	1.514 ppb	77.486 %
Concentration RSD	8.3 %	1.7 %	2.0 %	1.4 %	1.1 %	11.0 %	10.7 %	1.8 %	0.2 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 51
Analysis label: L2013808-01 6020TL
Analysis started at: 4/1/2020 1:21:33 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	120.498 %	120.360 %	0.025 ppb	761,536.531 ppb	108,819.913 ppb	163.773 ppb	45,209.943 ppb	67,886.834 ppb	114.413 %
Concentration per Run 1	122.413 %	113.447 %	0.035 ppb	774,726.753 ppb	111,510.089 ppb	164.525 ppb	44,113.347 ppb	68,155.673 ppb	116.384 %
Concentration per Run 2	119.877 %	120.383 %	0.020 ppb	751,001.379 ppb	106,740.859 ppb	155.618 ppb	41,750.649 ppb	65,299.152 ppb	113.969 %
Concentration per Run 3	119.203 %	127.248 %	0.020 ppb	758,881.461 ppb	108,208.790 ppb	171.177 ppb	49,765.833 ppb	70,205.677 ppb	112.884 %
Concentration RSD	1.4 %	5.7 %	34.0 %	1.6 %	2.2 %	4.8 %	9.1 %	3.6 %	1.6 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	119.619 ppb	6.023 ppb	2.777 ppb	1,202.284 ppb	10,484.194 ppb	0.300 ppb	4.100 ppb	38.855 ppb	8.769 ppb
Concentration per Run 1	116.993 ppb	5.818 ppb	2.801 ppb	1,127.298 ppb	10,471.839 ppb	0.282 ppb	4.033 ppb	38.839 ppb	8.904 ppb
Concentration per Run 2	120.421 ppb	6.043 ppb	2.674 ppb	1,140.898 ppb	10,608.781 ppb	0.304 ppb	4.349 ppb	39.123 ppb	8.746 ppb
Concentration per Run 3	121.444 ppb	6.207 ppb	2.855 ppb	1,338.657 ppb	10,371.962 ppb	0.315 ppb	3.918 ppb	38.604 ppb	8.658 ppb
Concentration RSD	1.9 %	3.2 %	3.3 %	9.8 %	1.1 %	5.6 %	5.5 %	0.7 %	1.4 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	108.184 %	7.462 ppb	1.268 ppb	901.467 ppb	93.647 ppb	94.356 %	0.031 ppb	0.028 ppb	99.849 %
Concentration per Run 1	104.038 %	7.636 ppb	1.202 ppb	897.417 ppb	93.026 ppb	92.214 %	0.026 ppb	0.033 ppb	96.617 %
Concentration per Run 2	107.834 %	7.402 ppb	1.306 ppb	882.623 ppb	94.850 ppb	94.327 %	0.035 ppb	0.022 ppb	99.055 %
Concentration per Run 3	112.681 %	7.348 ppb	1.296 ppb	924.360 ppb	93.065 ppb	96.526 %	0.033 ppb	0.030 ppb	103.874 %
Concentration RSD	4.0 %	2.1 %	4.5 %	2.3 %	1.1 %	2.3 %	14.6 %	20.7 %	3.7 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	1.104 ppb	0.445 ppb	60.623 ppb	91.532 %	84.854 %	1.049 ppb	0.130 ppb	1.870 ppb	80.363 %
Concentration per Run 1	0.971 ppb	0.444 ppb	60.094 ppb	90.853 %	83.449 %	0.805 ppb	0.106 ppb	1.866 ppb	79.523 %
Concentration per Run 2	1.106 ppb	0.427 ppb	60.551 ppb	91.505 %	84.593 %	1.045 ppb	0.137 ppb	1.874 ppb	79.978 %
Concentration per Run 3	1.236 ppb	0.465 ppb	61.223 ppb	92.240 %	86.521 %	1.297 ppb	0.148 ppb	1.870 ppb	81.588 %
Concentration RSD	12.0 %	4.3 %	0.9 %	0.8 %	1.8 %	23.4 %	16.6 %	0.2 %	1.4 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 52
Analysis label: L2013808-02 6020TL
Analysis started at: 4/1/2020 1:26:37 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	129.205 %	122.931 %	0.020 ppb	104,991.863 ppb	100.185 ppb	1,750.572 ppb	14,677.326 ppb	115,344.873 ppb	113.211 %
Concentration per Run 1	130.145 %	123.285 %	0.018 ppb	105,387.324 ppb	105.810 ppb	1,701.837 ppb	14,252.797 ppb	114,240.819 ppb	113.558 %
Concentration per Run 2	128.251 %	122.294 %	0.015 ppb	107,126.880 ppb	97.490 ppb	1,871.280 ppb	15,524.001 ppb	118,925.895 ppb	113.078 %
Concentration per Run 3	129.220 %	123.214 %	0.028 ppb	102,461.385 ppb	97.255 ppb	1,678.597 ppb	14,255.181 ppb	112,867.906 ppb	112.997 %
Concentration RSD	0.7 %	0.4 %	33.5 %	2.2 %	4.9 %	6.0 %	5.0 %	2.8 %	0.3 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	208.026 ppb	61.847 ppb	2.565 ppb	9.919 ppb	587.588 ppb	0.322 ppb	15.337 ppb	486.783 ppb	35.643 ppb
Concentration per Run 1	208.078 ppb	62.110 ppb	2.650 ppb	10.481 ppb	592.745 ppb	0.337 ppb	14.953 ppb	492.199 ppb	35.546 ppb
Concentration per Run 2	214.143 ppb	61.709 ppb	2.535 ppb	9.978 ppb	576.782 ppb	0.302 ppb	15.223 ppb	461.852 ppb	35.256 ppb
Concentration per Run 3	201.855 ppb	61.721 ppb	2.510 ppb	9.299 ppb	593.236 ppb	0.328 ppb	15.834 ppb	506.298 ppb	36.127 ppb
Concentration RSD	3.0 %	0.4 %	2.9 %	6.0 %	1.6 %	5.6 %	2.9 %	4.7 %	1.2 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	123.772 %	884.457 ppb	313.608 ppb	824.115 ppb	48.708 ppb	115.196 %	9.034 ppb	0.159 ppb	117.896 %
Concentration per Run 1	123.086 %	891.797 ppb	313.390 ppb	819.847 ppb	48.483 ppb	115.640 %	8.911 ppb	0.163 ppb	117.893 %
Concentration per Run 2	131.169 %	864.672 ppb	315.736 ppb	846.443 ppb	48.210 ppb	117.058 %	8.930 ppb	0.155 ppb	124.223 %
Concentration per Run 3	117.061 %	896.903 ppb	311.698 ppb	806.055 ppb	49.432 ppb	112.890 %	9.261 ppb	0.160 ppb	111.573 %
Concentration RSD	5.7 %	2.0 %	0.6 %	2.5 %	1.3 %	1.8 %	2.2 %	2.5 %	5.4 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	1.995 ppb	147.059 ppb	101.754 ppb	100.590 %	96.306 %	9.184 ppb	0.018 ppb	105.019 ppb	101.215 %
Concentration per Run 1	1.914 ppb	147.465 ppb	100.241 ppb	101.912 %	93.250 %	9.539 ppb	0.005 ppb	105.622 ppb	101.060 %
Concentration per Run 2	1.935 ppb	145.096 ppb	102.008 ppb	102.035 %	94.808 %	9.170 ppb	0.020 ppb	103.750 ppb	102.558 %
Concentration per Run 3	2.137 ppb	148.615 ppb	103.013 ppb	97.824 %	100.858 %	8.842 ppb	0.030 ppb	105.685 ppb	100.027 %
Concentration RSD	6.2 %	1.2 %	1.4 %	2.4 %	4.2 %	3.8 %	70.1 %	1.0 %	1.3 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 53
Analysis label: L2013808-03 6020TL
Analysis started at: 4/1/2020 1:31:42 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	124.738 %	120.336 %	0.108 ppb	540,679.927 ppb	34,211.339 ppb	325.147 ppb	24,605.089 ppb	23,606.248 ppb	117.172 %
Concentration per Run 1	125.206 %	118.685 %	0.104 ppb	557,597.722 ppb	36,678.891 ppb	337.861 ppb	25,894.398 ppb	24,548.077 ppb	118.026 %
Concentration per Run 2	125.213 %	117.269 %	0.109 ppb	527,680.177 ppb	34,370.137 ppb	319.118 ppb	23,867.415 ppb	23,000.737 ppb	116.600 %
Concentration per Run 3	123.794 %	125.054 %	0.112 ppb	536,761.884 ppb	31,584.988 ppb	318.462 ppb	24,053.456 ppb	23,269.931 ppb	116.889 %
Concentration RSD	0.7 %	3.4 %	3.8 %	2.8 %	7.5 %	3.4 %	4.6 %	3.5 %	0.6 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	54.641 ppb	16.325 ppb	5.429 ppb	65.850 ppb	2,009.475 ppb	0.387 ppb	5.142 ppb	17.254 ppb	10.777 ppb
Concentration per Run 1	56.725 ppb	16.182 ppb	5.398 ppb	66.725 ppb	2,025.729 ppb	0.358 ppb	4.874 ppb	17.234 ppb	10.317 ppb
Concentration per Run 2	53.413 ppb	16.620 ppb	5.443 ppb	65.659 ppb	2,011.620 ppb	0.425 ppb	5.395 ppb	17.438 ppb	11.084 ppb
Concentration per Run 3	53.786 ppb	16.174 ppb	5.446 ppb	65.166 ppb	1,991.076 ppb	0.379 ppb	5.158 ppb	17.089 ppb	10.931 ppb
Concentration RSD	3.3 %	1.6 %	0.5 %	1.2 %	0.9 %	8.9 %	5.1 %	1.0 %	3.8 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	114.508 %	305.689 ppb	1.985 ppb	253.894 ppb	32.770 ppb	102.323 %	0.039 ppb	0.040 ppb	105.667 %
Concentration per Run 1	117.618 %	304.916 ppb	2.543 ppb	267.421 ppb	31.750 ppb	102.350 %	0.039 ppb	0.052 ppb	110.057 %
Concentration per Run 2	111.855 %	304.276 ppb	1.754 ppb	240.171 ppb	33.505 ppb	101.286 %	0.032 ppb	0.035 ppb	101.241 %
Concentration per Run 3	114.051 %	307.876 ppb	1.656 ppb	254.091 ppb	33.053 ppb	103.332 %	0.046 ppb	0.032 ppb	105.701 %
Concentration RSD	2.5 %	0.6 %	24.5 %	5.4 %	2.8 %	1.0 %	18.5 %	26.0 %	4.2 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.494 ppb	0.872 ppb	11.798 ppb	101.731 %	93.634 %	1.434 ppb	-0.036 ppb	2.625 ppb	88.346 %
Concentration per Run 1	0.372 ppb	0.790 ppb	12.047 ppb	103.920 %	96.895 %	1.164 ppb	-0.059 ppb	2.591 ppb	89.076 %
Concentration per Run 2	0.495 ppb	0.853 ppb	11.837 ppb	99.554 %	90.345 %	1.578 ppb	-0.022 ppb	2.638 ppb	87.704 %
Concentration per Run 3	0.615 ppb	0.974 ppb	11.509 ppb	101.721 %	93.663 %	1.559 ppb	-0.027 ppb	2.647 ppb	88.259 %
Concentration RSD	24.6 %	10.7 %	2.3 %	2.1 %	3.5 %	16.3 %	55.2 %	1.1 %	0.8 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 54
Analysis label: WG1356826-6D5 6020TL
Analysis started at: 4/1/2020 1:36:48 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	129.732 %	129.891 %	0.004 ppb	152,237.978 ppb	19,943.817 ppb	38.327 ppb	8,972.263 ppb	14,450.629 ppb	123.327 %
Concentration per Run 1	129.706 %	125.408 %	0.008 ppb	149,158.611 ppb	19,650.592 ppb	38.704 ppb	8,787.599 ppb	14,156.532 ppb	121.789 %
Concentration per Run 2	128.459 %	134.326 %	0.003 ppb	150,340.579 ppb	19,853.600 ppb	36.678 ppb	8,737.157 ppb	13,976.820 ppb	122.467 %
Concentration per Run 3	131.032 %	129.938 %	0.001 ppb	157,214.744 ppb	20,327.257 ppb	39.598 ppb	9,392.034 ppb	15,218.534 ppb	125.725 %
Concentration RSD	1.0 %	3.4 %	79.8 %	2.9 %	1.7 %	3.9 %	4.1 %	4.6 %	1.7 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	26.004 ppb	1.297 ppb	0.608 ppb	246.052 ppb	2,213.841 ppb	0.063 ppb	0.983 ppb	8.573 ppb	1.842 ppb
Concentration per Run 1	25.218 ppb	1.336 ppb	0.577 ppb	245.375 ppb	2,179.160 ppb	0.065 ppb	0.888 ppb	8.541 ppb	1.846 ppb
Concentration per Run 2	26.009 ppb	1.213 ppb	0.632 ppb	247.689 ppb	2,230.073 ppb	0.066 ppb	1.060 ppb	8.484 ppb	1.864 ppb
Concentration per Run 3	26.785 ppb	1.342 ppb	0.615 ppb	245.093 ppb	2,232.291 ppb	0.059 ppb	1.000 ppb	8.695 ppb	1.816 ppb
Concentration RSD	3.0 %	5.6 %	4.6 %	0.6 %	1.4 %	5.5 %	8.9 %	1.3 %	1.3 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	122.852 %	1.848 ppb	0.564 ppb	172.234 ppb	19.533 ppb	116.178 %	0.006 ppb	0.007 ppb	115.617 %
Concentration per Run 1	118.457 %	1.663 ppb	0.552 ppb	169.346 ppb	19.087 ppb	115.099 %	0.006 ppb	0.008 ppb	112.689 %
Concentration per Run 2	124.775 %	1.879 ppb	0.419 ppb	172.109 ppb	19.653 ppb	116.260 %	0.008 ppb	0.012 ppb	115.679 %
Concentration per Run 3	125.323 %	2.003 ppb	0.721 ppb	175.246 ppb	19.859 ppb	117.174 %	0.005 ppb	0.001 ppb	118.485 %
Concentration RSD	3.1 %	9.3 %	26.9 %	1.7 %	2.0 %	0.9 %	20.3 %	84.4 %	2.5 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.153 ppb	0.185 ppb	11.281 ppb	111.030 %	116.872 %	-0.499 ppb	-0.086 ppb	0.365 ppb	101.382 %
Concentration per Run 1	0.013 ppb	0.153 ppb	11.430 ppb	109.587 %	114.415 %	-0.571 ppb	-0.097 ppb	0.368 ppb	100.425 %
Concentration per Run 2	0.177 ppb	0.206 ppb	11.042 ppb	111.541 %	117.265 %	-0.531 ppb	-0.084 ppb	0.364 ppb	101.830 %
Concentration per Run 3	0.269 ppb	0.197 ppb	11.370 ppb	111.963 %	118.935 %	-0.397 ppb	-0.076 ppb	0.365 ppb	101.890 %
Concentration RSD	84.9 %	15.2 %	1.9 %	1.1 %	2.0 %	18.3 %	12.6 %	0.6 %	0.8 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 55 Analysis started at: 4/1/2020 1:41:53 AM
Analysis label: SCAN User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	124.609 %	127.697 %	-0.005 ppb	43.278 ppb	0.010 ppb	0.684 ppb	5.180 ppb	6.419 ppb	122.397 %
Concentration per Run 1	125.530 %	129.513 %	-0.005 ppb	34.906 ppb	0.156 ppb	0.691 ppb	-0.156 ppb	4.342 ppb	122.936 %
Concentration per Run 2	122.670 %	128.168 %	-0.006 ppb	40.317 ppb	-0.297 ppb	0.759 ppb	11.795 ppb	7.319 ppb	119.207 %
Concentration per Run 3	125.625 %	125.408 %	-0.003 ppb	54.613 ppb	0.171 ppb	0.603 ppb	3.902 ppb	7.597 ppb	125.048 %
Concentration RSD	1.3 %	1.6 %	34.3 %	23.5 %	2,627.8 %	11.4 %	117.3 %	28.1 %	2.4 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.030 ppb	0.034 ppb	0.020 ppb	0.112 ppb	38.043 ppb	-0.001 ppb	0.021 ppb	0.039 ppb	0.000 ppb
Concentration per Run 1	0.022 ppb	0.020 ppb	0.003 ppb	0.096 ppb	31.536 ppb	-0.001 ppb	0.043 ppb	0.041 ppb	0.018 ppb
Concentration per Run 2	0.014 ppb	0.018 ppb	0.026 ppb	0.090 ppb	38.866 ppb	0.001 ppb	-0.017 ppb	0.015 ppb	0.015 ppb
Concentration per Run 3	0.055 ppb	0.062 ppb	0.030 ppb	0.149 ppb	43.727 ppb	-0.003 ppb	0.037 ppb	0.062 ppb	-0.032 ppb
Concentration RSD	71.8 %	74.5 %	72.0 %	29.1 %	16.1 %	150.2 %	159.3 %	59.6 %	97,590.0 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	122.586 %	0.109 ppb	0.298 ppb	0.003 ppb	2.872 ppb	123.807 %	0.001 ppb	0.000 ppb	122.578 %
Concentration per Run 1	121.836 %	0.100 ppb	0.043 ppb	0.002 ppb	2.180 ppb	124.067 %	0.002 ppb	-0.001 ppb	121.592 %
Concentration per Run 2	124.410 %	0.131 ppb	0.409 ppb	0.007 ppb	3.070 ppb	124.606 %	-0.001 ppb	0.000 ppb	124.011 %
Concentration per Run 3	121.511 %	0.096 ppb	0.443 ppb	-0.001 ppb	3.367 ppb	122.748 %	0.001 ppb	0.002 ppb	122.130 %
Concentration RSD	1.3 %	17.5 %	74.2 %	162.3 %	21.5 %	0.8 %	178.4 %	276.6 %	1.0 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.013 ppb	0.087 ppb	0.003 ppb	117.335 %	126.649 %	-0.855 ppb	-0.118 ppb	-0.002 ppb	128.527 %
Concentration per Run 1	-0.065 ppb	0.035 ppb	0.004 ppb	117.973 %	128.039 %	-0.930 ppb	-0.127 ppb	-0.003 ppb	128.261 %
Concentration per Run 2	-0.004 ppb	0.114 ppb	-0.007 ppb	116.877 %	126.520 %	-0.854 ppb	-0.115 ppb	-0.001 ppb	128.467 %
Concentration per Run 3	0.109 ppb	0.111 ppb	0.012 ppb	117.153 %	125.387 %	-0.782 ppb	-0.112 ppb	-0.002 ppb	128.853 %
Concentration RSD	654.6 %	51.9 %	327.6 %	0.5 %	1.1 %	8.6 %	6.7 %	33.7 %	0.2 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 56 Analysis started at: 4/1/2020 1:46:58 AM
Analysis label: CCV User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	122.274 %	116.278 %	58.122 ppb	6,273.948 ppb	6,192.390 ppb	62.557 ppb	6,129.376 ppb	6,097.859 ppb	135.481 %
Concentration per Run 1	122.651 %	110.828 %	56.996 ppb	6,462.115 ppb	6,377.422 ppb	61.503 ppb	6,004.322 ppb	6,058.457 ppb	136.550 %
Concentration per Run 2	121.616 %	119.463 %	58.834 ppb	6,175.402 ppb	6,087.749 ppb	62.779 ppb	6,230.860 ppb	6,183.656 ppb	133.415 %
Concentration per Run 3	122.555 %	118.543 %	58.537 ppb	6,184.326 ppb	6,111.999 ppb	63.390 ppb	6,152.947 ppb	6,051.465 ppb	136.478 %
Recovery Percentage 1			96.870 %	104.566 %	103.206 %	104.262 %	102.156 %	101.631 %	
Concentration RSD	0.5 %	4.1 %	1.7 %	2.6 %	2.6 %	1.5 %	1.9 %	1.2 %	1.3 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	61.503 ppb	59.808 ppb	61.026 ppb	61.689 ppb	6,199.207 ppb	63.326 ppb	62.115 ppb	61.447 ppb	58.379 ppb
Concentration per Run 1	61.115 ppb	60.105 ppb	60.802 ppb	61.320 ppb	6,212.214 ppb	63.523 ppb	62.909 ppb	61.665 ppb	57.875 ppb
Concentration per Run 2	61.817 ppb	60.010 ppb	61.776 ppb	62.641 ppb	6,276.891 ppb	63.356 ppb	61.501 ppb	62.017 ppb	59.140 ppb
Concentration per Run 3	61.578 ppb	59.308 ppb	60.501 ppb	61.105 ppb	6,108.515 ppb	63.099 ppb	61.934 ppb	60.659 ppb	58.122 ppb
Recovery Percentage 1	102.505 %	99.680 %	101.711 %	102.815 %	103.320 %	105.544 %	103.524 %	102.411 %	97.298 %
Concentration RSD	0.6 %	0.7 %	1.1 %	1.3 %	1.4 %	0.3 %	1.2 %	1.1 %	1.1 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	117.576 %	56.832 ppb	57.610 ppb	58.529 ppb	60.333 ppb	116.840 %	64.125 ppb	57.344 ppb	115.790 %
Concentration per Run 1	116.455 %	57.238 ppb	54.087 ppb	58.329 ppb	60.785 ppb	116.198 %	64.523 ppb	57.384 ppb	113.462 %
Concentration per Run 2	116.992 %	56.367 ppb	60.052 ppb	58.989 ppb	60.995 ppb	117.429 %	64.402 ppb	56.518 ppb	117.864 %
Concentration per Run 3	119.282 %	56.891 ppb	58.691 ppb	58.269 ppb	59.219 ppb	116.893 %	63.450 ppb	58.131 ppb	116.045 %
Recovery Percentage 1		94.720 %	96.017 %	97.548 %	100.555 %		106.875 %	95.574 %	
Concentration RSD	1.3 %	0.8 %	5.4 %	0.7 %	1.6 %	0.5 %	0.9 %	1.4 %	1.9 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	60.145 ppb	55.320 ppb	61.089 ppb	113.062 %	121.672 %	54.701 ppb	59.245 ppb	57.861 ppb	113.540 %
Concentration per Run 1	59.848 ppb	54.386 ppb	59.715 ppb	112.685 %	119.951 %	54.858 ppb	52.695 ppb	51.747 ppb	127.143 %
Concentration per Run 2	60.390 ppb	55.562 ppb	61.160 ppb	113.592 %	122.233 %	55.212 ppb	62.104 ppb	60.760 ppb	107.348 %
Concentration per Run 3	60.199 ppb	56.013 ppb	62.390 ppb	112.910 %	122.831 %	54.033 ppb	62.938 ppb	61.077 ppb	106.129 %
Recovery Percentage 1	100.242 %	92.201 %	101.814 %			91.168 %	98.742 %	96.435 %	
Concentration RSD	0.5 %	1.5 %	2.2 %	0.4 %	1.2 %	1.1 %	9.6 %	9.2 %	10.4 %

Analysis index:	57	Analysis started at:	4/1/2020 1:52:06 AM
Analysis label:	XCCB	User name:	ALPHALAB\metals-instrument

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 58 Analysis started at: 4/1/2020 1:57:16 AM
Analysis label: CCB User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	115.226 %	115.901 %	0.000 ppb	19.733 ppb	0.106 ppb	0.558 ppb	-2.164 ppb	0.485 ppb	110.012 %
Concentration per Run 1	116.260 %	115.641 %	-0.006 ppb	16.274 ppb	-0.281 ppb	0.369 ppb	2.016 ppb	2.447 ppb	111.108 %
Concentration per Run 2	114.375 %	114.933 %	0.005 ppb	20.222 ppb	0.387 ppb	0.599 ppb	-2.779 ppb	-1.733 ppb	109.676 %
Concentration per Run 3	115.042 %	117.127 %	0.001 ppb	22.704 ppb	0.214 ppb	0.706 ppb	-5.729 ppb	0.741 ppb	109.253 %
Recovery Percentage 1			-0.004 %	19.733 %	0.152 %	5.582 %	-2.164 %	0.485 %	
Concentration RSD	0.8 %	1.0 %	31,604.4 %	16.4 %	325.8 %	30.8 %	180.7 %	433.1 %	0.9 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.073 ppb	-0.048 ppb	-0.022 ppb	0.071 ppb	10.529 ppb	0.002 ppb	0.004 ppb	0.011 ppb	-0.153 ppb
Concentration per Run 1	0.040 ppb	-0.045 ppb	-0.047 ppb	0.055 ppb	9.987 ppb	0.001 ppb	-0.005 ppb	0.012 ppb	-0.157 ppb
Concentration per Run 2	0.057 ppb	-0.052 ppb	-0.003 ppb	0.081 ppb	9.607 ppb	-0.001 ppb	0.008 ppb	0.000 ppb	-0.139 ppb
Concentration per Run 3	0.123 ppb	-0.046 ppb	-0.016 ppb	0.078 ppb	11.994 ppb	0.005 ppb	0.010 ppb	0.022 ppb	-0.164 ppb
Recovery Percentage 1	14.598 %	-0.955 %	-2.208 %	7.133 %	21.058 %	0.305 %	0.214 %	1.121 %	-1.532 %
Concentration RSD	60.2 %	7.8 %	101.6 %	20.0 %	12.2 %	191.6 %	195.5 %	99.6 %	8.6 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	115.001 %	0.052 ppb	0.397 ppb	0.002 ppb	0.868 ppb	116.497 %	0.005 ppb	0.001 ppb	115.583 %
Concentration per Run 1	114.166 %	0.060 ppb	0.353 ppb	0.003 ppb	0.287 ppb	115.045 %	0.005 ppb	0.001 ppb	113.265 %
Concentration per Run 2	116.634 %	0.007 ppb	0.365 ppb	-0.001 ppb	1.160 ppb	116.666 %	0.003 ppb	0.001 ppb	116.702 %
Concentration per Run 3	114.203 %	0.088 ppb	0.474 ppb	0.004 ppb	1.156 ppb	117.780 %	0.007 ppb	0.002 ppb	116.782 %
Recovery Percentage 1		10.373 %	7.949 %	0.400 %	43.382 %		1.298 %	0.561 %	
Concentration RSD	1.2 %	79.8 %	16.7 %	126.5 %	58.0 %	1.2 %	34.9 %	70.2 %	1.7 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.221 ppb	-0.005 ppb	-0.004 ppb	112.226 %	121.402 %	-0.028 ppb	0.048 ppb	0.000 ppb	118.072 %
Concentration per Run 1	0.095 ppb	-0.039 ppb	-0.003 ppb	109.945 %	118.974 %	-0.177 ppb	0.015 ppb	0.000 ppb	123.728 %
Concentration per Run 2	0.267 ppb	0.005 ppb	-0.009 ppb	112.868 %	121.393 %	0.015 ppb	0.078 ppb	0.003 ppb	106.065 %
Concentration per Run 3	0.302 ppb	0.020 ppb	0.002 ppb	113.865 %	123.839 %	0.077 ppb	0.051 ppb	-0.002 ppb	124.422 %
Recovery Percentage 1	7.375 %	-0.124 %	-0.702 %			-1.416 %	9.587 %	0.047 %	
Concentration RSD	50.1 %	619.9 %	162.3 %	1.8 %	2.0 %	468.4 %	66.3 %	446.5 %	8.8 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 59
Analysis label: L2013808-04 6020TL
Analysis started at: 4/1/2020 2:02:25 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	119.557 %	117.387 %	0.129 ppb	205,189.361 ppb	14,570.025 ppb	126.444 ppb	14,535.966 ppb	50,093.702 ppb	109.868 %
Concentration per Run 1	119.926 %	115.641 %	0.113 ppb	208,803.431 ppb	14,557.237 ppb	124.753 ppb	14,557.740 ppb	49,803.699 ppb	108.825 %
Concentration per Run 2	117.862 %	119.392 %	0.124 ppb	198,394.820 ppb	14,651.397 ppb	125.713 ppb	14,405.118 ppb	50,276.936 ppb	108.625 %
Concentration per Run 3	120.883 %	117.127 %	0.151 ppb	208,369.832 ppb	14,501.442 ppb	128.867 ppb	14,645.040 ppb	50,200.472 ppb	112.154 %
Concentration RSD	1.3 %	1.6 %	15.0 %	2.9 %	0.5 %	1.7 %	0.8 %	0.5 %	1.8 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	90.932 ppb	4.843 ppb	2.667 ppb	142.191 ppb	1,561.883 ppb	0.364 ppb	2.789 ppb	34.596 ppb	15.081 ppb
Concentration per Run 1	90.243 ppb	4.550 ppb	2.628 ppb	140.015 ppb	1,489.582 ppb	0.333 ppb	2.778 ppb	34.699 ppb	14.873 ppb
Concentration per Run 2	89.839 ppb	5.169 ppb	2.712 ppb	140.722 ppb	1,555.100 ppb	0.362 ppb	2.770 ppb	34.207 ppb	14.584 ppb
Concentration per Run 3	92.715 ppb	4.811 ppb	2.662 ppb	145.836 ppb	1,640.967 ppb	0.397 ppb	2.819 ppb	34.881 ppb	15.787 ppb
Concentration RSD	1.7 %	6.4 %	1.6 %	2.2 %	4.9 %	8.8 %	1.0 %	1.0 %	4.2 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	115.806 %	219.428 ppb	1.140 ppb	306.861 ppb	11.133 ppb	107.656 %	0.357 ppb	0.039 ppb	110.937 %
Concentration per Run 1	115.512 %	215.405 ppb	0.899 ppb	307.778 ppb	11.027 ppb	107.038 %	0.379 ppb	0.042 ppb	109.831 %
Concentration per Run 2	118.831 %	216.403 ppb	1.089 ppb	304.738 ppb	11.342 ppb	109.812 %	0.343 ppb	0.042 ppb	113.078 %
Concentration per Run 3	113.075 %	226.477 ppb	1.432 ppb	308.068 ppb	11.029 ppb	106.118 %	0.349 ppb	0.033 ppb	109.902 %
Concentration RSD	2.5 %	2.8 %	23.7 %	0.6 %	1.6 %	1.8 %	5.3 %	13.6 %	1.7 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.192 ppb	2.426 ppb	29.408 ppb	101.913 %	94.396 %	1.183 ppb	0.018 ppb	8.688 ppb	95.228 %
Concentration per Run 1	0.132 ppb	2.414 ppb	29.605 ppb	103.181 %	94.973 %	1.039 ppb	0.006 ppb	8.682 ppb	95.813 %
Concentration per Run 2	0.158 ppb	2.386 ppb	29.024 ppb	102.327 %	94.959 %	1.175 ppb	0.025 ppb	8.717 ppb	96.588 %
Concentration per Run 3	0.287 ppb	2.478 ppb	29.595 ppb	100.232 %	93.257 %	1.334 ppb	0.022 ppb	8.666 ppb	93.283 %
Concentration RSD	43.0 %	1.9 %	1.1 %	1.5 %	1.0 %	12.4 %	57.7 %	0.3 %	1.8 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 60
Analysis label: L2013808-05 6020TL
Analysis started at: 4/1/2020 2:07:31 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	127.944 %	125.031 %	0.009 ppb	80,122.002 ppb	19,658.025 ppb	39.532 ppb	10,932.487 ppb	97,005.084 ppb	120.437 %
Concentration per Run 1	128.539 %	126.045 %	0.017 ppb	79,750.242 ppb	19,375.271 ppb	39.227 ppb	11,004.697 ppb	97,716.066 ppb	121.722 %
Concentration per Run 2	128.425 %	123.851 %	0.000 ppb	80,800.737 ppb	19,991.439 ppb	39.307 ppb	10,888.925 ppb	96,400.009 ppb	121.450 %
Concentration per Run 3	126.869 %	125.196 %	0.010 ppb	79,815.026 ppb	19,607.365 ppb	40.063 ppb	10,903.837 ppb	96,899.177 ppb	118.140 %
Concentration RSD	0.7 %	0.9 %	93.1 %	0.7 %	1.6 %	1.2 %	0.6 %	0.7 %	1.7 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	171.993 ppb	0.690 ppb	1.259 ppb	143.053 ppb	10,271.335 ppb	1.600 ppb	7.621 ppb	13.085 ppb	34.558 ppb
Concentration per Run 1	170.002 ppb	0.742 ppb	1.287 ppb	145.086 ppb	10,530.585 ppb	1.632 ppb	7.777 ppb	12.789 ppb	35.025 ppb
Concentration per Run 2	174.802 ppb	0.591 ppb	1.280 ppb	142.885 ppb	10,215.732 ppb	1.567 ppb	7.611 ppb	13.630 ppb	34.664 ppb
Concentration per Run 3	171.174 ppb	0.737 ppb	1.210 ppb	141.188 ppb	10,067.688 ppb	1.602 ppb	7.477 ppb	12.836 ppb	33.984 ppb
Concentration RSD	1.5 %	12.4 %	3.4 %	1.4 %	2.3 %	2.0 %	2.0 %	3.6 %	1.5 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	121.853 %	1,579.521 ppb	0.570 ppb	647.082 ppb	3.568 ppb	113.415 %	0.103 ppb	0.014 ppb	116.613 %
Concentration per Run 1	119.549 %	1,601.074 ppb	0.684 ppb	653.325 ppb	3.701 ppb	113.190 %	0.096 ppb	0.020 ppb	118.105 %
Concentration per Run 2	121.754 %	1,584.410 ppb	0.557 ppb	643.113 ppb	3.499 ppb	112.802 %	0.106 ppb	0.009 ppb	115.967 %
Concentration per Run 3	124.257 %	1,553.078 ppb	0.467 ppb	644.809 ppb	3.503 ppb	114.253 %	0.107 ppb	0.012 ppb	115.767 %
Concentration RSD	1.9 %	1.5 %	19.2 %	0.8 %	3.2 %	0.7 %	5.8 %	41.6 %	1.1 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.108 ppb	1.163 ppb	99.711 ppb	103.030 %	94.470 %	-0.239 ppb	-0.049 ppb	2.966 ppb	101.382 %
Concentration per Run 1	-0.165 ppb	1.127 ppb	99.380 ppb	102.776 %	95.308 %	-0.350 ppb	-0.067 ppb	2.942 ppb	102.742 %
Concentration per Run 2	-0.119 ppb	1.146 ppb	99.986 ppb	104.336 %	93.998 %	-0.205 ppb	-0.047 ppb	2.945 ppb	101.285 %
Concentration per Run 3	-0.041 ppb	1.216 ppb	99.767 ppb	101.980 %	94.104 %	-0.162 ppb	-0.033 ppb	3.011 ppb	100.119 %
Concentration RSD	57.7 %	4.1 %	0.3 %	1.2 %	0.8 %	41.2 %	35.5 %	1.3 %	1.3 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 61
Analysis label: L2013808-06D5 6020TL
Analysis started at: 4/1/2020 2:12:37 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	129.510 %	128.381 %	0.005 ppb	1,137,373.449 ppb	118,926.194 ppb	79.579 ppb	33,111.578 ppb	36,062.495 ppb	127.412 %
Concentration per Run 1	131.589 %	128.381 %	0.006 ppb	1,128,234.093 ppb	117,741.311 ppb	78.147 ppb	32,547.491 ppb	35,961.127 ppb	130.034 %
Concentration per Run 2	127.710 %	127.461 %	0.005 ppb	1,150,401.931 ppb	120,406.617 ppb	80.419 ppb	33,101.236 ppb	35,616.538 ppb	125.518 %
Concentration per Run 3	129.231 %	129.301 %	0.003 ppb	1,133,484.322 ppb	118,630.654 ppb	80.172 ppb	33,686.006 ppb	36,609.819 ppb	126.682 %
Concentration RSD	1.5 %	0.7 %	31.0 %	1.0 %	1.1 %	1.6 %	1.7 %	1.4 %	1.8 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	63.496 ppb	3.260 ppb	1.965 ppb	55.575 ppb	530.166 ppb	0.257 ppb	0.413 ppb	1.399 ppb	3.408 ppb
Concentration per Run 1	63.304 ppb	3.253 ppb	1.835 ppb	54.533 ppb	522.499 ppb	0.277 ppb	0.314 ppb	1.429 ppb	3.600 ppb
Concentration per Run 2	63.503 ppb	3.430 ppb	2.030 ppb	56.223 ppb	535.030 ppb	0.259 ppb	0.466 ppb	1.297 ppb	3.279 ppb
Concentration per Run 3	63.680 ppb	3.096 ppb	2.032 ppb	55.968 ppb	532.970 ppb	0.235 ppb	0.458 ppb	1.472 ppb	3.344 ppb
Concentration RSD	0.3 %	5.1 %	5.7 %	1.6 %	1.3 %	8.2 %	20.8 %	6.5 %	5.0 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	111.142 %	3.203 ppb	0.598 ppb	746.846 ppb	0.757 ppb	96.668 %	0.011 ppb	0.004 ppb	100.982 %
Concentration per Run 1	110.147 %	3.164 ppb	0.656 ppb	749.903 ppb	0.321 ppb	96.341 %	0.009 ppb	0.001 ppb	99.265 %
Concentration per Run 2	109.973 %	3.155 ppb	0.549 ppb	747.008 ppb	0.948 ppb	95.775 %	0.009 ppb	0.009 ppb	101.041 %
Concentration per Run 3	113.305 %	3.289 ppb	0.588 ppb	743.628 ppb	1.001 ppb	97.888 %	0.016 ppb	0.001 ppb	102.641 %
Concentration RSD	1.7 %	2.3 %	9.1 %	0.4 %	50.0 %	1.1 %	38.4 %	123.5 %	1.7 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.010 ppb	0.040 ppb	20.884 ppb	98.330 %	90.187 %	-0.565 ppb	-0.079 ppb	0.313 ppb	77.027 %
Concentration per Run 1	-0.080 ppb	0.033 ppb	20.835 ppb	98.409 %	89.779 %	-0.674 ppb	-0.090 ppb	0.307 ppb	77.087 %
Concentration per Run 2	0.005 ppb	0.026 ppb	20.569 ppb	98.569 %	90.386 %	-0.538 ppb	-0.076 ppb	0.314 ppb	76.439 %
Concentration per Run 3	0.045 ppb	0.060 ppb	21.249 ppb	98.011 %	90.394 %	-0.484 ppb	-0.072 ppb	0.318 ppb	77.555 %
Concentration RSD	641.5 %	45.4 %	1.6 %	0.3 %	0.4 %	17.4 %	11.9 %	1.8 %	0.7 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 62
Analysis label: L2013808-07 6020TL
Analysis started at: 4/1/2020 2:17:43 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	138.329 %	138.313 %	0.000 ppb	149,965.270 ppb	9,599.114 ppb	25.973 ppb	12,385.564 ppb	101,475.879 ppb	122.860 %
Concentration per Run 1	139.382 %	138.785 %	0.001 ppb	148,227.880 ppb	9,506.762 ppb	24.909 ppb	12,403.845 ppb	100,240.840 ppb	123.339 %
Concentration per Run 2	138.541 %	141.262 %	-0.004 ppb	146,556.026 ppb	9,345.351 ppb	23.826 ppb	12,109.641 ppb	100,175.839 ppb	122.904 %
Concentration per Run 3	137.064 %	134.892 %	0.003 ppb	155,111.904 ppb	9,945.228 ppb	29.184 ppb	12,643.205 ppb	104,010.958 ppb	122.336 %
Concentration RSD	0.8 %	2.3 %	3,309.2 %	3.0 %	3.2 %	10.9 %	2.2 %	2.2 %	0.4 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	173.174 ppb	7.822 ppb	1.684 ppb	61.906 ppb	792.019 ppb	1.295 ppb	13.058 ppb	4.942 ppb	7.780 ppb
Concentration per Run 1	167.154 ppb	7.839 ppb	1.713 ppb	60.754 ppb	785.011 ppb	1.288 ppb	12.638 ppb	4.992 ppb	7.529 ppb
Concentration per Run 2	173.941 ppb	7.436 ppb	1.662 ppb	61.568 ppb	763.030 ppb	1.259 ppb	12.991 ppb	4.949 ppb	7.930 ppb
Concentration per Run 3	178.426 ppb	8.189 ppb	1.677 ppb	63.397 ppb	828.017 ppb	1.339 ppb	13.545 ppb	4.886 ppb	7.880 ppb
Concentration RSD	3.3 %	4.8 %	1.5 %	2.2 %	4.2 %	3.1 %	3.5 %	1.1 %	2.8 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	128.852 %	2,890.145 ppb	1.941 ppb	1,122.441 ppb	16.487 ppb	117.978 %	0.020 ppb	0.007 ppb	120.194 %
Concentration per Run 1	128.293 %	2,856.097 ppb	2.067 ppb	1,117.830 ppb	17.355 ppb	117.702 %	0.020 ppb	0.005 ppb	120.101 %
Concentration per Run 2	129.751 %	2,873.260 ppb	1.957 ppb	1,119.917 ppb	16.382 ppb	118.870 %	0.021 ppb	0.006 ppb	120.546 %
Concentration per Run 3	128.514 %	2,941.079 ppb	1.798 ppb	1,129.577 ppb	15.724 ppb	117.363 %	0.018 ppb	0.009 ppb	119.934 %
Concentration RSD	0.6 %	1.6 %	7.0 %	0.6 %	5.0 %	0.7 %	7.4 %	32.5 %	0.3 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.315 ppb	14.488 ppb	41.801 ppb	105.546 %	101.869 %	1.478 ppb	-0.095 ppb	0.382 ppb	101.538 %
Concentration per Run 1	-0.314 ppb	14.438 ppb	41.280 ppb	105.961 %	97.072 %	1.611 ppb	-0.105 ppb	0.387 ppb	101.965 %
Concentration per Run 2	-0.356 ppb	14.351 ppb	42.103 ppb	105.478 %	97.994 %	1.522 ppb	-0.096 ppb	0.385 ppb	101.166 %
Concentration per Run 3	-0.276 ppb	14.674 ppb	42.020 ppb	105.198 %	110.539 %	1.301 ppb	-0.086 ppb	0.375 ppb	101.483 %
Concentration RSD	12.7 %	1.2 %	1.1 %	0.4 %	7.4 %	10.8 %	9.8 %	1.6 %	0.4 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 63
Analysis label: L2013808-08 6020TL
Analysis started at: 4/1/2020 2:22:50 AM
User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	129.156 %	128.451 %	0.007 ppb	915,172.717 ppb	89,949.737 ppb	33.213 ppb	30,457.493 ppb	57,026.251 ppb	133.333 %
Concentration per Run 1	131.306 %	123.639 %	0.016 ppb	926,348.218 ppb	91,268.071 ppb	36.249 ppb	30,972.363 ppb	57,332.878 ppb	134.457 %
Concentration per Run 2	128.829 %	130.433 %	-0.003 ppb	906,224.732 ppb	88,983.440 ppb	29.268 ppb	29,720.324 ppb	56,363.740 ppb	134.286 %
Concentration per Run 3	127.334 %	131.283 %	0.008 ppb	912,945.200 ppb	89,597.701 ppb	34.122 ppb	30,679.792 ppb	57,382.135 ppb	131.254 %
Concentration RSD	1.6 %	3.3 %	138.9 %	1.1 %	1.3 %	10.8 %	2.2 %	1.0 %	1.4 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	98.118 ppb	0.980 ppb	1.627 ppb	409.462 ppb	25,396.953 ppb	0.976 ppb	5.073 ppb	7.550 ppb	24.771 ppb
Concentration per Run 1	98.380 ppb	0.893 ppb	1.742 ppb	398.565 ppb	25,497.604 ppb	0.976 ppb	5.056 ppb	7.738 ppb	25.003 ppb
Concentration per Run 2	96.454 ppb	0.974 ppb	1.538 ppb	413.389 ppb	25,329.133 ppb	0.939 ppb	5.254 ppb	7.453 ppb	24.155 ppb
Concentration per Run 3	99.521 ppb	1.073 ppb	1.600 ppb	416.432 ppb	25,364.122 ppb	1.013 ppb	4.908 ppb	7.458 ppb	25.157 ppb
Concentration RSD	1.6 %	9.2 %	6.4 %	2.3 %	0.4 %	3.8 %	3.4 %	2.2 %	2.2 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	113.652 %	6,974.036 ppb	0.832 ppb	736.286 ppb	7.920 ppb	98.935 %	0.013 ppb	0.008 ppb	103.621 %
Concentration per Run 1	113.107 %	6,936.025 ppb	0.439 ppb	728.348 ppb	8.096 ppb	98.368 %	0.021 ppb	0.017 ppb	102.009 %
Concentration per Run 2	114.274 %	6,981.711 ppb	0.979 ppb	735.604 ppb	7.914 ppb	99.582 %	0.011 ppb	0.003 ppb	104.628 %
Concentration per Run 3	113.575 %	7,004.372 ppb	1.078 ppb	744.905 ppb	7.750 ppb	98.853 %	0.008 ppb	0.003 ppb	104.225 %
Concentration RSD	0.5 %	0.5 %	41.4 %	1.1 %	2.2 %	0.6 %	52.7 %	113.1 %	1.4 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.204 ppb	2.962 ppb	64.952 ppb	96.958 %	88.884 %	-0.494 ppb	-0.105 ppb	1.017 ppb	81.176 %
Concentration per Run 1	-0.236 ppb	2.944 ppb	65.346 ppb	97.078 %	88.883 %	-0.539 ppb	-0.102 ppb	1.014 ppb	81.806 %
Concentration per Run 2	-0.224 ppb	3.003 ppb	64.410 ppb	97.813 %	89.257 %	-0.498 ppb	-0.111 ppb	1.008 ppb	81.174 %
Concentration per Run 3	-0.151 ppb	2.940 ppb	65.102 ppb	95.982 %	88.511 %	-0.446 ppb	-0.104 ppb	1.028 ppb	80.548 %
Concentration RSD	22.5 %	1.2 %	0.7 %	1.0 %	0.4 %	9.5 %	4.3 %	1.0 %	0.8 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 64 Analysis started at: 4/1/2020 2:27:55 AM
Analysis label: SCAN User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	132.619 %	133.996 %	-0.003 ppb	150.810 ppb	0.520 ppb	0.443 ppb	8.040 ppb	6.935 ppb	133.967 %
Concentration per Run 1	133.915 %	129.372 %	-0.004 ppb	150.240 ppb	0.451 ppb	0.508 ppb	6.916 ppb	7.898 ppb	135.509 %
Concentration per Run 2	131.706 %	139.139 %	-0.003 ppb	148.932 ppb	0.683 ppb	0.319 ppb	11.101 ppb	6.734 ppb	135.107 %
Concentration per Run 3	132.236 %	133.477 %	-0.002 ppb	153.260 ppb	0.427 ppb	0.502 ppb	6.102 ppb	6.174 ppb	131.285 %
Concentration RSD	0.9 %	3.7 %	32.0 %	1.5 %	27.1 %	24.3 %	33.4 %	12.7 %	1.7 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	-0.058 ppb	-0.030 ppb	0.003 ppb	0.099 ppb	138.522 ppb	0.002 ppb	0.037 ppb	0.026 ppb	-0.017 ppb
Concentration per Run 1	-0.117 ppb	-0.028 ppb	0.010 ppb	0.101 ppb	130.169 ppb	-0.001 ppb	-0.005 ppb	0.024 ppb	0.010 ppb
Concentration per Run 2	-0.035 ppb	-0.051 ppb	-0.009 ppb	0.077 ppb	133.665 ppb	0.004 ppb	0.019 ppb	0.036 ppb	-0.034 ppb
Concentration per Run 3	-0.021 ppb	-0.011 ppb	0.009 ppb	0.119 ppb	151.733 ppb	0.002 ppb	0.098 ppb	0.017 ppb	-0.027 ppb
Concentration RSD	89.7 %	66.7 %	358.5 %	21.5 %	8.4 %	160.6 %	145.2 %	36.1 %	142.4 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	127.671 %	3.680 ppb	0.336 ppb	0.018 ppb	0.985 ppb	126.004 %	0.002 ppb	0.000 ppb	125.312 %
Concentration per Run 1	126.352 %	3.640 ppb	0.386 ppb	0.016 ppb	0.613 ppb	126.305 %	0.002 ppb	-0.001 ppb	125.255 %
Concentration per Run 2	128.531 %	3.461 ppb	0.101 ppb	0.018 ppb	1.132 ppb	126.903 %	0.002 ppb	0.002 ppb	125.874 %
Concentration per Run 3	128.129 %	3.939 ppb	0.521 ppb	0.020 ppb	1.210 ppb	124.805 %	0.002 ppb	-0.002 ppb	124.807 %
Concentration RSD	0.9 %	6.6 %	63.8 %	13.4 %	32.9 %	0.9 %	16.8 %	442.9 %	0.4 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	-0.346 ppb	-0.043 ppb	0.001 ppb	118.985 %	128.946 %	-0.903 ppb	-0.137 ppb	-0.005 ppb	131.332 %
Concentration per Run 1	-0.383 ppb	-0.055 ppb	0.006 ppb	118.075 %	128.628 %	-0.943 ppb	-0.141 ppb	-0.004 ppb	131.394 %
Concentration per Run 2	-0.323 ppb	-0.062 ppb	0.001 ppb	118.374 %	128.317 %	-0.901 ppb	-0.133 ppb	-0.005 ppb	130.210 %
Concentration per Run 3	-0.333 ppb	-0.013 ppb	-0.005 ppb	120.506 %	129.892 %	-0.866 ppb	-0.136 ppb	-0.005 ppb	132.392 %
Concentration RSD	9.3 %	61.7 %	747.5 %	1.1 %	0.6 %	4.3 %	3.0 %	15.0 %	0.8 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 65 Analysis started at: 4/1/2020 2:34:02 AM
Analysis label: CCV User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	135.143 %	129.183 %	58.566 ppb	6,442.491 ppb	6,362.721 ppb	65.304 ppb	6,359.450 ppb	6,252.573 ppb	152.414 %
Concentration per Run 1	138.302 %	129.938 %	57.794 ppb	6,422.609 ppb	6,307.326 ppb	66.218 ppb	6,432.966 ppb	6,243.320 ppb	152.820 %
Concentration per Run 2	132.927 %	129.796 %	58.714 ppb	6,361.953 ppb	6,310.798 ppb	64.932 ppb	6,226.947 ppb	6,213.384 ppb	151.099 %
Concentration per Run 3	134.199 %	127.814 %	59.190 ppb	6,542.910 ppb	6,470.038 ppb	64.762 ppb	6,418.437 ppb	6,301.016 ppb	153.323 %
Recovery Percentage 1			97.610 %	107.375 %	106.045 %	108.840 %	105.991 %	104.210 %	
Concentration RSD	2.1 %	0.9 %	1.2 %	1.4 %	1.5 %	1.2 %	1.8 %	0.7 %	0.8 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	60.443 ppb	60.656 ppb	61.548 ppb	63.129 ppb	6,340.381 ppb	62.751 ppb	63.520 ppb	62.023 ppb	58.389 ppb
Concentration per Run 1	60.067 ppb	59.650 ppb	61.487 ppb	63.024 ppb	6,323.829 ppb	62.939 ppb	64.784 ppb	61.908 ppb	58.983 ppb
Concentration per Run 2	60.080 ppb	60.789 ppb	61.506 ppb	63.650 ppb	6,406.383 ppb	63.000 ppb	64.015 ppb	62.433 ppb	58.437 ppb
Concentration per Run 3	61.181 ppb	61.528 ppb	61.651 ppb	62.712 ppb	6,290.931 ppb	62.312 ppb	61.760 ppb	61.729 ppb	57.747 ppb
Recovery Percentage 1	100.738 %	101.093 %	102.580 %	105.215 %	105.673 %	104.584 %	105.866 %	103.372 %	97.315 %
Concentration RSD	1.1 %	1.6 %	0.1 %	0.8 %	0.9 %	0.6 %	2.5 %	0.6 %	1.1 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	129.036 %	58.816 ppb	55.856 ppb	59.934 ppb	58.138 ppb	126.080 %	63.253 ppb	56.700 ppb	125.786 %
Concentration per Run 1	128.861 %	59.019 ppb	56.354 ppb	60.161 ppb	59.571 ppb	128.204 %	63.123 ppb	56.140 ppb	128.995 %
Concentration per Run 2	127.896 %	58.446 ppb	55.601 ppb	59.429 ppb	56.868 ppb	125.112 %	62.800 ppb	56.765 ppb	124.416 %
Concentration per Run 3	130.350 %	58.982 ppb	55.614 ppb	60.211 ppb	57.976 ppb	124.924 %	63.835 ppb	57.196 ppb	123.947 %
Recovery Percentage 1		98.026 %	93.094 %	99.890 %	96.897 %		105.421 %	94.500 %	
Concentration RSD	1.0 %	0.5 %	0.8 %	0.7 %	2.3 %	1.5 %	0.8 %	0.9 %	2.2 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	59.152 ppb	54.895 ppb	62.208 ppb	120.162 %	126.819 %	52.831 ppb	54.358 ppb	54.620 ppb	129.439 %
Concentration per Run 1	58.731 ppb	54.513 ppb	60.876 ppb	122.364 %	128.691 %	53.855 ppb	54.873 ppb	54.803 ppb	131.028 %
Concentration per Run 2	59.429 ppb	55.251 ppb	63.714 ppb	119.507 %	126.173 %	52.463 ppb	53.802 ppb	54.384 ppb	129.312 %
Concentration per Run 3	59.297 ppb	54.922 ppb	62.033 ppb	118.614 %	125.594 %	52.174 ppb	54.398 ppb	54.673 ppb	127.976 %
Recovery Percentage 1	98.587 %	91.492 %	103.680 %			88.051 %	90.596 %	91.034 %	
Concentration RSD	0.6 %	0.7 %	2.3 %	1.6 %	1.3 %	1.7 %	1.0 %	0.4 %	1.2 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 66 Analysis started at: 4/1/2020 2:39:10 AM
Analysis label: LLCCV User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	152.686 %	161.528 %	0.164 ppb	72.155 ppb	14.328 ppb	2.494 ppb	15.685 ppb	19.868 ppb	131.182 %
Concentration per Run 1	149.327 %	150.463 %	0.214 ppb	92.442 ppb	30.273 ppb	5.180 ppb	34.534 ppb	38.464 ppb	131.598 %
Concentration per Run 2	154.536 %	166.742 %	0.132 ppb	62.348 ppb	9.242 ppb	1.553 ppb	11.807 ppb	11.827 ppb	129.812 %
Concentration per Run 3	154.193 %	167.379 %	0.147 ppb	61.674 ppb	3.468 ppb	0.749 ppb	0.713 ppb	9.314 ppb	132.137 %
Recovery Percentage 1			32.834 %	72.155 %	20.468 %	24.941 %	15.685 %	19.868 %	
Concentration RSD	1.9 %	5.9 %	26.5 %	24.4 %	98.5 %	94.6 %	109.9 %	81.3 %	0.9 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	0.345 ppb	0.903 ppb	0.146 ppb	0.278 ppb	58.621 ppb	0.096 ppb	0.397 ppb	0.194 ppb	1.323 ppb
Concentration per Run 1	0.457 ppb	1.801 ppb	0.426 ppb	0.512 ppb	76.051 ppb	0.199 ppb	0.878 ppb	0.374 ppb	2.726 ppb
Concentration per Run 2	0.286 ppb	0.614 ppb	0.056 ppb	0.194 ppb	50.019 ppb	0.061 ppb	0.244 ppb	0.145 ppb	0.936 ppb
Concentration per Run 3	0.292 ppb	0.295 ppb	-0.045 ppb	0.127 ppb	49.793 ppb	0.030 ppb	0.069 ppb	0.065 ppb	0.307 ppb
Recovery Percentage 1	68.967 %	18.067 %	14.559 %	27.763 %	117.242 %	19.272 %	19.851 %	19.437 %	13.232 %
Concentration RSD	28.2 %	87.9 %	170.6 %	74.2 %	25.8 %	93.4 %	107.3 %	82.5 %	94.9 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	159.723 %	0.466 ppb	0.966 ppb	0.089 ppb	1.256 ppb	170.004 %	0.075 ppb	0.033 ppb	160.939 %
Concentration per Run 1	151.120 %	0.551 ppb	1.609 ppb	0.184 ppb	2.632 ppb	150.065 %	0.143 ppb	0.067 ppb	148.450 %
Concentration per Run 2	160.719 %	0.443 ppb	0.706 ppb	0.050 ppb	0.626 ppb	193.145 %	0.047 ppb	0.017 ppb	164.591 %
Concentration per Run 3	167.331 %	0.403 ppb	0.583 ppb	0.034 ppb	0.510 ppb	166.801 %	0.033 ppb	0.014 ppb	169.775 %
Recovery Percentage 1		93.136 %	19.323 %	17.875 %	62.811 %		18.631 %	16.287 %	
Concentration RSD	5.1 %	16.4 %	57.9 %	92.5 %	95.0 %	12.8 %	80.6 %	90.3 %	6.9 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.953 ppb	0.190 ppb	0.069 ppb	153.025 %	165.363 %	0.741 ppb	0.181 ppb	0.088 ppb	156.045 %
Concentration per Run 1	1.674 ppb	0.509 ppb	0.134 ppb	141.023 %	154.507 %	1.468 ppb	0.433 ppb	0.171 ppb	144.766 %
Concentration per Run 2	0.763 ppb	0.076 ppb	0.044 ppb	158.402 %	170.489 %	0.561 ppb	0.114 ppb	0.059 ppb	155.054 %
Concentration per Run 3	0.421 ppb	-0.015 ppb	0.027 ppb	159.650 %	171.093 %	0.194 ppb	-0.005 ppb	0.033 ppb	168.316 %
Recovery Percentage 1	31.752 %	4.751 %	13.703 %			37.054 %	36.109 %	8.753 %	
Concentration RSD	68.0 %	147.4 %	83.7 %	6.8 %	5.7 %	88.5 %	125.6 %	84.1 %	7.6 %

Alpha ICPMSQ Full

4/1/2020 2:51:40 AM

Analysis index: 67 Analysis started at: 4/1/2020 2:45:00 AM
Analysis label: CCB User name: ALPHALAB\metals-instrument

Category	6Li (STD AGD)	6Li (KED AGD)	9Be (STD AGD)	23Na (KED AGD)	24Mg (KED AGD)	27Al (KED AGD)	39K (KED AGD)	44Ca (KED AGD)	45Sc (STD AGD)
Concentration average	131.881 %	135.152 %	0.000 ppb	58.399 ppb	0.320 ppb	0.322 ppb	2.202 ppb	2.642 ppb	132.300 %
Concentration per Run 1	130.763 %	131.353 %	-0.002 ppb	61.491 ppb	0.882 ppb	0.543 ppb	4.047 ppb	2.658 ppb	131.609 %
Concentration per Run 2	131.188 %	146.145 %	0.006 ppb	56.442 ppb	0.222 ppb	0.360 ppb	3.858 ppb	0.130 ppb	133.457 %
Concentration per Run 3	133.694 %	127.956 %	-0.004 ppb	57.263 ppb	-0.144 ppb	0.064 ppb	-1.300 ppb	5.137 ppb	131.834 %
Recovery Percentage 1			0.060 %	58.399 %	0.457 %	3.220 %	2.202 %	2.642 %	
Concentration RSD	1.2 %	7.2 %	1,736.8 %	4.6 %	162.5 %	75.0 %	137.8 %	94.8 %	0.8 %

Category	48Ti (KED AGD)	51V (KED AGD)	52Cr (KED AGD)	55Mn (KED AGD)	57Fe (KED AGD)	59Co (KED AGD)	60Ni (KED AGD)	65Cu (KED AGD)	66Zn (KED AGD)
Concentration average	-0.010 ppb	-0.013 ppb	-0.031 ppb	0.069 ppb	14.351 ppb	0.001 ppb	0.036 ppb	0.002 ppb	-0.122 ppb
Concentration per Run 1	-0.054 ppb	-0.020 ppb	-0.037 ppb	0.075 ppb	11.437 ppb	0.004 ppb	0.021 ppb	-0.006 ppb	-0.174 ppb
Concentration per Run 2	0.020 ppb	0.000 ppb	-0.034 ppb	0.067 ppb	15.356 ppb	-0.001 ppb	0.028 ppb	0.012 ppb	-0.119 ppb
Concentration per Run 3	0.004 ppb	-0.020 ppb	-0.022 ppb	0.066 ppb	16.259 ppb	0.001 ppb	0.057 ppb	0.001 ppb	-0.074 ppb
Recovery Percentage 1	-2.018 %	-0.261 %	-3.136 %	6.900 %	28.702 %	0.211 %	1.784 %	0.242 %	-1.222 %
Concentration RSD	389.5 %	86.9 %	25.3 %	7.1 %	17.9 %	250.9 %	53.3 %	373.0 %	40.9 %

Category	74Ge (KED AGD)	75As (KED AGD)	78Se (KED AGD)	88Sr (KED AGD)	95Mo (KED AGD)	103Rh (KED AGD)	107Ag (KED AGD)	111Cd (KED AGD)	115In (KED AGD)
Concentration average	129.146 %	0.290 ppb	0.440 ppb	0.002 ppb	0.694 ppb	128.812 %	0.004 ppb	0.001 ppb	127.658 %
Concentration per Run 1	127.729 %	0.221 ppb	0.178 ppb	-0.002 ppb	0.486 ppb	130.212 %	0.004 ppb	-0.002 ppb	126.893 %
Concentration per Run 2	137.106 %	0.319 ppb	0.580 ppb	0.007 ppb	0.743 ppb	129.617 %	0.003 ppb	0.002 ppb	134.123 %
Concentration per Run 3	122.605 %	0.330 ppb	0.561 ppb	0.000 ppb	0.854 ppb	126.607 %	0.005 ppb	0.003 ppb	121.957 %
Recovery Percentage 1		58.035 %	8.797 %	0.310 %	34.719 %		0.991 %	0.415 %	
Concentration RSD	5.7 %	20.6 %	51.5 %	331.5 %	27.2 %	1.5 %	36.3 %	330.4 %	4.8 %

Category	118Sn (KED AGD)	121Sb (KED AGD)	137Ba (KED AGD)	159Tb (KED AGD)	175Lu (KED AGD)	183W (KED AGD)	205Tl (KED AGD)	208Pb (KED AGD)	209Bi (KED AGD)
Concentration average	0.033 ppb	-0.060 ppb	-0.004 ppb	119.237 %	127.766 %	0.042 ppb	0.046 ppb	-0.002 ppb	131.067 %
Concentration per Run 1	-0.031 ppb	-0.085 ppb	0.001 ppb	119.374 %	127.548 %	-0.111 ppb	0.041 ppb	-0.002 ppb	131.468 %
Concentration per Run 2	0.056 ppb	-0.065 ppb	-0.003 ppb	121.224 %	132.367 %	0.003 ppb	0.045 ppb	-0.002 ppb	132.857 %
Concentration per Run 3	0.076 ppb	-0.030 ppb	-0.010 ppb	117.114 %	123.384 %	0.234 ppb	0.052 ppb	-0.002 ppb	128.875 %
Recovery Percentage 1	1.114 %	-1.494 %	-0.806 %			2.102 %	9.201 %	-0.240 %	
Concentration RSD	170.1 %	46.5 %	131.5 %	1.7 %	3.5 %	418.6 %	12.9 %	2.7 %	1.5 %

Interference Check Solutions
(ICP-MS)

Solution Component	Solution A Concentration (ug/L)	Solution AB Concentration (ug/L)
Al	20,000	20,000
Ca	60,000	60,000
Fe	50,000	50,000
Mg	20,000	20,000
Na	50,000	50,000
K	20,000	20,000
Mo	400	400
As	0.0	20
Cd	0.0	20
Cr	0.0	40
Co	0.0	40
Cu	0.0	40
Mn	0.0	40
Ni	0.0	40
Se	0.0	20
Ag	0.0	10
V	0.0	40
Zn	0.0	20

LCS & MS Concentrations
(ICP-MS)

Element	Liquid Concentration (mg/L)
Aluminum	2.00
Antimony	0.5
Arsenic	0.12
Barium	2.00
Beryllium	0.05
Cadmium	0.051
Calcium	10.0
Chromium	0.20
Cobalt	0.50
Copper	0.25
Iron	1.00
Lead	0.51
Magnesium	10.0
Manganese	0.50
Molybdenum	1.00
Nickel	0.50
Potassium	10.0
Selenium	0.12
Silver	0.05
Sodium	10.0
Thallium	0.12
Vanadium	0.50
Zinc	0.50

▪ Certificate of Analysis ▪

Product: Metals in Soil
Catalog Number: 540
Lot No. D102-540
Certificate Issue Date: June 22, 2018
Expiration Date: January 31, 2022
Revision Number: Original

Product use instructions are included as part of the certification packet and are paginated separately from this Certificate of Analysis. Please reference the product use instructions for catalog #540 revision 030512.

CERTIFICATION

Parameter	Certified Value[1]	Reference Value	Uncertainty[2]	QC Performance Acceptance Limits[3]	PT Performance Acceptance Limits[4]
	mg/kg	mg/kg	%	mg/kg	mg/kg
Aluminum	10100	8160	6.36	3960 - 12400	4080 - 12200
Antimony	120	60.9	9.42	0.822 - 121	12.0 - 166
Arsenic	144	135	5.08	112 - 158	94.6 - 176
Barium	469	443	6.77	366 - 521	332 - 554
Beryllium	207	197	5.86	164 - 229	148 - 246
Boron	213	174	12.6	127 - 221	105 - 244
Cadmium	224	204	6.65	169 - 240	153 - 256
Calcium	5190	4830	9.12	3950 - 5700	3510 - 6150
Chromium	138	132	8.56	109 - 155	92.2 - 171
Cobalt	182	179	7.93	151 - 207	134 - 224
Copper	191	184	6.72	155 - 213	138 - 230
Iron	15000	14400	10.7	8770 - 20000	5120 - 23600
Lead	225	216	7.72	178 - 254	159 - 274
Magnesium	2570	2340	6.13	1780 - 2900	1460 - 3230
Manganese	331	323	6.71	266 - 380	242 - 404
Mercury	16.8	13.2	16.0	8.64 - 17.7	7.89 - 18.5
Molybdenum	193	175	2.39	141 - 209	125 - 226
Nickel	163	152	5.95	126 - 178	106 - 197
Potassium	2420	2050	6.31	1440 - 2660	1210 - 2890
Selenium	81.9	74.9	4.13	59.3 - 90.5	47.0 - 103
Silver	57.6	53.9	9.00	43.0 - 64.8	37.8 - 70.0
Sodium	161	149	12.1	111 - 188	57.7 - 241
Strontium	100	96.2	4.04	78.1 - 114	69.0 - 123
Thallium	253	232	3.54	188 - 276	168 - 296

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Parameter	Certified Value[1]	Reference Value	Uncertainty[2]	QC Performance Acceptance Limits[3]	PT Performance Acceptance Limits[4]
	mg/kg	mg/kg	%	mg/kg	mg/kg
Tin	146	134	10.8	106 - 163	79.5 - 189
Titanium	449	340	7.20	70.2 - 609	44.9 - 711
Uranium	114	113	7.10	85.5 - 140	71.9 - 153
Vanadium	180	172	8.85	137 - 207	126 - 218
Zinc	217	211	6.58	171 - 250	147 - 274

ANALYTICAL VERIFICATION

Parameter	Certified Value[1]	Proficiency Testing Study			NIST Traceability	
		Mean	Recovery[5]	n	SRM Number	Recovery
	mg/kg	mg/kg	%			%
Aluminum	10100	8160	80.8	138	-	-
Antimony	120	60.9	50.8	135	-	-
Arsenic	144	135	93.8	184	-	-
Barium	469	443	94.5	158	-	-
Beryllium	207	197	95.0	148	-	-
Boron	213	174	81.8	107	-	-
Cadmium	224	204	91.3	199	-	-
Calcium	5190	4830	93.0	122	-	-
Chromium	138	132	95.5	172	-	-
Cobalt	182	179	98.4	140	-	-
Copper	191	184	96.3	183	-	-
Iron	15000	14400	95.6	133	-	-
Lead	225	216	96.2	204	-	-
Magnesium	2570	2340	91.2	122	-	-
Manganese	331	323	97.6	147	-	-
Mercury	16.8	13.2	78.3	128	-	-
Molybdenum	193	175	90.8	143	-	-
Nickel	163	152	93.1	185	-	-
Potassium	2420	2050	84.7	121	-	-
Selenium	81.9	74.9	91.5	163	-	-

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▪ Certificate of Analysis ▪

Parameter	Certified Value[1]	Proficiency Testing Study			NIST Traceability	
		Mean	Recovery[5]	n	SRM Number	Recovery
	mg/kg	mg/kg	%			%
Silver	57.6	53.9	93.6	150	-	-
Sodium	161	149	92.8	105	-	-
Strontium	100	96.2	96.2	90	-	-
Thallium	253	232	91.6	147	-	-
Tin	146	134	92.0	100	-	-
Titanium	449	340	75.6	93	-	-
Uranium	114	113	98.8	35	-	-
Vanadium	180	172	95.4	139	-	-
Zinc	217	211	97.0	180	-	-

1. The **Certified Values** are the actual "made-to" concentrations confirmed by ERA analytical verification. The certified values are monitored and purchasers will be notified of any significant changes resulting in recertification or withdrawal of this certified reference material during the period of validity of this certificate.

2. The **Uncertainty** is the total propagated uncertainty at the 95% confidence interval. The uncertainty is based on the preparation and internal analytical verification of the product by ERA, multiplied by a coverage factor. The uncertainty applies to the product as supplied and does not take into account any required or optional dilution and/or preparations the laboratory may perform while using this product.

3. The **QC Performance Acceptance Limits (QC PALs™)**are based on actual historical data collected in ERA's Proficiency Testing program. The QC PALs™ reflect any inherent biases in the methods used to establish the limits and closely approximate a 95% confidence interval of the performance that experienced laboratories should achieve using accepted environmental methods. Use the QC PALs™ to realistically evaluate your performance against your peers.

4. The **PT Performance Acceptance Limits (PT PALs™)** are calculated using the regression equations and fixed acceptance criteria specified in the NELAC proficiency testing requirements. Use the PT PALs™ when analyzing this QC standard alongside USEPA and NELAC compliant PT standards. Please note that many PT study acceptance limits are concentration dependent (some non-linearly) and, therefore, the acceptance limits of this QC standard and any PT standard may differ relative to their difference in concentrations.

5. The **PT Data/Traceability** data include the mean value, percent recovery and number of data points reported by the laboratories in our Proficiency Testing study compared to the Certified Values. In addition, where NIST Standard Reference Materials (SRMs) are available, each analyte has been analytically traced to the NIST SRM listed. This product is traceable to the lot numbers of its starting materials. All gravimetric and volumetric measurements related to its manufacture are traceable to NIST through an unbroken chain of comparisons.
Traceability Recovery (%) = [(% recovery certified standard)/(% recovery NIST SRM)]*100
The traceability data shown were compiled by analyzing the ERA standards or their associated stock solutions against the applicable NIST SRMs.

6. For additional information on this product such as intended use, instructions for use, level of homogeneity, and safety information, please refer to the provided Instruction Sheet

If you have any questions or need technical assistance, please call ERA technical assistance at 1-800-372-0122 or send an email to info@eraqc.com.

Certifying Officer

Brian Miller

Quality Officer

Matthew Seebeck

ERA
A Waters Company

Reference Material

▪ Certificate of Analysis ▪

Product: Metals in Soil
Catalog Number: 540
Lot No. D105-540
Certificate Issue Date: March 19, 2019
Expiration Date: October 12, 2022
Revision Number: Original

Product use instructions are included as part of the certification packet and are paginated separately from this Certificate of Analysis. Please reference the product use instructions for catalog #540 revision 030512.

CERTIFICATION

Parameter	Certified Value[1]	Reference Value	Uncertainty[2]	QC Performance Acceptance Limits[3]	PT Performance Acceptance Limits[4]
	mg/kg	mg/kg	%	mg/kg	mg/kg
Aluminum	10100	8800	8.32	4600 - 13000	4470 - 13100
Antimony	282	147	7.70	6.17 - 289	28.2 - 366
Arsenic	155	143	6.34	119 - 168	100 - 186
Barium	439	415	5.37	343 - 488	311 - 519
Beryllium	192	179	2.78	149 - 210	134 - 224
Boron	216	160	7.08	113 - 208	96.1 - 238
Cadmium	61.5	56.2	0.528	46.6 - 65.9	42.2 - 70.3
Calcium	5190	4960	6.64	4090 - 5840	3610 - 6310
Chromium	104	101	4.75	83.2 - 118	70.5 - 131
Cobalt	196	189	0.500	158 - 219	141 - 236
Copper	65.0	63.1	2.65	53.1 - 73.1	47.3 - 78.9
Iron	15000	15700	8.94	10100 - 21300	6000 - 25400
Lead	126	125	4.77	103 - 146	89.3 - 160
Magnesium	2570	2410	6.26	1860 - 2970	1520 - 3310
Manganese	387	382	5.37	315 - 449	290 - 474
Mercury	7.76	7.61	13.7	5.53 - 9.69	4.57 - 10.7
Molybdenum	120	107	0.500	86.0 - 128	75.5 - 139
Nickel	117	108	0.514	89.5 - 127	75.7 - 141
Potassium	2420	2110	5.62	1500 - 2720	1260 - 2960
Selenium	84.6	77.9	7.10	61.8 - 94.0	49.2 - 107
Silver	34.6	34.3	8.34	27.8 - 40.9	23.6 - 45.1
Sodium	161	145	6.72	106 - 183	54.3 - 235
Strontium	104	104	3.95	85.1 - 123	74.8 - 133
Thallium	123	113	0.500	91.3 - 134	77.1 - 149

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▪ Certificate of Analysis ▪

Parameter	Certified Value[1]	Reference Value	Uncertainty[2]	QC Performance Acceptance Limits[3]	PT Performance Acceptance Limits[4]
	mg/kg	mg/kg	%	mg/kg	mg/kg
Tin	118	107	0.500	83.5 - 130	61.2 - 152
Titanium	512	421	5.80	114 - 728	0.00 - 854
Uranium	103	104	6.18	79.1 - 128	71.9 - 135
Vanadium	87.3	83.7	8.55	66.8 - 101	54.2 - 113
Zinc	251	240	3.98	194 - 285	168 - 312

ANALYTICAL VERIFICATION

Parameter	Certified Value[1]	Proficiency Testing Study			NIST Traceability	
		Mean	Recovery[5]	n	SRM Number	Recovery
	mg/kg	mg/kg	%			%
Aluminum	10100	8800	87.1	193	-	-
Antimony	282	147	52.3	216	-	-
Arsenic	155	143	92.5	240	-	-
Barium	439	415	94.6	222	-	-
Beryllium	192	179	93.4	220	-	-
Boron	216	160	74.2	152	-	-
Cadmium	61.5	56.2	91.5	239	-	-
Calcium	5190	4960	95.6	175	-	-
Chromium	104	101	96.8	237	-	-
Cobalt	196	189	96.2	215	-	-
Copper	65.0	63.1	97.1	237	-	-
Iron	15000	15700	105	195	-	-
Lead	126	125	99.0	243	-	-
Magnesium	2570	2410	93.9	177	-	-
Manganese	387	382	98.7	215	-	-
Mercury	7.76	7.61	98.0	157	-	-
Molybdenum	120	107	89.4	216	-	-
Nickel	117	108	92.5	235	-	-
Potassium	2420	2110	87.2	181	-	-
Selenium	84.6	77.9	92.1	231	-	-

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Reference Material

▪ Certificate of Analysis ▪

Parameter	Certified Value[1]	Proficiency Testing Study			NIST Traceability	
		Mean	Recovery[5]	n	SRM Number	Recovery
	mg/kg	mg/kg	%			%
Silver	34.6	34.3	99.3	216	-	-
Sodium	161	145	89.8	166	-	-
Strontium	104	104	99.9	148	-	-
Thallium	123	113	91.8	215	-	-
Tin	118	107	90.4	164	-	-
Titanium	512	421	82.2	157	-	-
Uranium	103	104	101	61	-	-
Vanadium	87.3	83.7	95.9	214	-	-
Zinc	251	240	95.5	234	-	-

1. The **Certified Values** are the actual "made-to" concentrations confirmed by ERA analytical verification. The certified values are monitored and purchasers will be notified of any significant changes resulting in recertification or withdrawal of this reference material during the period of validity of this certificate.

2. The **Uncertainty** is the total propagated uncertainty at the 95% confidence interval. The uncertainty is based on the preparation and internal analytical verification of the product by ERA, multiplied by a coverage factor. The uncertainty applies to the product as supplied and does not take into account any required or optional dilution and/or preparations the laboratory may perform while using this product.

3. The **QC Performance Acceptance Limits (QC PALs™)**are based on actual historical data collected in ERA's Proficiency Testing program. The QC PALs™ reflect any inherent biases in the methods used to establish the limits and closely approximate a 95% confidence interval of the performance that experienced laboratories should achieve using accepted environmental methods. Use the QC PALs™ to realistically evaluate your performance against your peers.

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5. The **PT Data/Traceability** data include the mean value, percent recovery and number of data points reported by the laboratories in our Proficiency Testing study compared to the Certified Values. In addition, where NIST Standard Reference Materials (SRMs) are available, each analyte has been analytically traced to the NIST SRM listed. This product is traceable to the lot numbers of its starting materials. All gravimetric and volumetric measurements related to its manufacture are traceable to NIST through an unbroken chain of comparisons.
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The traceability data shown were compiled by analyzing the ERA standards or their associated stock solutions against the applicable NIST SRMs.

6. For additional information on this product such as intended use, instructions for use, level of homogeneity, and safety information, please refer to the provided Instruction Sheet

If you have any questions or need technical assistance, please call ERA technical assistance at 1-800-372-0122 or send an email to info@eraqc.com.

Certifying Officer

Brian Miller

Brian Miller

Quality Officer

Matthew Seebeck

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Calculation of Method 6020 Metals

Aqueous Samples

The instrument will calculate the concentration (µg/L). This value is divided by 1000 to convert the units to mg/L. If the sample is diluted (DF), the result is multiplied by the DF to generate the final result.

$$\text{Result, mg/L} = C_s \times (1\text{mg}/1000\mu\text{g}) \times (DF)$$

Where:

C_s = Concentration of sample (µg/L)

DF = Dilution Factor

Sample List Summary

3/31/2020 2:10:45 PM

QTEGRA

Instrument Name	Serial Number
iCAP Q	03031R

LabBook	LabBook Path
WG1356716_MSQ033120.imexp	_Application Data\Workspace\LabBooks

Index	Label	Main runs	Survey runs	Start time	User name
1	Rinse	3	1	3/31/2020 9:57:03 AM	ALPHALAB\metals-instrument
2	Rinse	3	1	3/31/2020 10:02:07 AM	ALPHALAB\metals-instrument
3	Blank AM ICPMSQ	3	1	3/31/2020 10:07:11 AM	ALPHALAB\metals-instrument
4	0.2/20 Cal	3	1	3/31/2020 10:12:20 AM	ALPHALAB\metals-instrument
5	1/100 Cal	3	1	3/31/2020 10:17:24 AM	ALPHALAB\metals-instrument
6	10/1000 Cal	3	1	3/31/2020 10:22:29 AM	ALPHALAB\metals-instrument
7	60/6000 Cal	3	1	3/31/2020 10:27:35 AM	ALPHALAB\metals-instrument
8	120/12000 Cal	3	1	3/31/2020 10:32:41 AM	ALPHALAB\metals-instrument
9	Sr 200ppb	3	1	3/31/2020 10:37:48 AM	ALPHALAB\metals-instrument
10	ICV	3	1	3/31/2020 10:44:37 AM	ALPHALAB\metals-instrument
11	ICB	3	1	3/31/2020 10:50:59 AM	ALPHALAB\metals-instrument
12	LLCCV	3	1	3/31/2020 10:57:41 AM	ALPHALAB\metals-instrument
13	ICSA	3	1	3/31/2020 11:02:50 AM	ALPHALAB\metals-instrument
14	Rinse	3	1	3/31/2020 11:07:59 AM	ALPHALAB\metals-instrument
15	CCV	3	1	3/31/2020 11:13:03 AM	ALPHALAB\metals-instrument
16	CCB	3	1	3/31/2020 11:18:11 AM	ALPHALAB\metals-instrument
17	XWG1356665-1 6020TL	3	1	3/31/2020 11:23:21 AM	ALPHALAB\metals-instrument
18	XWG1355907-1 6020TL	3	1	3/31/2020 11:28:25 AM	ALPHALAB\metals-instrument
19	XWG1356665-2D10 6020TL	3	1	3/31/2020 11:33:31 AM	ALPHALAB\metals-instrument
20	XWG1355907-2D5 6020TL	3	1	3/31/2020 11:38:36 AM	ALPHALAB\metals-instrument
21	XWG1356665-3D10 6020TL	3	1	3/31/2020 11:43:42 AM	ALPHALAB\metals-instrument
22	XWG1355907-5D10 6020TL	3	1	3/31/2020 11:48:47 AM	ALPHALAB\metals-instrument
23	XWG1356665-5D10 6020TL	3	1	3/31/2020 11:53:51 AM	ALPHALAB\metals-instrument
24	XWG1356665-4 6020TL	3	1	3/31/2020 11:58:56 AM	ALPHALAB\metals-instrument
25	XL2013805-01 6020TL	3	1	3/31/2020 12:04:01 PM	ALPHALAB\metals-instrument
26	XWG1356665-6D5 6020TL	3	1	3/31/2020 12:09:07 PM	ALPHALAB\metals-instrument
27	XCCV	3	1	3/31/2020 12:14:13 PM	ALPHALAB\metals-instrument
28	XCCB	3	1	3/31/2020 12:19:22 PM	ALPHALAB\metals-instrument
29	CCV	3	1	3/31/2020 12:39:57 PM	ALPHALAB\metals-instrument
30	CCB	3	1	3/31/2020 12:47:07 PM	ALPHALAB\metals-instrument
31	WG1356717-1D2 A2-6020T	3	1	3/31/2020 12:52:27 PM	ALPHALAB\metals-instrument
32	WG1356717-2D10 A2-6020T	3	1	3/31/2020 12:57:31 PM	ALPHALAB\metals-instrument
33	WG1356717-3D10 A2-6020T	3	1	3/31/2020 1:02:35 PM	ALPHALAB\metals-instrument
34	WG1356717-5D10 A2-6020T	3	1	3/31/2020 1:07:40 PM	ALPHALAB\metals-instrument
35	WG1356717-4D10 A2-6020T	3	1	3/31/2020 1:12:45 PM	ALPHALAB\metals-instrument
36	L2013788-01D10 A2-6020T	3	1	3/31/2020 1:17:51 PM	ALPHALAB\metals-instrument
37	L2013788-02D10 A2-6020T	3	1	3/31/2020 1:22:56 PM	ALPHALAB\metals-instrument
38	XWG1356406-4 2008TL	3	1	3/31/2020 1:28:03 PM	ALPHALAB\metals-instrument
39	XL2013614-01 2008TL	3	1	3/31/2020 1:33:09 PM	ALPHALAB\metals-instrument
40	WG1356717-6D50 A2-6020T	3	1	3/31/2020 1:38:16 PM	ALPHALAB\metals-instrument
41	CCV	3	1	3/31/2020 1:46:11 PM	ALPHALAB\metals-instrument
42	CCB	3	1	3/31/2020 1:54:02 PM	ALPHALAB\metals-instrument
43	ABORT	3	1	3/31/2020 2:01:27 PM	ALPHALAB\metals-instrument

Sample List Summary

4/1/2020 2:17:04 AM

QTEGRA

Instrument Name	Serial Number
iCAP Q	Undefined

LabBook	LabBook Path
WG1356716_MSQ033120B.imexp	_Application Data\Workspace\LabBooks

Index	Label	Main runs	Survey runs	Start time	User name
1	Blank AM ICPMSQ	3	1	3/31/2020 2:12:31 PM	ALPHALAB\metals-instrument
2	0.2/20 Cal	3	1	3/31/2020 2:17:40 PM	ALPHALAB\metals-instrument
3	1/100 Cal	3	1	3/31/2020 2:22:44 PM	ALPHALAB\metals-instrument
4	10/1000 Cal	3	1	3/31/2020 2:27:49 PM	ALPHALAB\metals-instrument
5	60/6000 Cal	3	1	3/31/2020 2:32:55 PM	ALPHALAB\metals-instrument
6	120/12000 Cal	3	1	3/31/2020 2:38:02 PM	ALPHALAB\metals-instrument
7	Sr 200ppb	3	1	3/31/2020 2:43:09 PM	ALPHALAB\metals-instrument
8	ICV	3	1	3/31/2020 2:50:02 PM	ALPHALAB\metals-instrument
9	ICB	3	1	3/31/2020 2:55:09 PM	ALPHALAB\metals-instrument
10	WG1356406-1 2008TL	3	1	3/31/2020 3:00:18 PM	ALPHALAB\metals-instrument
11	WG1356406-2D10 2008TL	3	1	3/31/2020 3:05:23 PM	ALPHALAB\metals-instrument
12	WG1356406-3D10 2008TL	3	1	3/31/2020 3:10:27 PM	ALPHALAB\metals-instrument
13	WG1356406-4 2008TL	3	1	3/31/2020 3:15:32 PM	ALPHALAB\metals-instrument
14	XL2013614-01 2008TL	3	1	3/31/2020 3:20:38 PM	ALPHALAB\metals-instrument
15	L2013614-11 2008TL	3	1	3/31/2020 3:25:43 PM	ALPHALAB\metals-instrument
16	L2013614-12 2008TL	3	1	3/31/2020 3:30:48 PM	ALPHALAB\metals-instrument
17	L2013667-01 2008TL	3	1	3/31/2020 3:35:53 PM	ALPHALAB\metals-instrument
18	L2013667-02 2008TL	3	1	3/31/2020 3:40:58 PM	ALPHALAB\metals-instrument
19	0347-07 SCAN	3	1	3/31/2020 3:46:03 PM	ALPHALAB\metals-instrument
20	CCV	3	1	3/31/2020 3:51:09 PM	ALPHALAB\metals-instrument
21	XCCB	3	1	3/31/2020 3:56:17 PM	ALPHALAB\metals-instrument
22	CCB	3	1	3/31/2020 4:01:27 PM	ALPHALAB\metals-instrument
23	WG1356406-5D10 2008TL	3	1	3/31/2020 4:06:36 PM	ALPHALAB\metals-instrument
24	WG1356406-6 2008TL	3	1	3/31/2020 4:11:42 PM	ALPHALAB\metals-instrument
25	L2013614-02 2008TL	3	1	3/31/2020 4:16:48 PM	ALPHALAB\metals-instrument
26	L2013614-03 2008TL	3	1	3/31/2020 4:21:54 PM	ALPHALAB\metals-instrument
27	L2013614-04 2008TL	3	1	3/31/2020 4:27:01 PM	ALPHALAB\metals-instrument
28	L2013614-05 2008TL	3	1	3/31/2020 4:32:08 PM	ALPHALAB\metals-instrument
29	L2013614-06 2008TL	3	1	3/31/2020 4:37:15 PM	ALPHALAB\metals-instrument
30	L2013614-07 2008TL	3	1	3/31/2020 4:42:23 PM	ALPHALAB\metals-instrument
31	L2013614-08 2008TL	3	1	3/31/2020 4:47:26 PM	ALPHALAB\metals-instrument
32	9711-04 SCAN	3	1	3/31/2020 4:52:30 PM	ALPHALAB\metals-instrument
33	CCV	3	1	3/31/2020 4:57:36 PM	ALPHALAB\metals-instrument
34	CCB	3	1	3/31/2020 5:02:44 PM	ALPHALAB\metals-instrument
35	XCCV	3	1	3/31/2020 8:51:02 PM	ALPHALAB\metals-instrument
36	XCCB	3	1	3/31/2020 8:56:11 PM	ALPHALAB\metals-instrument

Sample List Summary

4/1/2020 2:50:42 AM

Instrument Name	Serial Number
iCAP Q	Undefined

LabBook	LabBook Path
WG1356716_MSQ033120C.imexp	_Application Data\Workspace\LabBooks

Index	Label	Main runs	Survey runs	Start time	User name
1	Blank MG ICPMSQ	3	1	3/31/2020 9:02:05 PM	ALPHALAB\metals-instrument
2	0.2/20 Cal	3	1	3/31/2020 9:07:13 PM	ALPHALAB\metals-instrument
3	1/100 Cal	3	1	3/31/2020 9:12:18 PM	ALPHALAB\metals-instrument
4	10/1000 Cal	3	1	3/31/2020 9:17:23 PM	ALPHALAB\metals-instrument
5	60/6000 Cal	3	1	3/31/2020 9:22:29 PM	ALPHALAB\metals-instrument
6	120/12000 Cal	3	1	3/31/2020 9:27:35 PM	ALPHALAB\metals-instrument
7	Sr 200ppb	3	1	3/31/2020 9:32:42 PM	ALPHALAB\metals-instrument
8	ICV	3	1	3/31/2020 9:37:51 PM	ALPHALAB\metals-instrument
9	ICB	3	1	3/31/2020 9:42:59 PM	ALPHALAB\metals-instrument
10	WG1356738-1 6020TL	3	1	3/31/2020 9:48:45 PM	ALPHALAB\metals-instrument
11	WG1356738-2D5 6020TL	3	1	3/31/2020 9:53:51 PM	ALPHALAB\metals-instrument
12	WG1356738-5D10 6020TL	3	1	3/31/2020 9:58:58 PM	ALPHALAB\metals-instrument
13	WG1356738-3D10 6020TL	3	1	3/31/2020 10:04:01 PM	ALPHALAB\metals-instrument
14	WG1356738-4D10 6020TL	3	1	3/31/2020 10:09:05 PM	ALPHALAB\metals-instrument
15	L2013614-09 2008TL	3	1	3/31/2020 10:14:09 PM	ALPHALAB\metals-instrument
16	L2013614-10 2008TL	3	1	3/31/2020 10:19:12 PM	ALPHALAB\metals-instrument
17	L2013845-07 6020TL	3	1	3/31/2020 10:24:17 PM	ALPHALAB\metals-instrument
18	WG1356738-6D5 6020TL	3	1	3/31/2020 10:29:21 PM	ALPHALAB\metals-instrument
19	SCAN	3	1	3/31/2020 10:34:25 PM	ALPHALAB\metals-instrument
20	CCV	3	1	3/31/2020 10:39:31 PM	ALPHALAB\metals-instrument
21	CCB	3	1	3/31/2020 10:44:40 PM	ALPHALAB\metals-instrument
22	L2013720-31 6020TL	3	1	3/31/2020 10:50:03 PM	ALPHALAB\metals-instrument
23	L2013642-02D5 6020TL	3	1	3/31/2020 10:55:08 PM	ALPHALAB\metals-instrument
24	L2013706-01 6020TL	3	1	3/31/2020 11:00:13 PM	ALPHALAB\metals-instrument
25	L2013706-02 6020TL	3	1	3/31/2020 11:05:18 PM	ALPHALAB\metals-instrument
26	L2013733-01 6020TL	3	1	3/31/2020 11:10:23 PM	ALPHALAB\metals-instrument
27	L2013789-01 6020TL	3	1	3/31/2020 11:15:29 PM	ALPHALAB\metals-instrument
28	L2013789-02 6020TL	3	1	3/31/2020 11:20:35 PM	ALPHALAB\metals-instrument
29	L2013789-03 6020TL	3	1	3/31/2020 11:25:42 PM	ALPHALAB\metals-instrument
30	L2013836-01 6020TL	3	1	3/31/2020 11:30:46 PM	ALPHALAB\metals-instrument
31	SCAN	3	1	3/31/2020 11:35:51 PM	ALPHALAB\metals-instrument
32	CCV	3	1	3/31/2020 11:40:57 PM	ALPHALAB\metals-instrument
33	CCB	3	1	3/31/2020 11:46:06 PM	ALPHALAB\metals-instrument
34	L2013845-11 6020TL	3	1	3/31/2020 11:53:17 PM	ALPHALAB\metals-instrument
35	L2013808-09 6020TL	3	1	3/31/2020 11:58:23 PM	ALPHALAB\metals-instrument
36	L2013614-01 2008TL	3	1	4/1/2020 12:03:28 AM	ALPHALAB\metals-instrument
37	L2013836-02 6020TL	3	1	4/1/2020 12:08:33 AM	ALPHALAB\metals-instrument
38	L2013836-03 6020TL	3	1	4/1/2020 12:13:37 AM	ALPHALAB\metals-instrument
39	L2013836-04 6020TL	3	1	4/1/2020 12:18:42 AM	ALPHALAB\metals-instrument
40	L2013845-08 6020TL	3	1	4/1/2020 12:23:46 AM	ALPHALAB\metals-instrument
41	L2013845-09 6020TL	3	1	4/1/2020 12:28:51 AM	ALPHALAB\metals-instrument
42	L2013845-10 6020TL	3	1	4/1/2020 12:33:56 AM	ALPHALAB\metals-instrument
43	SCAN	3	1	4/1/2020 12:39:02 AM	ALPHALAB\metals-instrument
44	CCV	3	1	4/1/2020 12:44:07 AM	ALPHALAB\metals-instrument
45	CCB	3	1	4/1/2020 12:49:59 AM	ALPHALAB\metals-instrument
46	WG1356826-1 6020TL	3	1	4/1/2020 12:56:08 AM	ALPHALAB\metals-instrument
47	WG1356826-2D10 6020TL	3	1	4/1/2020 1:01:14 AM	ALPHALAB\metals-instrument
48	WG1356826-3D10 6020TL	3	1	4/1/2020 1:06:19 AM	ALPHALAB\metals-instrument
49	WG1356826-5D10 6020TL	3	1	4/1/2020 1:11:24 AM	ALPHALAB\metals-instrument
50	WG1356826-4 6020TL	3	1	4/1/2020 1:16:28 AM	ALPHALAB\metals-instrument
51	L2013808-01 6020TL	3	1	4/1/2020 1:21:33 AM	ALPHALAB\metals-instrument
52	L2013808-02 6020TL	3	1	4/1/2020 1:26:37 AM	ALPHALAB\metals-instrument
53	L2013808-03 6020TL	3	1	4/1/2020 1:31:42 AM	ALPHALAB\metals-instrument
54	WG1356826-6D5 6020TL	3	1	4/1/2020 1:36:48 AM	ALPHALAB\metals-instrument
55	SCAN	3	1	4/1/2020 1:41:53 AM	ALPHALAB\metals-instrument
56	CCV	3	1	4/1/2020 1:46:58 AM	ALPHALAB\metals-instrument
57	XCCB	3	1	4/1/2020 1:52:06 AM	ALPHALAB\metals-instrument
58	CCB	3	1	4/1/2020 1:57:16 AM	ALPHALAB\metals-instrument
59	L2013808-04 6020TL	3	1	4/1/2020 2:02:25 AM	ALPHALAB\metals-instrument
60	L2013808-05 6020TL	3	1	4/1/2020 2:07:31 AM	ALPHALAB\metals-instrument
61	L2013808-06D5 6020TL	3	1	4/1/2020 2:12:37 AM	ALPHALAB\metals-instrument
62	L2013808-07 6020TL	3	1	4/1/2020 2:17:43 AM	ALPHALAB\metals-instrument
63	L2013808-08 6020TL	3	1	4/1/2020 2:22:50 AM	ALPHALAB\metals-instrument

Sample List Summary

4/1/2020 2:50:42 AM

Index	Label	Main runs	Survey runs	Start time	User name
64	SCAN	3	1	4/1/2020 2:27:55 AM	ALPHALAB\metals-instrument
65	CCV	3	1	4/1/2020 2:34:02 AM	ALPHALAB\metals-instrument
66	LLCCV	3	1	4/1/2020 2:39:10 AM	ALPHALAB\metals-instrument
67	CCB	3	1	4/1/2020 2:45:00 AM	ALPHALAB\metals-instrument

METALS ELN REPORT

Workgroup: WG1356738

Digestion

Prep Method	Acid Type 1	Acid 1 Lot	Acid Type 2	Acid 2 Lot	Spike Type	Lims Spike Lot	Spike Lot	Post Spike Spikelot	Spike Lot	Pipette Id
EPA 3005A	1:1 HNO3	tHNO320121 62056EW	1:1 HCl	tHCL201323 1301EW	METALS	METSPIKE2	IPS,FPS,MIX	METPSMS	IPS,FPS,MIX	140

Additional Reagent/Std

Sample/ Type	Digestion Date	Analyst	Sample Vol ml	Ph	Spike Amt ml	Start Date/Time	Hot Block Unit	Temperature (C)	Stop Date/Time	Final Vol	Comments
L2013642-02 WATER	03/31/20 09:56	Owen Leeser	50	<2		03/31/20 09:56	9	94.2	03/31/20 12:56	50	
L2013706-01 WATER	03/31/20 09:56	Owen Leeser	50	<2		03/31/20 09:56	9	94.2	03/31/20 12:56	50	
L2013706-02 WATER	03/31/20 09:56	Owen Leeser	50	<2		03/31/20 09:56	9	94.2	03/31/20 12:56	50	
L2013720-31 WATER	03/31/20 09:56	Owen Leeser	50	<2		03/31/20 09:56	9	94.2	03/31/20 12:56	50	
L2013733-01 WATER	03/31/20 09:56	Owen Leeser	50	<2		03/31/20 09:56	9	94.2	03/31/20 12:56	50	
L2013789-01 WATER	03/31/20 09:56	Owen Leeser	50	<2		03/31/20 09:56	9	94.2	03/31/20 12:56	50	
L2013789-02 WATER	03/31/20 09:56	Owen Leeser	50	<2		03/31/20 09:56	9	94.2	03/31/20 12:56	50	
L2013789-03 WATER	03/31/20 09:56	Owen Leeser	50	<2		03/31/20 09:56	9	94.2	03/31/20 12:56	50	
L2013836-01 WATER	03/31/20 09:56	Owen Leeser	50	<2		03/31/20 09:56	9	94.2	03/31/20 12:56	50	
L2013836-02 WATER	03/31/20 09:56	Owen Leeser	50	<2		03/31/20 09:56	9	94.2	03/31/20 12:56	50	
L2013836-03 WATER	03/31/20 09:56	Owen Leeser	50	<2		03/31/20 09:56	9	94.2	03/31/20 12:56	50	
L2013836-04 WATER	03/31/20 09:56	Owen Leeser	50	<2		03/31/20 09:56	9	94.2	03/31/20 12:56	50	
L2013845-07 WATER	03/31/20 09:56	Owen Leeser	50	<2		03/31/20 09:56	9	94.2	03/31/20 12:56	50	
L2013845-08 WATER	03/31/20 09:56	Owen Leeser	50	<2		03/31/20 09:56	9	94.2	03/31/20 12:56	50	

Reported: 03-APR-20 11:51 AM

METALS ELN REPORT

Workgroup: WG1356738

Sample/ Type	Digestion Date	Analyst	Sample Vol ml	Ph	Spike Amt ml	Start Date/Time	Hot Block Unit	Temperature (C)	Stop Date/Time	Final Vol	Comments
L2013845-09 WATER	03/31/20 09:56	Owen Leeser	50	<2		03/31/20 09:56	9	94.2	03/31/20 12:56	50	
L2013845-10 WATER	03/31/20 09:56	Owen Leeser	50	<2		03/31/20 09:56	9	94.2	03/31/20 12:56	50	
L2013845-11 WATER	03/31/20 09:56	Owen Leeser	50	<2		03/31/20 09:56	9	94.2	03/31/20 12:56	50	
WG1356738-1 BLANK	03/31/20 09:56	Owen Leeser	50	<2		03/31/20 09:56	9	94.2	03/31/20 12:56	50	IPS2012171214KY;FPS2012190954EW;MIX2012191010EW
WG1356738-2 LCS	03/31/20 09:56	Owen Leeser	50	<2	0.5	03/31/20 09:56	9	94.2	03/31/20 12:56	50	
WG1356738-3 MS	03/31/20 09:56	Owen Leeser	50	<2	0.5	03/31/20 09:56	9	94.2	03/31/20 12:56	50	
WG1356738-4 MSD	03/31/20 09:56	Owen Leeser	50	<2	0.5	03/31/20 09:56	9	94.2	03/31/20 12:56	50	
WG1356738-5 PS	03/31/20 09:56	Owen Leeser	50	<2		03/31/20 09:56	9	94.2	03/31/20 12:56	50	
WG1356738-6 SERDIL	03/31/20 09:56	Owen Leeser	50	<2		03/31/20 09:56	9	94.2	03/31/20 12:56	50	

Reagent	Actual Volume	Units
1:1 Hydrochloric Acid (H	.5	ml
1:1 Nitric Acid (HNO3)	1	ml

Reported: 03-APR-20 11:51 AM

Inorganic Data
(Mercury Analysis)

Form 1
METALS

Client	: Soils Engineering Services, Inc.	**Lab Number**	: L2013733
Project Name	: A.C. DALTON POUGHKEEPSIE	**Project Number**	: 9039C PHASE 1
Lab ID	: L2013733-01	**Date Collected**	: 03/27/20 11:05
Client ID	: PR-MW4	**Date Received**	: 03/27/20
Sample Location	: POUGHKEEPSIE, NY	**Date Analyzed**	: 03/31/20 17:28
Sample Matrix	: WATER	**Dilution Factor**	: 1
Analytical Method	: 1,7470A	**Analyst**	: AL
Lab File ID	: WG1356907	**Instrument ID**	: FIMS4
Sample Amount	: 25ml	**%Solids**	: N/A
Digestion Method	: EPA 7470A	**Date Digested**	: 03/31/20

		mg/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U

Form 1
METALS

Client	: Soils Engineering Services, Inc.	**Lab Number**	: L2013733
Project Name	: A.C. DALTON POUGHKEEPSIE	**Project Number**	: 9039C PHASE 1
Lab ID	: WG1356775-1	**Date Collected**	: NA
Client ID	: WG1356775-1BLANK	**Date Received**	: NA
Sample Location	:	**Date Analyzed**	: 03/31/20 17:03
Sample Matrix	: WATER	**Dilution Factor**	: 1
Analytical Method	: 1,7470A	**Analyst**	: AL
Lab File ID	: WG1356907	**Instrument ID**	: FIMS4
Sample Amount	: 25ml	**%Solids**	: N/A
Digestion Method	: EPA 7470A	**Date Digested**	: 03/31/20

		mg/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
7439-97-6	Mercury, Total	ND	0.00020	0.00009	U

Form 2A
Initial and Continuing Calibration Verification

Client	: Soils Engineering Services, Inc.	**Lab Number**	: L2013733
Project Name	: A.C. DALTON POUGHKEEPSIE	**Project Number**	: 9039C PHASE 1
Instrument ID	: FIMS4	**Units**	: mg/l

		Initial Calibration			Continuing Calibration(s)						
Lab ID	:	R1299950-8			R1299950-11			R1299950-13			
Date Analyzed	:	03/31/20 16:57			03/31/20 17:23			03/31/20 17:50			
Parameter		**True**	**Found**	**%R**	**True**	**Found**	**%R**	**Found**	**%R**	**Found**	**%R**
Mercury		0.00300	0.0030	99	0.0100	0.0105	105	0.0105	105		

Acceptance Criteria:

ICV:	95-105%	(Methods 200.7, 245.1)
	90-110%	(Methods 200.8, 6010, 6020, 7470, 7471, 7474)
	85-115%	(Method 1631)
CCV:	90-110%	(Methods 200.7, 245.1, 6010, 6020, 7474)
	85-115%	(Methods 200.8, 1631)
	80-120%	(Methods 7470, 7471)

Form 3
Blanks

Client	: Soils Engineering Services, Inc.	**Lab Number**	: L2013733
Project Name	: A.C. DALTON POUGHKEEPSIE	**Project Number**	: 9039C PHASE 1
Instrument ID	: FIMS4		

		Initial Calibration Blank		Continuing Calibration Blank(s)						Preparation Blank	
Lab ID	:	R1299950-9		R1299950-12		R1299950-14				WG1356775-1	
Date Analyzed	:	03/31/20 16:59		03/31/20 17:25		03/31/20 17:52				03/31/20 17:03	
Parameter		mg/l	Q	mg/l	Q	mg/l	Q	mg/l	Q	mg/l	Q
Mercury		0.0000915	U	0.0000915	U	0.0000915	U			0.00009	U

Form 5a
Matrix Spike

Client	: Soils Engineering Services, Inc.	**Lab Number**	: L2013733
Project Name	: A.C. DALTON POUGHKEEPSIE	**Project Number**	: 9039C PHASE 1
Client Sample ID	: NA	**Matrix**	: WATER
Lab Sample ID	: L2013845-07		
Matrix Spike	: WG1356775-3	**MS Analysis Date**	: 03/31/20 17:10
Matrix Spike Dup	: WG1356775-4	**MSD Analysis Date**	: 03/31/20 17:12

		Matrix Spike Sample			Matrix Spike Duplicate					
Parameter	Sample Conc. (mg/l)	Spike Added (mg/l)	Spike Conc. (mg/l)	%R	Spike Added (mg/l)	Spike Conc. (mg/l)	%R	RPD	Recovery Limits	RPD Limit
Mercury, Total	ND	0.005	0.00467	93	0.005	0.00475	95	2	75-125	20

Form 7
Laboratory Control Sample

Client	: Soils Engineering Services, Inc.	**Lab Number**	: L2013733
Project Name	: A.C. DALTON POUGHKEEPSIE	**Project Number**	: 9039C PHASE 1
Client Sample ID	: NA	**Matrix**	: WATER
Lab Sample ID	: WG1356775-2	**LCS Analysis Date**	: 03/31/20 17:05
Dup Sample ID	:	**LCSD Analysis Date**	:

	Laboratory Control Sample			Laboratory Control Duplicate					
Parameter	**True (mg/l)**	**Found (mg/l)**	**%R**	**True (mg/l)**	**Found (mg/l)**	**%R**	**RPD**	**Recovery Limits**	**RPD Limit**
Mercury, Total	**0.00100**	**0.000970**	**98.**					**80-120**	**20**

Form 12
Preparation Log

Client	: Soils Engineering Services, Inc.	**Lab Number**	: L2013733
Project Name	: A.C. DALTON POUGHKEEPSIE	**Project Number**	: 9039C PHASE 1
Matrix	: WATER	**Prep Method**	: EPA 7470A

Sample Number	Preparation Date	Weight (gram)	Volume (mL)
L2013733-01	03/31/20 10:38	-	25
WG1356775-1	03/31/20 10:38	-	25
WG1356775-2	03/31/20 10:38	-	25
WG1356775-3	03/31/20 10:38	-	25
WG1356775-4	03/31/20 10:38	-	25

Form 13
Analysis Run Log

Client	: Soils Engineering Services, Inc.	**Lab Number**	: L2013733
Project Name	: A.C. DALTON POUGHKEEPSIE	**Project Number**	: 9039C PHASE 1
Instrument ID	: FIMS4	**Analysis Method**	: 1,7470A
Start Date	: 03/31/20 16:40	**End Date**	: 03/31/20 17:52

Sample Number	Dilution Factor	Analysis Time	Mercury, Total
R1299950-8 ICV	1	16:57:10	X
R1299950-9 ICB	1	16:59:21	X
WG1356775-1 BLANK	1	17:03:46	X
WG1356775-2 LCS	1	17:05:58	X
WG1356775-3 MS	1	17:10:24	X
WG1356775-4 MSD	1	17:12:36	X
R1299950-11 CCV	1	17:23:37	X
R1299950-12 CCB	1	17:25:50	X
L2013733-01	1	17:28:03	X
R1299950-13 CCV	1	17:50:06	X
R1299950-14 CCB	1	17:52:18	X

Date Created: 03/19/18
Created By: Jason Hebert
File: PM4631-1
Page: 1

MERCURY by 7470A, 245.1 (WATER)

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria	Holding Time	Container/Sample Preservation
Mercury, Total	7439-97-6	0.0002	0.0000915	mg/l	80-120	20	75-125	20	20		28 days	1 - Plastic 500ml HNO3 preserved

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Alpha Analytical, Inc.

Date Created: 03/19/18
Created By: Jason Hebert
File: PM4631-1
Page: 1

MERCURY by 7470A, 245.1 (WATER)

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria	Holding Time	Container/Sample Preservation
Mercury, Total	7439-97-6	0.0002	0.0000915	mg/l	80-120	20	75-125	20	20		28 days	1 - Plastic 500ml HNO3 preserved

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. ***(Soil/Solids only)***
Please Note that the information provided in this table is subject to change at anytime at the discretion of Alpha Analytical, Inc.

Date Created: 11/04/16
Created By: Jason Hebert
File: PM2962-1
Page: 1

METALS by 7471B (SOIL)

Analyte	CAS #	RL	MDL	Units	LCS Criteria	LCS RPD	MS Criteria	MS RPD	Duplicate RPD	Surrogate Criteria	Holding Time	Container/Sample Preservation
Mercury, Total	7439-97-6	0.0800	0.0169	mg/kg	72-128		80-120	20	20		28 days	1 - Metals Only - Glass 60mL/2oz unpreserved

Please Note that the RL information provided in this table is calculated using a 100% Solids factor. (Soil/Solids only)
Please Note that the information provided in this table is subject to change at anytime at the discretion of Alpha Analytical, Inc.

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Analysis Begun

Logged In Analyst: metals-instrument **Technique: AA FIMS-MHS**
Spectrometer Model: FIMS-100, S/N B050-9550 **Autosampler Model: S10**

Sample Information File: C:\data-AA\Alpha\Sample Information\033120B.sif
Batch ID: AL
Results Data Set: HG033120B
Results Library: C:\data-AA\Alpha\Results\Results.mdb

REVIEWED
By dmorisseau at 8:56 am, Apr 01, 2020

==========

Sequence No.: 1 **Autosampler Location: 1**
Sample ID: Calib Blank **Date Collected: 3/31/2020 16:35:55**
Analyst: **Data Type: Original**

Replicate Data: Calib Blank

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.00]	0.0005	0.0027	0.0005	16:36:58	Yes
2		[0.00]	0.0005	0.0019	0.0005	16:37:32	Yes
3		[0.00]	0.0004	0.0020	0.0004	16:38:05	Yes
Mean:		[0.00]	0.0005				
SD:		0.00	0.0000				
%RSD:		0.00	8.56				

Auto-zero performed.

==========

Sequence No.: 2 **Autosampler Location: 2**
Sample ID: 0.2 ppb **Date Collected: 3/31/2020 16:38:06**
Analyst: **Data Type: Original**

Replicate Data: 0.2 ppb

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.2]	0.0021	0.0131	0.0026	16:39:10	Yes
2		[0.2]	0.0022	0.0142	0.0027	16:39:44	Yes
3		[0.2]	0.0021	0.0132	0.0025	16:40:17	Yes
Mean:		[0.2]	0.0021				
SD:		0.0	0.0001				
%RSD:		0.0	3.75				

Standard number 1 applied. [0.2]
Correlation Coef.: 1.000000 Slope: 0.01062 Intercept: 0.00000

==========

Sequence No.: 3 **Autosampler Location: 3**
Sample ID: 1.0 ppb **Date Collected: 3/31/2020 16:40:18**
Analyst: **Data Type: Original**

Replicate Data: 1.0 ppb

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[1]	0.0180	0.0947	0.0185	16:41:22	Yes
2		[1]	0.0182	0.0957	0.0187	16:41:55	Yes
3		[1]	0.0181	0.0949	0.0186	16:42:29	Yes
Mean:		[1]	0.0181				
SD:		0	0.0001				
%RSD:		0	0.51				

Standard number 2 applied. [1]
Correlation Coef.: 0.989386 Slope: 0.01794 Intercept: 0.00000

==========

Sequence No.: 4 **Autosampler Location: 4**
Sample ID: 2.0 ppb **Date Collected: 3/31/2020 16:42:30**
Analyst: **Data Type: Original**

Replicate Data: 2.0 ppb

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[2]	0.0263	0.1412	0.0268	16:43:34	Yes
2		[2]	0.0266	0.1420	0.0271	16:44:07	Yes
3		[2]	0.0268	0.1420	0.0273	16:44:41	Yes
Mean:		[2]	0.0266				
SD:		0	0.0002				

%RSD: 0 0.88
Standard number 3 applied. [2]
Correlation Coef.: 0.970925 Slope: 0.01449 Intercept: 0.00000

==========

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: 5.0 ppb **Date Collected: 3/31/2020 16:44:42**
Analyst: **Data Type: Original**

Replicate Data: 5.0 ppb

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[5]	0.0652	0.3484	0.0657	16:45:46	Yes
2		[5]	0.0659	0.3496	0.0663	16:46:19	Yes
3		[5]	0.0660	0.3502	0.0665	16:46:53	Yes
Mean:		[5]	0.0657				
SD:		0	0.0004				
%RSD:		0	0.66				

Standard number 4 applied. [5]
Correlation Coef.: 0.994862 Slope: 0.01338 Intercept: 0.00000

==========

Sequence No.: 6 **Autosampler Location: 6**
Sample ID: 10.0 ppb **Date Collected: 3/31/2020 16:46:54**
Analyst: **Data Type: Original**

Replicate Data: 10.0 ppb

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[10]	0.1292	0.6840	0.1296	16:47:58	Yes
2		[10]	0.1313	0.6902	0.1318	16:48:31	Yes
3		[10]	0.1325	0.6929	0.1329	16:49:05	Yes
Mean:		[10]	0.1310				
SD:		0	0.0017				
%RSD:		0	1.29				

Standard number 5 applied. [10]
Correlation Coef.: 0.998855 Slope: 0.01316 Intercept: 0.00000

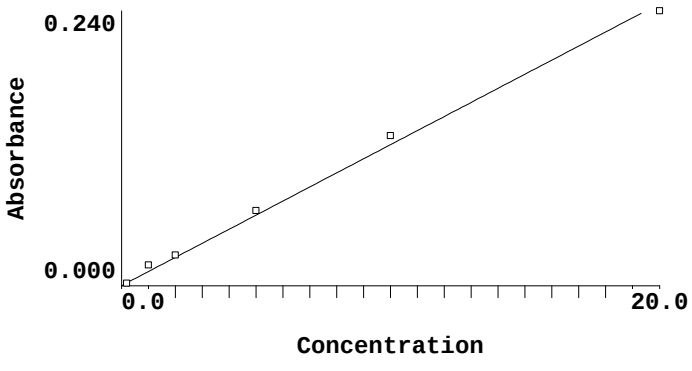
==========

Sequence No.: 7 **Autosampler Location: 7**
Sample ID: 20.0 ppb **Date Collected: 3/31/2020 16:49:06**
Analyst: **Data Type: Original**

Replicate Data: 20.0 ppb

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[20]	0.2394	1.2850	0.2399	16:50:11	Yes
2		[20]	0.2422	1.2872	0.2426	16:50:45	Yes
3		[20]	0.2387	1.2672	0.2392	16:51:18	Yes
Mean:		[20]	0.2401				
SD:		0	0.0018				
%RSD:		0	0.76				

Standard number 6 applied. [20]
Correlation Coef.: 0.998226 Slope: 0.01231 Intercept: 0.00000
The calibration curve may not be linear.



Calibration data for Hg 253.7 **Equation: Linear Through Zero**

ID	Mean Signal (Abs)	Entered Conc. ug/L	Calculated Conc. ug/L	Standard Deviation	%RSD

Calib Blank	0.0000	0	0.0000	0.00	8.6
0.2 ppb	0.0021	0.2	0.1726	0.00	3.7
1.0 ppb	0.0181	1.0	1.4718	0.00	0.5
2.0 ppb	0.0266	2.0	2.1584	0.00	0.9
5.0 ppb	0.0657	5.0	5.3355	0.00	0.7
10.0 ppb	0.1310	10.0	10.6413	0.00	1.3
20.0 ppb	0.2401	20.0	19.5055	0.00	0.8

Correlation Coef.: 0.998226 Slope: 0.01231 Intercept: 0.00000

==========

Sequence No.: 8 **Autosampler Location: 8**
Sample ID: ICV **Date Collected: 3/31/2020 16:51:37**
Analyst: **Data Type: Original**

Replicate Data: ICV

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	3.346	3.346	0.0412	0.2156	0.0417	16:52:41	Yes
2	3.378	3.378	0.0416	0.2156	0.0421	16:53:14	Yes
3	3.311	3.311	0.0408	0.2110	0.0412	16:53:48	Yes
Mean:	3.345	3.345	0.0412				
SD:	0.0335	0.0335	0.0004				
%RSD:	1.002	1.002	1.00				

QC value greater than the upper limit for Hg 253.7 Recovery = 111.49%
QC Failed. Stop the analysis.

==========

Analysis Begun

Logged In Analyst: metals-instrument **Technique: AA FIMS-MHS**
Spectrometer Model: FIMS-100, S/N B050-9550 **Autosampler Model: S10**

Sample Information File: C:\data-AA\Alpha\Sample Information\033120B.sif
Batch ID: AL
Results Data Set: HG033120B
Results Library: C:\data-AA\Alpha\Results\Results.mdb

==========

Sequence No.: 8 **Autosampler Location: 8**
Sample ID: ICV **Date Collected: 3/31/2020 16:54:59**
Analyst: **Data Type: Original**

Replicate Data: ICV

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.965	2.965	0.0365	0.1929	0.0370	16:56:03	Yes
2	2.978	2.978	0.0367	0.1935	0.0371	16:56:36	Yes
3	2.964	2.964	0.0365	0.1913	0.0370	16:57:10	Yes
Mean:	2.969	2.969	0.0365				
SD:	0.0080	0.0080	0.0001				
%RSD:	0.2705	0.2705	0.27				

QC value within limits for Hg 253.7 Recovery = 98.96%
All analyte(s) passed QC.

==========

Sequence No.: 9 **Autosampler Location: 9**
Sample ID: ICB **Date Collected: 3/31/2020 16:57:11**
Analyst: **Data Type: Original**

Replicate Data: ICB

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.0028	0.0028	0.0000	0.0027	0.0005	16:58:14	Yes
2	0.0000	0.0000	0.0000	0.0022	0.0005	16:58:48	Yes
3	0.0057	0.0057	0.0001	0.0034	0.0005	16:59:21	Yes
Mean:	0.0028	0.0028	0.0000				
SD:	0.0029	0.0029	0.0000				
%RSD:	100.6	100.6	100.64				

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

==========

Sequence No.: 10 **Autosampler Location: 2**
Sample ID: 0.2 PPB **Date Collected: 3/31/2020 16:59:23**
Analyst: **Data Type: Original**

Replicate Data: 0.2 PPB

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.1785	0.1785	0.0022	0.0134	0.0027	17:00:26	Yes
2	0.1766	0.1766	0.0022	0.0130	0.0027	17:01:00	Yes
3	0.1744	0.1744	0.0021	0.0129	0.0026	17:01:34	Yes
Mean:	0.1765	0.1765	0.0022				
SD:	0.0021	0.0021	0.0000				
%RSD:	1.169	1.169	1.17				

Sequence No.: 11 **Autosampler Location: 12**
Sample ID: WG1356775-1 T **Date Collected: 3/31/2020 17:01:35**
Analyst: **Data Type: Original**

Replicate Data: WG1356775-1 T

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0178	-0.0178	-0.0002	0.0012	0.0003	17:02:39	Yes
2	-0.0206	-0.0206	-0.0003	0.0007	0.0002	17:03:13	Yes
3	-0.0227	-0.0227	-0.0003	0.0008	0.0002	17:03:46	Yes
Mean:	-0.0204	-0.0204	-0.0003				
SD:	0.0025	0.0025	0.0000				
%RSD:	12.18	12.18	12.18				

Sequence No.: 12 **Autosampler Location: 13**
Sample ID: WG1356775-2 T **Date Collected: 3/31/2020 17:03:47**
Analyst: **Data Type: Original**

Replicate Data: WG1356775-2 T

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.9725	0.9725	0.0120	0.0651	0.0124	17:04:51	Yes
2	0.9712	0.9712	0.0120	0.0641	0.0124	17:05:25	Yes
3	0.9847	0.9847	0.0121	0.0653	0.0126	17:05:58	Yes
Mean:	0.9761	0.9761	0.0120				
SD:	0.0075	0.0075	0.0001				
%RSD:	0.7634	0.7634	0.76				

Sequence No.: 13 **Autosampler Location: 14**
Sample ID: L2013845-07 T **Date Collected: 3/31/2020 17:05:59**
Analyst: **Data Type: Original**

Replicate Data: L2013845-07 T

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0070	-0.0070	-0.0001	0.0020	0.0004	17:07:05	Yes
2	-0.0064	-0.0064	-0.0001	0.0019	0.0004	17:07:38	Yes
3	-0.0069	-0.0069	-0.0001	0.0020	0.0004	17:08:12	Yes
Mean:	-0.0068	-0.0068	-0.0001				
SD:	0.0003	0.0003	0.0000				
%RSD:	4.526	4.526	4.53				

Sequence No.: 14 **Autosampler Location: 15**
Sample ID: WG1356775-3 T **Date Collected: 3/31/2020 17:08:13**
Analyst: **Data Type: Original**

Replicate Data: WG1356775-3 T

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.672	4.672	0.0575	0.3061	0.0580	17:09:17	Yes
2	4.675	4.675	0.0575	0.3049	0.0580	17:09:50	Yes
3	4.670	4.670	0.0575	0.3034	0.0580	17:10:24	Yes
Mean:	4.672	4.672	0.0575				
SD:	0.0026	0.0026	0.0000				
%RSD:	0.0550	0.0550	0.05				

Sequence No.: 15 **Autosampler Location: 16**
Sample ID: WG1356775-4 T **Date Collected: 3/31/2020 17:10:25**
Analyst: **Data Type: Original**

Replicate Data: WG1356775-4 T

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.713	4.713	0.0580	0.3113	0.0585	17:11:29	Yes
2	4.774	4.774	0.0588	0.3123	0.0592	17:12:03	Yes
3	4.778	4.778	0.0588	0.3121	0.0593	17:12:36	Yes
Mean:	4.755	4.755	0.0585				
SD:	0.0360	0.0360	0.0004				
%RSD:	0.7579	0.7579	0.76				

Sequence No.: 16 **Autosampler Location: 17**
Sample ID: L2013642-02 T **Date Collected: 3/31/2020 17:12:37**
Analyst: **Data Type: Original**

Replicate Data: L2013642-02 T

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.2827	0.2827	0.0035	0.0206	0.0040	17:13:41	Yes
2	0.2884	0.2884	0.0035	0.0214	0.0040	17:14:14	Yes
3	0.2864	0.2864	0.0035	0.0211	0.0040	17:14:48	Yes
Mean:	0.2858	0.2858	0.0035				
SD:	0.0029	0.0029	0.0000				
%RSD:	1.017	1.017	1.02				

Sequence No.: 17 **Autosampler Location: 18**
Sample ID: L2013706-01 T **Date Collected: 3/31/2020 17:14:49**
Analyst: **Data Type: Original**

Replicate Data: L2013706-01 T

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.1796	0.1796	0.0022	0.0143	0.0027	17:15:53	Yes
2	0.1768	0.1768	0.0022	0.0142	0.0027	17:16:26	Yes
3	0.1707	0.1707	0.0021	0.0132	0.0026	17:17:00	Yes
Mean:	0.1757	0.1757	0.0022				
SD:	0.0046	0.0046	0.0001				
%RSD:	2.602	2.602	2.60				

Sequence No.: 18 **Autosampler Location: 19**
Sample ID: L2013706-02 T **Date Collected: 3/31/2020 17:17:01**
Analyst: **Data Type: Original**

Replicate Data: L2013706-02 T

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0186	-0.0186	-0.0002	0.0013	0.0002	17:18:05	Yes
2	-0.0188	-0.0188	-0.0002	0.0012	0.0002	17:18:38	Yes
3	-0.0216	-0.0216	-0.0003	0.0003	0.0002	17:19:12	Yes
Mean:	-0.0197	-0.0197	-0.0002				
SD:	0.0017	0.0017	0.0000				
%RSD:	8.647	8.647	8.65				

Sequence No.: 19 **Autosampler Location: 20**
Sample ID: L2013720-31 T **Date Collected: 3/31/2020 17:19:13**
Analyst: **Data Type: Original**

Replicate Data: L2013720-31 T

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0262	-0.0262	-0.0003	0.0002	0.0002	17:20:17	Yes
2	-0.0239	-0.0239	-0.0003	0.0002	0.0002	17:20:51	Yes
3	-0.0166	-0.0166	-0.0002	0.0016	0.0003	17:21:24	Yes
Mean:	-0.0222	-0.0222	-0.0003				
SD:	0.0050	0.0050	0.0001				
%RSD:	22.44	22.44	22.44				

Sequence No.: 20 **Autosampler Location: 10**
Sample ID: CCV **Date Collected: 3/31/2020 17:21:25**

Analyst: **Data Type: Original**

Replicate Data: CCV

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	10.49	10.49	0.1291	0.6764	0.1296	17:22:30	Yes
2	10.55	10.55	0.1298	0.6765	0.1303	17:23:04	Yes
3	10.45	10.45	0.1286	0.6646	0.1291	17:23:37	Yes
Mean:	10.50	10.50	0.1292				
SD:	0.0505	0.0505	0.0006				
%RSD:	0.4811	0.4811	0.48				

QC value within limits for Hg 253.7 Recovery = 104.96%
All analyte(s) passed QC.

==========

Sequence No.: 21 **Autosampler Location: 11**
Sample ID: CCB **Date Collected: 3/31/2020 17:23:38**
Analyst: **Data Type: Original**

Replicate Data: CCB

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0021	-0.0021	-0.0000	0.0017	0.0005	17:24:42	Yes
2	0.0006	0.0006	0.0000	0.0021	0.0005	17:25:16	Yes
3	0.0045	0.0045	0.0001	0.0026	0.0005	17:25:50	Yes
Mean:	0.0010	0.0010	0.0000				
SD:	0.0033	0.0033	0.0000				
%RSD:	337.7	337.7	337.71				

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

==========

Sequence No.: 22 **Autosampler Location: 21**
Sample ID: L2013733-01 T **Date Collected: 3/31/2020 17:25:51**
Analyst: **Data Type: Original**

Replicate Data: L2013733-01 T

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0197	-0.0197	-0.0002	0.0007	0.0002	17:26:55	Yes
2	-0.0211	-0.0211	-0.0003	0.0008	0.0002	17:27:29	Yes
3	-0.0108	-0.0108	-0.0001	0.0021	0.0003	17:28:03	Yes
Mean:	-0.0172	-0.0172	-0.0002				
SD:	0.0056	0.0056	0.0001				
%RSD:	32.36	32.36	32.36				

==========

Sequence No.: 23 **Autosampler Location: 22**
Sample ID: L2013789-01 T **Date Collected: 3/31/2020 17:28:04**
Analyst: **Data Type: Original**

Replicate Data: L2013789-01 T

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0080	-0.0080	-0.0001	0.0020	0.0004	17:29:07	Yes
2	-0.0197	-0.0197	-0.0002	0.0013	0.0002	17:29:41	Yes
3	-0.0118	-0.0118	-0.0001	0.0019	0.0003	17:30:15	Yes
Mean:	-0.0132	-0.0132	-0.0002				
SD:	0.0060	0.0060	0.0001				
%RSD:	45.34	45.34	45.34				

==========

Sequence No.: 24 **Autosampler Location: 23**
Sample ID: L2013789-02 T **Date Collected: 3/31/2020 17:30:16**
Analyst: **Data Type: Original**

Replicate Data: L2013789-02 T

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0220	-0.0220	-0.0003	0.0007	0.0002	17:31:19	Yes
2	-0.0219	-0.0219	-0.0003	0.0009	0.0002	17:31:53	Yes
3	-0.0181	-0.0181	-0.0002	0.0014	0.0003	17:32:27	Yes
Mean:	-0.0207	-0.0207	-0.0003				
SD:	0.0022	0.0022	0.0000				

%RSD: 10.68 10.68 10.68

==========

Sequence No.: 25 **Autosampler Location: 24**
Sample ID: L2013789-03 T **Date Collected: 3/31/2020 17:32:28**
Analyst: **Data Type: Original**

Replicate Data: L2013789-03 T

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0098	-0.0098	-0.0001	0.0022	0.0004	17:33:32	Yes
2	-0.0089	-0.0089	-0.0001	0.0022	0.0004	17:34:05	Yes
3	-0.0191	-0.0191	-0.0002	0.0002	0.0002	17:34:39	Yes
Mean:	-0.0126	-0.0126	-0.0002				
SD:	0.0057	0.0057	0.0001				
%RSD:	45.01	45.01	45.01				

==========

Sequence No.: 26 **Autosampler Location: 25**
Sample ID: L2013845-08 T **Date Collected: 3/31/2020 17:34:40**
Analyst: **Data Type: Original**

Replicate Data: L2013845-08 T

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0128	-0.0128	-0.0002	0.0015	0.0003	17:35:43	Yes
2	-0.0173	-0.0173	-0.0002	0.0012	0.0003	17:36:17	Yes
3	-0.0124	-0.0124	-0.0002	0.0017	0.0003	17:36:51	Yes
Mean:	-0.0141	-0.0141	-0.0002				
SD:	0.0027	0.0027	0.0000				
%RSD:	19.07	19.07	19.07				

==========

Sequence No.: 27 **Autosampler Location: 26**
Sample ID: L2013845-09 T **Date Collected: 3/31/2020 17:36:52**
Analyst: **Data Type: Original**

Replicate Data: L2013845-09 T

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0032	-0.0032	-0.0000	0.0023	0.0004	17:37:55	Yes
2	-0.0048	-0.0048	-0.0001	0.0020	0.0004	17:38:29	Yes
3	-0.0039	-0.0039	-0.0000	0.0021	0.0004	17:39:03	Yes
Mean:	-0.0040	-0.0040	-0.0000				
SD:	0.0008	0.0008	0.0000				
%RSD:	20.56	20.56	20.56				

==========

Sequence No.: 28 **Autosampler Location: 27**
Sample ID: L2013845-10 T **Date Collected: 3/31/2020 17:39:04**
Analyst: **Data Type: Original**

Replicate Data: L2013845-10 T

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0136	-0.0136	-0.0002	0.0013	0.0003	17:40:07	Yes
2	-0.0052	-0.0052	-0.0001	0.0023	0.0004	17:40:41	Yes
3	-0.0094	-0.0094	-0.0001	0.0018	0.0004	17:41:15	Yes
Mean:	-0.0094	-0.0094	-0.0001				
SD:	0.0042	0.0042	0.0001				
%RSD:	44.79	44.79	44.79				

==========

Sequence No.: 29 **Autosampler Location: 28**
Sample ID: L2013845-11 T **Date Collected: 3/31/2020 17:41:16**
Analyst: **Data Type: Original**

Replicate Data: L2013845-11 T

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0200	-0.0200	-0.0002	0.0011	0.0002	17:42:21	Yes
2	-0.0178	-0.0178	-0.0002	0.0011	0.0003	17:42:55	Yes
3	-0.0193	-0.0193	-0.0002	0.0009	0.0002	17:43:29	Yes
Mean:	-0.0190	-0.0190	-0.0002				

SD:	0.0011	0.0011	0.0000
%RSD:	5.933	5.933	5.93

==========

Sequence No.: 30 **Autosampler Location: 29**
Sample ID: WG1356529-1 C **Date Collected: 3/31/2020 17:43:30**
Analyst: **Data Type: Original**

Replicate Data: WG1356529-1 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0189	-0.0189	-0.0002	0.0014	0.0002	17:44:34	Yes
2	-0.0221	-0.0221	-0.0003	0.0007	0.0002	17:45:07	Yes
3	-0.0193	-0.0193	-0.0002	0.0010	0.0002	17:45:41	Yes
Mean:	-0.0201	-0.0201	-0.0002				
SD:	0.0017	0.0017	0.0000				
%RSD:	8.631	8.631	8.63				

==========

Sequence No.: 31 **Autosampler Location: 30**
Sample ID: WG1356529-2 C **Date Collected: 3/31/2020 17:45:42**
Analyst: **Data Type: Original**

Replicate Data: WG1356529-2 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.9613	0.9613	0.0118	0.0643	0.0123	17:46:46	Yes
2	0.9706	0.9706	0.0119	0.0638	0.0124	17:47:19	Yes
3	0.9692	0.9692	0.0119	0.0634	0.0124	17:47:53	Yes
Mean:	0.9670	0.9670	0.0119				
SD:	0.0050	0.0050	0.0001				
%RSD:	0.5177	0.5177	0.52				

==========

Sequence No.: 32 **Autosampler Location: 10**
Sample ID: CCV **Date Collected: 3/31/2020 17:47:54**
Analyst: **Data Type: Original**

Replicate Data: CCV

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	10.41	10.41	0.1282	0.6729	0.1286	17:48:59	Yes
2	10.66	10.66	0.1313	0.6833	0.1317	17:49:32	Yes
3	10.50	10.50	0.1293	0.6686	0.1297	17:50:06	Yes
Mean:	10.53	10.53	0.1296				
SD:	0.1286	0.1286	0.0016				
%RSD:	1.222	1.222	1.22				

QC value within limits for Hg 253.7 Recovery = 105.26%
All analyte(s) passed QC.

==========

Sequence No.: 33 **Autosampler Location: 11**
Sample ID: CCB **Date Collected: 3/31/2020 17:50:07**
Analyst: **Data Type: Original**

Replicate Data: CCB

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0003	-0.0003	-0.0000	0.0015	0.0005	17:51:10	Yes
2	0.0017	0.0017	0.0000	0.0019	0.0005	17:51:44	Yes
3	0.0035	0.0035	0.0000	0.0023	0.0005	17:52:18	Yes
Mean:	0.0016	0.0016	0.0000				
SD:	0.0019	0.0019	0.0000				
%RSD:	118.5	118.5	118.50				

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

==========

Sequence No.: 34 **Autosampler Location: 31**
Sample ID: L2013580-01 C **Date Collected: 3/31/2020 17:52:19**
Analyst: **Data Type: Original**

Replicate Data: L2013580-01 C

Repl	SampleConc	StndConc	BlnkCorr	Peak	Peak	Time	Peak

#	ug/L	ug/L	Signal	Area	Height		Stored
1	-0.0114	-0.0114	-0.0001	0.0015	0.0003	17:53:23	Yes
2	-0.0072	-0.0072	-0.0001	0.0023	0.0004	17:53:57	Yes
3	-0.0103	-0.0103	-0.0001	0.0015	0.0003	17:54:31	Yes
Mean:	-0.0096	-0.0096	-0.0001				
SD:	0.0022	0.0022	0.0000				
%RSD:	22.46	22.46	22.46				

==========

Sequence No.: 35 **Autosampler Location: 32**
Sample ID: WG1356529-3 C **Date Collected: 3/31/2020 17:54:32**
Analyst: **Data Type: Original**

Replicate Data: WG1356529-3 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.887	4.887	0.0602	0.3167	0.0606	17:55:35	Yes
2	4.724	4.724	0.0581	0.3024	0.0586	17:56:09	Yes
3	4.750	4.750	0.0585	0.3022	0.0589	17:56:43	Yes
Mean:	4.787	4.787	0.0589				
SD:	0.0877	0.0877	0.0011				
%RSD:	1.832	1.832	1.83				

==========

Sequence No.: 36 **Autosampler Location: 33**
Sample ID: WG1356529-4 C **Date Collected: 3/31/2020 17:56:44**
Analyst: **Data Type: Original**

Replicate Data: WG1356529-4 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0104	-0.0104	-0.0001	0.0013	0.0003	17:57:48	Yes
2	-0.0065	-0.0065	-0.0001	0.0020	0.0004	17:58:21	Yes
3	-0.0088	-0.0088	-0.0001	0.0019	0.0004	17:58:55	Yes
Mean:	-0.0086	-0.0086	-0.0001				
SD:	0.0020	0.0020	0.0000				
%RSD:	23.12	23.12	23.12				

==========

Sequence No.: 37 **Autosampler Location: 34**
Sample ID: L2013580-02 C **Date Collected: 3/31/2020 17:58:56**
Analyst: **Data Type: Original**

Replicate Data: L2013580-02 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.0060	0.0060	0.0001	0.0034	0.0006	18:00:00	Yes
2	0.0012	0.0012	0.0000	0.0030	0.0005	18:00:34	Yes
3	-0.0084	-0.0084	-0.0001	0.0012	0.0004	18:01:08	Yes
Mean:	-0.0004	-0.0004	-0.0000				
SD:	0.0073	0.0073	0.0001				
%RSD:	>999.9%	>999.9%	>999.9%				

==========

Sequence No.: 38 **Autosampler Location: 35**
Sample ID: L2013580-03 C **Date Collected: 3/31/2020 18:01:09**
Analyst: **Data Type: Original**

Replicate Data: L2013580-03 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0176	-0.0176	-0.0002	0.0011	0.0003	18:02:15	Yes
2	-0.0202	-0.0202	-0.0002	0.0012	0.0002	18:02:48	Yes
3	-0.0197	-0.0197	-0.0002	0.0013	0.0002	18:03:22	Yes
Mean:	-0.0192	-0.0192	-0.0002				
SD:	0.0014	0.0014	0.0000				
%RSD:	7.128	7.128	7.13				

==========

Sequence No.: 39 **Autosampler Location: 36**
Sample ID: L2013580-04 C **Date Collected: 3/31/2020 18:03:23**
Analyst: **Data Type: Original**

Replicate Data: L2013580-04 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0192	-0.0192	-0.0002	0.0012	0.0002	18:04:27	Yes
2	-0.0141	-0.0141	-0.0002	0.0017	0.0003	18:05:01	Yes
3	-0.0236	-0.0236	-0.0003	0.0001	0.0002	18:05:34	Yes
Mean:	-0.0190	-0.0190	-0.0002				
SD:	0.0048	0.0048	0.0001				
%RSD:	25.17	25.17	25.17				

Sequence No.: 40 **Autosampler Location: 37**
Sample ID: L2013580-05 C **Date Collected: 3/31/2020 18:05:35**
Analyst: **Data Type: Original**

Replicate Data: L2013580-05 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0193	-0.0193	-0.0002	0.0015	0.0002	18:06:39	Yes
2	-0.0210	-0.0210	-0.0003	0.0011	0.0002	18:07:13	Yes
3	-0.0153	-0.0153	-0.0002	0.0014	0.0003	18:07:47	Yes
Mean:	-0.0185	-0.0185	-0.0002				
SD:	0.0030	0.0030	0.0000				
%RSD:	15.94	15.94	15.94				

Sequence No.: 41 **Autosampler Location: 38**
Sample ID: L2013580-06 C **Date Collected: 3/31/2020 18:07:48**
Analyst: **Data Type: Original**

Replicate Data: L2013580-06 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0167	-0.0167	-0.0002	0.0016	0.0003	18:08:51	Yes
2	-0.0147	-0.0147	-0.0002	0.0021	0.0003	18:09:25	Yes
3	-0.0126	-0.0126	-0.0002	0.0021	0.0003	18:09:59	Yes
Mean:	-0.0147	-0.0147	-0.0002				
SD:	0.0020	0.0020	0.0000				
%RSD:	13.81	13.81	13.81				

Sequence No.: 42 **Autosampler Location: 39**
Sample ID: WG1356769-1 C **Date Collected: 3/31/2020 18:10:00**
Analyst: **Data Type: Original**

Replicate Data: WG1356769-1 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0144	-0.0144	-0.0002	0.0015	0.0003	18:11:04	Yes
2	-0.0212	-0.0212	-0.0003	0.0010	0.0002	18:11:37	Yes
3	-0.0147	-0.0147	-0.0002	0.0020	0.0003	18:12:11	Yes
Mean:	-0.0168	-0.0168	-0.0002				
SD:	0.0038	0.0038	0.0000				
%RSD:	22.64	22.64	22.64				

Sequence No.: 43 **Autosampler Location: 40**
Sample ID: WG1356769-2 C **Date Collected: 3/31/2020 18:12:12**
Analyst: **Data Type: Original**

Replicate Data: WG1356769-2 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.9497	0.9497	0.0117	0.0629	0.0122	18:13:16	Yes
2	0.9531	0.9531	0.0117	0.0632	0.0122	18:13:50	Yes
3	0.9431	0.9431	0.0116	0.0623	0.0121	18:14:23	Yes
Mean:	0.9486	0.9486	0.0117				
SD:	0.0051	0.0051	0.0001				
%RSD:	0.5340	0.5340	0.53				

Sequence No.: 44 **Autosampler Location: 10**
Sample ID: CCV **Date Collected: 3/31/2020 18:14:24**
Analyst: **Data Type: Original**

Replicate Data: CCV

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	10.39	10.39	0.1279	0.6759	0.1284	18:15:29	Yes
2	10.30	10.30	0.1268	0.6621	0.1273	18:16:03	Yes
3	10.39	10.39	0.1278	0.6647	0.1283	18:16:36	Yes
Mean:	10.36	10.36	0.1275				
SD:	0.0491	0.0491	0.0006				
%RSD:	0.4739	0.4739	0.47				

QC value within limits for Hg 253.7 Recovery = 103.60%
All analyte(s) passed QC.

==========

Sequence No.: 45 **Autosampler Location: 11**
Sample ID: CCB **Date Collected: 3/31/2020 18:16:38**
Analyst: **Data Type: Original**

Replicate Data: CCB

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0008	-0.0008	-0.0000	0.0024	0.0005	18:17:41	Yes
2	0.0005	0.0005	0.0000	0.0025	0.0005	18:18:15	Yes
3	-0.0015	-0.0015	-0.0000	0.0022	0.0005	18:18:48	Yes
Mean:	-0.0006	-0.0006	-0.0000				
SD:	0.0010	0.0010	0.0000				
%RSD:	171.8	171.8	171.78				

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

==========

Sequence No.: 46 **Autosampler Location: 41**
Sample ID: L2013418-01 C **Date Collected: 3/31/2020 18:18:49**
Analyst: **Data Type: Original**

Replicate Data: L2013418-01 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0266	-0.0266	-0.0003	0.0001	0.0001	18:19:54	Yes
2	-0.0172	-0.0172	-0.0002	0.0017	0.0003	18:20:27	Yes
3	-0.0248	-0.0248	-0.0003	0.0007	0.0002	18:21:01	Yes
Mean:	-0.0229	-0.0229	-0.0003				
SD:	0.0050	0.0050	0.0001				
%RSD:	21.90	21.90	21.90				

==========

Sequence No.: 47 **Autosampler Location: 42**
Sample ID: WG1356769-3 C **Date Collected: 3/31/2020 18:21:02**
Analyst: **Data Type: Original**

Replicate Data: WG1356769-3 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.635	4.635	0.0571	0.3054	0.0575	18:22:08	Yes
2	4.543	4.543	0.0559	0.2965	0.0564	18:22:41	Yes
3	4.413	4.413	0.0543	0.2881	0.0548	18:23:15	Yes
Mean:	4.531	4.531	0.0558				
SD:	0.1118	0.1118	0.0014				
%RSD:	2.467	2.467	2.47				

==========

Sequence No.: 48 **Autosampler Location: 43**
Sample ID: WG1356769-4 C **Date Collected: 3/31/2020 18:23:16**
Analyst: **Data Type: Original**

Replicate Data: WG1356769-4 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0092	-0.0092	-0.0001	0.0014	0.0004	18:24:20	Yes
2	-0.0073	-0.0073	-0.0001	0.0022	0.0004	18:24:53	Yes
3	-0.0069	-0.0069	-0.0001	0.0021	0.0004	18:25:27	Yes
Mean:	-0.0078	-0.0078	-0.0001				
SD:	0.0012	0.0012	0.0000				
%RSD:	15.58	15.58	15.58				

==========

Sequence No.: 49 **Autosampler Location: 44**
Sample ID: L2013642-01 C **Date Collected: 3/31/2020 18:25:28**
Analyst: **Data Type: Original**

Replicate Data: L2013642-01 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.0013	0.0013	0.0000	0.0024	0.0005	18:26:32	Yes
2	0.0012	0.0012	0.0000	0.0025	0.0005	18:27:06	Yes
3	-0.0039	-0.0039	-0.0000	0.0018	0.0004	18:27:39	Yes
Mean:	-0.0005	-0.0005	-0.0000				
SD:	0.0030	0.0030	0.0000				
%RSD:	647.6	647.6	647.57				

==========

Sequence No.: 50 **Autosampler Location: 10**
Sample ID: CCV **Date Collected: 3/31/2020 18:27:40**
Analyst: **Data Type: Original**

Replicate Data: CCV

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	10.29	10.29	0.1267	0.6698	0.1271	18:28:45	Yes
2	10.44	10.44	0.1285	0.6736	0.1290	18:29:19	Yes
3	10.43	10.43	0.1284	0.6736	0.1289	18:29:53	Yes
Mean:	10.39	10.39	0.1279				
SD:	0.0842	0.0842	0.0010				
%RSD:	0.8102	0.8102	0.81				

QC value within limits for Hg 253.7 Recovery = 103.88%
All analyte(s) passed QC.

==========

Sequence No.: 51 **Autosampler Location: 11**
Sample ID: CCB **Date Collected: 3/31/2020 18:29:54**
Analyst: **Data Type: Original**

Replicate Data: CCB

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0047	-0.0047	-0.0001	0.0018	0.0004	18:30:57	Yes
2	0.0005	0.0005	0.0000	0.0021	0.0005	18:31:31	Yes
3	-0.0036	-0.0036	-0.0000	0.0020	0.0004	18:32:05	Yes
Mean:	-0.0026	-0.0026	-0.0000				
SD:	0.0027	0.0027	0.0000				
%RSD:	104.8	104.8	104.78				

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

==========

Analysis Begun

Logged In Analyst: metals-instrument **Technique: AA FIMS-MHS**
Spectrometer Model: FIMS-100, S/N B050-9550 **Autosampler Model: S10**

Sample Information File: C:\data-AA\Alpha\Sample Information\033120B.sif
Batch ID: AL
Results Data Set: HG033120B
Results Library: C:\data-AA\Alpha\Results\Results.mdb

==========

Sequence No.: 1 **Autosampler Location: 8**
Sample ID: ICV **Date Collected: 3/31/2020 19:57:36**
Analyst: **Data Type: Original**
User canceled analysis.

==========

Analysis Begun

Logged In Analyst: metals-instrument **Technique: AA FIMS-MHS**
Spectrometer Model: FIMS-100, S/N B050-9550 **Autosampler Model: S10**

Sample Information File: C:\data-AA\Alpha\Sample Information\033120B.sif
Batch ID: AL
Results Data Set: HG033120B
Results Library: C:\data-AA\Alpha\Results\Results.mdb

==========

Sequence No.: 49 **Autosampler Location: 10**
Sample ID: CCV **Date Collected: 3/31/2020 19:58:03**
Analyst: **Data Type: Original**

Replicate Data: CCV

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	10.30	10.30	0.1268	0.7263	0.1273	19:59:08	Yes
2	9.994	9.994	0.1230	0.6819	0.1235	19:59:42	Yes
3	10.01	10.01	0.1232	0.6831	0.1236	20:00:15	Yes
Mean:	10.10	10.10	0.1243				
SD:	0.1727	0.1727	0.0021				
%RSD:	1.710	1.710	1.71				

QC value within limits for Hg 253.7 Recovery = 101.00%
All analyte(s) passed QC.

==========

Sequence No.: 50 **Autosampler Location: 11**
Sample ID: CCB **Date Collected: 3/31/2020 20:00:16**
Analyst: **Data Type: Original**

Replicate Data: CCB

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.0380	0.0380	0.0005	0.0078	0.0009	20:01:20	Yes
2	-0.0070	-0.0070	-0.0001	0.0017	0.0004	20:01:54	Yes
3	-0.0037	-0.0037	-0.0000	0.0024	0.0004	20:02:28	Yes
Mean:	0.0091	0.0091	0.0001				
SD:	0.0251	0.0251	0.0003				
%RSD:	276.4	276.4	276.40				

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.
User canceled analysis.

==========

Analysis Begun

Logged In Analyst: metals-instrument **Technique: AA FIMS-MHS**
Spectrometer Model: FIMS-100, S/N B050-9550 **Autosampler Model: S10**

Sample Information File: C:\data-AA\Alpha\Sample Information\033120B.sif
Batch ID: AL
Results Data Set: HG033120B
Results Library: C:\data-AA\Alpha\Results\Results.mdb

==========

Sequence No.: 43 **Autosampler Location: 45**

Sample ID: WG1356872-1 C **Date Collected: 3/31/2020 20:02:59**
Analyst: **Data Type: Original**

Replicate Data: WG1356872-1 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0241	-0.0241	-0.0003	0.0015	0.0002	20:04:05	Yes
2	-0.0228	-0.0228	-0.0003	0.0013	0.0002	20:04:39	Yes
3	-0.0281	-0.0281	-0.0003	0.0006	0.0001	20:05:12	Yes
Mean:	-0.0250	-0.0250	-0.0003				
SD:	0.0027	0.0027	0.0000				
%RSD:	10.90	10.90	10.90				

Sequence No.: 44 **Autosampler Location: 46**
Sample ID: WG1356872-2 C **Date Collected: 3/31/2020 20:05:13**
Analyst: **Data Type: Original**

Replicate Data: WG1356872-2 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.9222	0.9222	0.0114	0.0652	0.0118	20:06:17	Yes
2	0.9059	0.9059	0.0112	0.0625	0.0116	20:06:51	Yes
3	0.8813	0.8813	0.0108	0.0603	0.0113	20:07:24	Yes
Mean:	0.9031	0.9031	0.0111				
SD:	0.0206	0.0206	0.0003				
%RSD:	2.278	2.278	2.28				

Sequence No.: 45 **Autosampler Location: 47**
Sample ID: L2013441-01 C **Date Collected: 3/31/2020 20:07:25**
Analyst: **Data Type: Original**

Replicate Data: L2013441-01 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0280	-0.0280	-0.0003	0.0009	0.0001	20:08:29	Yes
2	-0.0322	-0.0322	-0.0004	0.0002	0.0001	20:09:02	Yes
3	-0.0281	-0.0281	-0.0003	0.0008	0.0001	20:09:36	Yes
Mean:	-0.0294	-0.0294	-0.0004				
SD:	0.0024	0.0024	0.0000				
%RSD:	8.109	8.109	8.11				

Sequence No.: 46 **Autosampler Location: 48**
Sample ID: WG1356872-3 C **Date Collected: 3/31/2020 20:09:37**
Analyst: **Data Type: Original**

Replicate Data: WG1356872-3 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.719	4.719	0.0581	0.3138	0.0586	20:10:41	Yes
2	4.689	4.689	0.0577	0.3090	0.0582	20:11:14	Yes
3	4.672	4.672	0.0575	0.3089	0.0580	20:11:48	Yes
Mean:	4.694	4.694	0.0578				
SD:	0.0239	0.0239	0.0003				
%RSD:	0.5096	0.5096	0.51				

Sequence No.: 47 **Autosampler Location: 49**
Sample ID: WG1356872-4 C **Date Collected: 3/31/2020 20:11:49**
Analyst: **Data Type: Original**

Replicate Data: WG1356872-4 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0277	-0.0277	-0.0003	0.0007	0.0001	20:12:54	Yes
2	-0.0313	-0.0313	-0.0004	0.0001	0.0001	20:13:28	Yes
3	-0.0321	-0.0321	-0.0004	-0.0000	0.0001	20:14:02	Yes
Mean:	-0.0304	-0.0304	-0.0004				
SD:	0.0023	0.0023	0.0000				
%RSD:	7.736	7.736	7.74				

Sequence No.: 48 **Autosampler Location: 50**
Sample ID: L2013446-01 C **Date Collected: 3/31/2020 20:14:03**
Analyst: **Data Type: Original**

Replicate Data: L2013446-01 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0269	-0.0269	-0.0003	0.0007	0.0001	20:15:07	Yes
2	-0.0313	-0.0313	-0.0004	-0.0003	0.0001	20:15:40	Yes
3	-0.0298	-0.0298	-0.0004	0.0002	0.0001	20:16:14	Yes
Mean:	-0.0293	-0.0293	-0.0004				
SD:	0.0022	0.0022	0.0000				
%RSD:	7.521	7.521	7.52				

==========

Sequence No.: 49 **Autosampler Location: 10**
Sample ID: CCV **Date Collected: 3/31/2020 20:16:15**
Analyst: **Data Type: Original**

Replicate Data: CCV

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	9.824	9.824	0.1209	0.6543	0.1214	20:17:20	Yes
2	9.637	9.637	0.1186	0.6375	0.1191	20:17:54	Yes
3	9.362	9.362	0.1152	0.6062	0.1157	20:18:27	Yes
Mean:	9.608	9.608	0.1183				
SD:	0.2327	0.2327	0.0029				
%RSD:	2.422	2.422	2.42				

QC value within limits for Hg 253.7 Recovery = 96.08%
All analyte(s) passed QC.

==========

Sequence No.: 50 **Autosampler Location: 11**
Sample ID: CCB **Date Collected: 3/31/2020 20:18:28**
Analyst: **Data Type: Original**

Replicate Data: CCB

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.0031	0.0031	0.0000	0.0033	0.0005	20:19:32	Yes
2	-0.0085	-0.0085	-0.0001	0.0020	0.0004	20:20:05	Yes
3	-0.0075	-0.0075	-0.0001	0.0021	0.0004	20:20:39	Yes
Mean:	-0.0043	-0.0043	-0.0001				
SD:	0.0064	0.0064	0.0001				
%RSD:	149.0	149.0	149.00				

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

==========

Sequence No.: 51 **Autosampler Location: 51**
Sample ID: L2013446-02 C **Date Collected: 3/31/2020 20:20:40**
Analyst: **Data Type: Original**

Replicate Data: L2013446-02 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0301	-0.0301	-0.0004	0.0002	0.0001	20:21:45	Yes
2	-0.0289	-0.0289	-0.0004	0.0007	0.0001	20:22:19	Yes
3	-0.0285	-0.0285	-0.0004	0.0007	0.0001	20:22:53	Yes
Mean:	-0.0292	-0.0292	-0.0004				
SD:	0.0008	0.0008	0.0000				
%RSD:	2.851	2.851	2.85				

==========

Sequence No.: 52 **Autosampler Location: 52**
Sample ID: L2013512-01 C **Date Collected: 3/31/2020 20:22:54**
Analyst: **Data Type: Original**

Replicate Data: L2013512-01 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0269	-0.0269	-0.0003	0.0006	0.0001	20:23:57	Yes
2	-0.0319	-0.0319	-0.0004	0.0000	0.0001	20:24:31	Yes
3	-0.0294	-0.0294	-0.0004	0.0005	0.0001	20:25:05	Yes

Mean:	-0.0294	-0.0294	-0.0004
SD:	0.0025	0.0025	0.0000
%RSD:	8.592	8.592	8.59

==========

Sequence No.: 53 **Autosampler Location: 53**
Sample ID: L2013512-02 C **Date Collected: 3/31/2020 20:25:06**
Analyst: **Data Type: Original**

Replicate Data: L2013512-02 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0246	-0.0246	-0.0003	0.0010	0.0002	20:26:10	Yes
2	-0.0224	-0.0224	-0.0003	0.0013	0.0002	20:26:43	Yes
3	-0.0308	-0.0308	-0.0004	0.0001	0.0001	20:27:17	Yes
Mean:	-0.0259	-0.0259	-0.0003				
SD:	0.0044	0.0044	0.0001				
%RSD:	16.80	16.80	16.80				

==========

Sequence No.: 54 **Autosampler Location: 54**
Sample ID: L2013512-03 C **Date Collected: 3/31/2020 20:27:18**
Analyst: **Data Type: Original**

Replicate Data: L2013512-03 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0253	-0.0253	-0.0003	0.0008	0.0002	20:28:22	Yes
2	-0.0247	-0.0247	-0.0003	0.0011	0.0002	20:28:55	Yes
3	-0.0294	-0.0294	-0.0004	0.0003	0.0001	20:29:29	Yes
Mean:	-0.0264	-0.0264	-0.0003				
SD:	0.0025	0.0025	0.0000				
%RSD:	9.630	9.630	9.63				

==========

Sequence No.: 55 **Autosampler Location: 55**
Sample ID: L2013512-04 C **Date Collected: 3/31/2020 20:29:30**
Analyst: **Data Type: Original**

Replicate Data: L2013512-04 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0277	-0.0277	-0.0003	0.0007	0.0001	20:30:33	Yes
2	-0.0286	-0.0286	-0.0004	0.0004	0.0001	20:31:07	Yes
3	-0.0286	-0.0286	-0.0004	0.0005	0.0001	20:31:40	Yes
Mean:	-0.0283	-0.0283	-0.0003				
SD:	0.0005	0.0005	0.0000				
%RSD:	1.678	1.678	1.68				

==========

Sequence No.: 56 **Autosampler Location: 56**
Sample ID: L2013512-05 C **Date Collected: 3/31/2020 20:31:42**
Analyst: **Data Type: Original**

Replicate Data: L2013512-05 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0298	-0.0298	-0.0004	0.0002	0.0001	20:32:47	Yes
2	-0.0347	-0.0347	-0.0004	-0.0006	0.0000	20:33:20	Yes
3	-0.0207	-0.0207	-0.0003	0.0013	0.0002	20:33:54	Yes
Mean:	-0.0284	-0.0284	-0.0003				
SD:	0.0071	0.0071	0.0001				
%RSD:	24.94	24.94	24.94				

==========

Sequence No.: 57 **Autosampler Location: 57**
Sample ID: L2013512-06 C **Date Collected: 3/31/2020 20:33:55**
Analyst: **Data Type: Original**

Replicate Data: L2013512-06 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0271	-0.0271	-0.0003	0.0004	0.0001	20:34:59	Yes
2	-0.0308	-0.0308	-0.0004	0.0003	0.0001	20:35:32	Yes

3	-0.0242	-0.0242	-0.0003	0.0012	0.0002	20:36:06	Yes
Mean:	-0.0274	-0.0274	-0.0003				
SD:	0.0033	0.0033	0.0000				
%RSD:	12.05	12.05	12.05				

Sequence No.: 58 **Autosampler Location: 58**
Sample ID: L2013512-07 C **Date Collected: 3/31/2020 20:36:07**
Analyst: **Data Type: Original**

Replicate Data: L2013512-07 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0286	-0.0286	-0.0004	0.0003	0.0001	20:37:11	Yes
2	-0.0323	-0.0323	-0.0004	0.0001	0.0001	20:37:44	Yes
3	-0.0343	-0.0343	-0.0004	-0.0005	0.0001	20:38:18	Yes
Mean:	-0.0317	-0.0317	-0.0004				
SD:	0.0029	0.0029	0.0000				
%RSD:	9.134	9.134	9.13				

Sequence No.: 59 **Autosampler Location: 59**
Sample ID: L2013512-08 C **Date Collected: 3/31/2020 20:38:19**
Analyst: **Data Type: Original**

Replicate Data: L2013512-08 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0253	-0.0253	-0.0003	0.0011	0.0002	20:39:23	Yes
2	-0.0282	-0.0282	-0.0003	0.0005	0.0001	20:39:56	Yes
3	-0.0340	-0.0340	-0.0004	-0.0002	0.0001	20:40:30	Yes
Mean:	-0.0292	-0.0292	-0.0004				
SD:	0.0044	0.0044	0.0001				
%RSD:	15.21	15.21	15.21				

Sequence No.: 60 **Autosampler Location: 60**
Sample ID: L2013512-09 C **Date Collected: 3/31/2020 20:40:31**
Analyst: **Data Type: Original**

Replicate Data: L2013512-09 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0257	-0.0257	-0.0003	0.0009	0.0002	20:41:35	Yes
2	-0.0336	-0.0336	-0.0004	-0.0006	0.0001	20:42:08	Yes
3	-0.0248	-0.0248	-0.0003	0.0008	0.0002	20:42:42	Yes
Mean:	-0.0281	-0.0281	-0.0003				
SD:	0.0048	0.0048	0.0001				
%RSD:	17.23	17.23	17.23				

Sequence No.: 61 **Autosampler Location: 10**
Sample ID: CCV **Date Collected: 3/31/2020 20:42:43**
Analyst: **Data Type: Original**

Replicate Data: CCV

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	9.984	9.984	0.1229	0.6573	0.1234	20:43:49	Yes
2	9.849	9.849	0.1212	0.6450	0.1217	20:44:22	Yes
3	9.978	9.978	0.1228	0.6464	0.1233	20:44:56	Yes
Mean:	9.937	9.937	0.1223				
SD:	0.0764	0.0764	0.0009				
%RSD:	0.7685	0.7685	0.77				

QC value within limits for Hg 253.7 Recovery = 99.37%
All analyte(s) passed QC.

Sequence No.: 62 **Autosampler Location: 11**
Sample ID: CCB **Date Collected: 3/31/2020 20:44:57**
Analyst: **Data Type: Original**

Replicate Data: CCB

Repl	SampleConc	StndConc	BlnkCorr	Peak	Peak	Time	Peak

#	ug/L	ug/L	Signal	Area	Height		Stored
1	-0.0056	-0.0056	-0.0001	0.0018	0.0004	20:46:01	Yes
2	-0.0013	-0.0013	-0.0000	0.0024	0.0005	20:46:34	Yes
3	-0.0078	-0.0078	-0.0001	0.0019	0.0004	20:47:08	Yes
Mean:	-0.0049	-0.0049	-0.0001				
SD:	0.0033	0.0033	0.0000				
%RSD:	67.11	67.11	67.11				

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

==========

Sequence No.: 63 **Autosampler Location: 61**
Sample ID: L2013512-10 C **Date Collected: 3/31/2020 20:47:09**
Analyst: **Data Type: Original**

Replicate Data: L2013512-10 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0275	-0.0275	-0.0003	0.0009	0.0001	20:48:15	Yes
2	-0.0276	-0.0276	-0.0003	0.0003	0.0001	20:48:49	Yes
3	-0.0329	-0.0329	-0.0004	-0.0002	0.0001	20:49:22	Yes
Mean:	-0.0293	-0.0293	-0.0004				
SD:	0.0031	0.0031	0.0000				
%RSD:	10.64	10.64	10.64				

==========

Sequence No.: 64 **Autosampler Location: 62**
Sample ID: L2013512-11 C **Date Collected: 3/31/2020 20:49:23**
Analyst: **Data Type: Original**

Replicate Data: L2013512-11 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0315	-0.0315	-0.0004	0.0001	0.0001	20:50:27	Yes
2	-0.0303	-0.0303	-0.0004	0.0001	0.0001	20:51:01	Yes
3	-0.0296	-0.0296	-0.0004	0.0004	0.0001	20:51:34	Yes
Mean:	-0.0305	-0.0305	-0.0004				
SD:	0.0010	0.0010	0.0000				
%RSD:	3.254	3.254	3.25				

==========

Sequence No.: 65 **Autosampler Location: 12**
Sample ID: L2013512-12 C **Date Collected: 3/31/2020 20:51:36**
Analyst: **Data Type: Original**

Replicate Data: L2013512-12 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0328	-0.0328	-0.0004	0.0003	0.0001	20:52:41	Yes
2	-0.0306	-0.0306	-0.0004	0.0004	0.0001	20:53:15	Yes
3	-0.0346	-0.0346	-0.0004	0.0001	0.0001	20:53:49	Yes
Mean:	-0.0327	-0.0327	-0.0004				
SD:	0.0020	0.0020	0.0000				
%RSD:	6.132	6.132	6.13				

==========

Sequence No.: 66 **Autosampler Location: 13**
Sample ID: L2013512-13 C **Date Collected: 3/31/2020 20:53:50**
Analyst: **Data Type: Original**

Replicate Data: L2013512-13 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0305	-0.0305	-0.0004	0.0003	0.0001	20:54:54	Yes
2	-0.0271	-0.0271	-0.0003	0.0004	0.0001	20:55:28	Yes
3	-0.0279	-0.0279	-0.0003	0.0006	0.0001	20:56:02	Yes
Mean:	-0.0285	-0.0285	-0.0004				
SD:	0.0018	0.0018	0.0000				
%RSD:	6.322	6.322	6.32				

==========

Sequence No.: 67 **Autosampler Location: 14**
Sample ID: L2013512-14 C **Date Collected: 3/31/2020 20:56:03**
Analyst: **Data Type: Original**

Replicate Data: L2013512-14 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0266	-0.0266	-0.0003	0.0010	0.0001	20:57:09	Yes
2	-0.0270	-0.0270	-0.0003	0.0006	0.0001	20:57:42	Yes
3	-0.0344	-0.0344	-0.0004	-0.0002	0.0001	20:58:16	Yes
Mean:	-0.0293	-0.0293	-0.0004				
SD:	0.0044	0.0044	0.0001				
%RSD:	14.97	14.97	14.97				

==========

Sequence No.: 68 **Autosampler Location: 15**
Sample ID: L2013512-15 C **Date Collected: 3/31/2020 20:58:17**
Analyst: **Data Type: Original**

Replicate Data: L2013512-15 C

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0262	-0.0262	-0.0003	0.0007	0.0002	20:59:21	Yes
2	-0.0279	-0.0279	-0.0003	0.0007	0.0001	20:59:54	Yes
3	-0.0293	-0.0293	-0.0004	0.0004	0.0001	21:00:28	Yes
Mean:	-0.0278	-0.0278	-0.0003				
SD:	0.0015	0.0015	0.0000				
%RSD:	5.529	5.529	5.53				

==========

Sequence No.: 69 **Autosampler Location: 10**
Sample ID: CCV **Date Collected: 3/31/2020 21:00:29**
Analyst: **Data Type: Original**

Replicate Data: CCV

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	9.782	9.782	0.1204	0.6375	0.1209	21:01:33	Yes
2	9.749	9.749	0.1200	0.6327	0.1205	21:02:07	Yes
3	9.579	9.579	0.1179	0.6138	0.1184	21:02:40	Yes
Mean:	9.704	9.704	0.1194				
SD:	0.1092	0.1092	0.0013				
%RSD:	1.125	1.125	1.12				

QC value within limits for Hg 253.7 Recovery = 97.04%
All analyte(s) passed QC.

==========

Sequence No.: 70 **Autosampler Location: 11**
Sample ID: CCB **Date Collected: 3/31/2020 21:02:41**
Analyst: **Data Type: Original**

Replicate Data: CCB

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.0065	-0.0065	-0.0001	0.0017	0.0004	21:03:45	Yes
2	-0.0026	-0.0026	-0.0000	0.0018	0.0004	21:04:18	Yes
3	-0.0057	-0.0057	-0.0001	0.0021	0.0004	21:04:52	Yes
Mean:	-0.0049	-0.0049	-0.0001				
SD:	0.0021	0.0021	0.0000				
%RSD:	42.38	42.38	42.38				

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

MERCURY TRUE VALUE CRITERIA

ICV	3 ug/l
LCSW	1 ug/l
MS	1 ug/l
CCV	5 ug/l

As of 6/1/13, Mercury True Value criteria is as follows:

ICV	3 ug/l
LCSW	1 ug/l
MS(aq)	5 ug/l
MS(soil)	1 ug/l
CCV	10 ug/l

▪ Certificate of Analysis ▪

Product: Metals in Soil
Catalog Number: 540
Lot No. D102-540
Certificate Issue Date: June 22, 2018
Expiration Date: January 31, 2022
Revision Number: Original

Product use instructions are included as part of the certification packet and are paginated separately from this Certificate of Analysis. Please reference the product use instructions for catalog #540 revision 030512.

CERTIFICATION

Parameter	Certified Value[1]	Reference Value	Uncertainty[2]	QC Performance Acceptance Limits[3]	PT Performance Acceptance Limits[4]
	mg/kg	mg/kg	%	mg/kg	mg/kg
Aluminum	10100	8160	6.36	3960 - 12400	4080 - 12200
Antimony	120	60.9	9.42	0.822 - 121	12.0 - 166
Arsenic	144	135	5.08	112 - 158	94.6 - 176
Barium	469	443	6.77	366 - 521	332 - 554
Beryllium	207	197	5.86	164 - 229	148 - 246
Boron	213	174	12.6	127 - 221	105 - 244
Cadmium	224	204	6.65	169 - 240	153 - 256
Calcium	5190	4830	9.12	3950 - 5700	3510 - 6150
Chromium	138	132	8.56	109 - 155	92.2 - 171
Cobalt	182	179	7.93	151 - 207	134 - 224
Copper	191	184	6.72	155 - 213	138 - 230
Iron	15000	14400	10.7	8770 - 20000	5120 - 23600
Lead	225	216	7.72	178 - 254	159 - 274
Magnesium	2570	2340	6.13	1780 - 2900	1460 - 3230
Manganese	331	323	6.71	266 - 380	242 - 404
Mercury	16.8	13.2	16.0	8.64 - 17.7	7.89 - 18.5
Molybdenum	193	175	2.39	141 - 209	125 - 226
Nickel	163	152	5.95	126 - 178	106 - 197
Potassium	2420	2050	6.31	1440 - 2660	1210 - 2890
Selenium	81.9	74.9	4.13	59.3 - 90.5	47.0 - 103
Silver	57.6	53.9	9.00	43.0 - 64.8	37.8 - 70.0
Sodium	161	149	12.1	111 - 188	57.7 - 241
Strontium	100	96.2	4.04	78.1 - 114	69.0 - 123
Thallium	253	232	3.54	188 - 276	168 - 296

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Parameter	Certified Value[1]	Reference Value	Uncertainty[2]	QC Performance Acceptance Limits[3]	PT Performance Acceptance Limits[4]
	mg/kg	mg/kg	%	mg/kg	mg/kg
Tin	146	134	10.8	106 - 163	79.5 - 189
Titanium	449	340	7.20	70.2 - 609	44.9 - 711
Uranium	114	113	7.10	85.5 - 140	71.9 - 153
Vanadium	180	172	8.85	137 - 207	126 - 218
Zinc	217	211	6.58	171 - 250	147 - 274

ANALYTICAL VERIFICATION

Parameter	Certified Value[1]	Proficiency Testing Study			NIST Traceability	
		Mean	Recovery[5]	n	SRM Number	Recovery
	mg/kg	mg/kg	%			%
Aluminum	10100	8160	80.8	138	-	-
Antimony	120	60.9	50.8	135	-	-
Arsenic	144	135	93.8	184	-	-
Barium	469	443	94.5	158	-	-
Beryllium	207	197	95.0	148	-	-
Boron	213	174	81.8	107	-	-
Cadmium	224	204	91.3	199	-	-
Calcium	5190	4830	93.0	122	-	-
Chromium	138	132	95.5	172	-	-
Cobalt	182	179	98.4	140	-	-
Copper	191	184	96.3	183	-	-
Iron	15000	14400	95.6	133	-	-
Lead	225	216	96.2	204	-	-
Magnesium	2570	2340	91.2	122	-	-
Manganese	331	323	97.6	147	-	-
Mercury	16.8	13.2	78.3	128	-	-
Molybdenum	193	175	90.8	143	-	-
Nickel	163	152	93.1	185	-	-
Potassium	2420	2050	84.7	121	-	-
Selenium	81.9	74.9	91.5	163	-	-

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Parameter	Certified Value[1]	Proficiency Testing Study			NIST Traceability	
		Mean	Recovery[5]	n	SRM Number	Recovery
	mg/kg	mg/kg	%			%
Silver	57.6	53.9	93.6	150	-	-
Sodium	161	149	92.8	105	-	-
Strontium	100	96.2	96.2	90	-	-
Thallium	253	232	91.6	147	-	-
Tin	146	134	92.0	100	-	-
Titanium	449	340	75.6	93	-	-
Uranium	114	113	98.8	35	-	-
Vanadium	180	172	95.4	139	-	-
Zinc	217	211	97.0	180	-	-

1. The **Certified Values** are the actual "made-to" concentrations confirmed by ERA analytical verification. The certified values are monitored and purchasers will be notified of any significant changes resulting in recertification or withdrawal of this certified reference material during the period of validity of this certificate.

2. The **Uncertainty** is the total propagated uncertainty at the 95% confidence interval. The uncertainty is based on the preparation and internal analytical verification of the product by ERA, multiplied by a coverage factor. The uncertainty applies to the product as supplied and does not take into account any required or optional dilution and/or preparations the laboratory may perform while using this product.

3. The **QC Performance Acceptance Limits (QC PALs™)**are based on actual historical data collected in ERA's Proficiency Testing program. The QC PALs™ reflect any inherent biases in the methods used to establish the limits and closely approximate a 95% confidence interval of the performance that experienced laboratories should achieve using accepted environmental methods. Use the QC PALs™ to realistically evaluate your performance against your peers.

4. The **PT Performance Acceptance Limits (PT PALs™)** are calculated using the regression equations and fixed acceptance criteria specified in the NELAC proficiency testing requirements. Use the PT PALs™ when analyzing this QC standard alongside USEPA and NELAC compliant PT standards. Please note that many PT study acceptance limits are concentration dependent (some non-linearly) and, therefore, the acceptance limits of this QC standard and any PT standard may differ relative to their difference in concentrations.

5. The **PT Data/Traceability** data include the mean value, percent recovery and number of data points reported by the laboratories in our Proficiency Testing study compared to the Certified Values. In addition, where NIST Standard Reference Materials (SRMs) are available, each analyte has been analytically traced to the NIST SRM listed. This product is traceable to the lot numbers of its starting materials. All gravimetric and volumetric measurements related to its manufacture are traceable to NIST through an unbroken chain of comparisons.
Traceability Recovery (%) = [(% recovery certified standard)/(% recovery NIST SRM)]*100
The traceability data shown were compiled by analyzing the ERA standards or their associated stock solutions against the applicable NIST SRMs.

6. For additional information on this product such as intended use, instructions for use, level of homogeneity, and safety information, please refer to the provided Instruction Sheet

If you have any questions or need technical assistance, please call ERA technical assistance at 1-800-372-0122 or send an email to info@eraqc.com.

Certifying Officer

Brian Miller

Quality Officer

Matthew Seebeck

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Reference Material

▪ Certificate of Analysis ▪

Product: Metals in Soil
Catalog Number: 540
Lot No. D105-540
Certificate Issue Date: March 19, 2019
Expiration Date: October 12, 2022
Revision Number: Original

Product use instructions are included as part of the certification packet and are paginated separately from this Certificate of Analysis. Please reference the product use instructions for catalog #540 revision 030512.

CERTIFICATION

Parameter	Certified Value[1]	Reference Value	Uncertainty[2]	QC Performance Acceptance Limits[3]	PT Performance Acceptance Limits[4]
	mg/kg	mg/kg	%	mg/kg	mg/kg
Aluminum	10100	8800	8.32	4600 - 13000	4470 - 13100
Antimony	282	147	7.70	6.17 - 289	28.2 - 366
Arsenic	155	143	6.34	119 - 168	100 - 186
Barium	439	415	5.37	343 - 488	311 - 519
Beryllium	192	179	2.78	149 - 210	134 - 224
Boron	216	160	7.08	113 - 208	96.1 - 238
Cadmium	61.5	56.2	0.528	46.6 - 65.9	42.2 - 70.3
Calcium	5190	4960	6.64	4090 - 5840	3610 - 6310
Chromium	104	101	4.75	83.2 - 118	70.5 - 131
Cobalt	196	189	0.500	158 - 219	141 - 236
Copper	65.0	63.1	2.65	53.1 - 73.1	47.3 - 78.9
Iron	15000	15700	8.94	10100 - 21300	6000 - 25400
Lead	126	125	4.77	103 - 146	89.3 - 160
Magnesium	2570	2410	6.26	1860 - 2970	1520 - 3310
Manganese	387	382	5.37	315 - 449	290 - 474
Mercury	7.76	7.61	13.7	5.53 - 9.69	4.57 - 10.7
Molybdenum	120	107	0.500	86.0 - 128	75.5 - 139
Nickel	117	108	0.514	89.5 - 127	75.7 - 141
Potassium	2420	2110	5.62	1500 - 2720	1260 - 2960
Selenium	84.6	77.9	7.10	61.8 - 94.0	49.2 - 107
Silver	34.6	34.3	8.34	27.8 - 40.9	23.6 - 45.1
Sodium	161	145	6.72	106 - 183	54.3 - 235
Strontium	104	104	3.95	85.1 - 123	74.8 - 133
Thallium	123	113	0.500	91.3 - 134	77.1 - 149

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Parameter	Certified Value[1]	Reference Value	Uncertainty[2]	QC Performance Acceptance Limits[3]	PT Performance Acceptance Limits[4]
	mg/kg	mg/kg	%	mg/kg	mg/kg
Tin	118	107	0.500	83.5 - 130	61.2 - 152
Titanium	512	421	5.80	114 - 728	0.00 - 854
Uranium	103	104	6.18	79.1 - 128	71.9 - 135
Vanadium	87.3	83.7	8.55	66.8 - 101	54.2 - 113
Zinc	251	240	3.98	194 - 285	168 - 312

ANALYTICAL VERIFICATION

Parameter	Certified Value[1]	Proficiency Testing Study			NIST Traceability	
		Mean	Recovery[5]	n	SRM Number	Recovery
	mg/kg	mg/kg	%			%
Aluminum	10100	8800	87.1	193	-	-
Antimony	282	147	52.3	216	-	-
Arsenic	155	143	92.5	240	-	-
Barium	439	415	94.6	222	-	-
Beryllium	192	179	93.4	220	-	-
Boron	216	160	74.2	152	-	-
Cadmium	61.5	56.2	91.5	239	-	-
Calcium	5190	4960	95.6	175	-	-
Chromium	104	101	96.8	237	-	-
Cobalt	196	189	96.2	215	-	-
Copper	65.0	63.1	97.1	237	-	-
Iron	15000	15700	105	195	-	-
Lead	126	125	99.0	243	-	-
Magnesium	2570	2410	93.9	177	-	-
Manganese	387	382	98.7	215	-	-
Mercury	7.76	7.61	98.0	157	-	-
Molybdenum	120	107	89.4	216	-	-
Nickel	117	108	92.5	235	-	-
Potassium	2420	2110	87.2	181	-	-
Selenium	84.6	77.9	92.1	231	-	-

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ERA
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Reference Material

▪ Certificate of Analysis ▪

Parameter	Certified Value[1]	Proficiency Testing Study			NIST Traceability	
		Mean	Recovery[5]	n	SRM Number	Recovery
	mg/kg	mg/kg	%			%
Silver	34.6	34.3	99.3	216	-	-
Sodium	161	145	89.8	166	-	-
Strontium	104	104	99.9	148	-	-
Thallium	123	113	91.8	215	-	-
Tin	118	107	90.4	164	-	-
Titanium	512	421	82.2	157	-	-
Uranium	103	104	101	61	-	-
Vanadium	87.3	83.7	95.9	214	-	-
Zinc	251	240	95.5	234	-	-

1. The **Certified Values** are the actual "made-to" concentrations confirmed by ERA analytical verification. The certified values are monitored and purchasers will be notified of any significant changes resulting in recertification or withdrawal of this reference material during the period of validity of this certificate.

2. The **Uncertainty** is the total propagated uncertainty at the 95% confidence interval. The uncertainty is based on the preparation and internal analytical verification of the product by ERA, multiplied by a coverage factor. The uncertainty applies to the product as supplied and does not take into account any required or optional dilution and/or preparations the laboratory may perform while using this product.

3. The **QC Performance Acceptance Limits (QC PALs™)**are based on actual historical data collected in ERA's Proficiency Testing program. The QC PALs™ reflect any inherent biases in the methods used to establish the limits and closely approximate a 95% confidence interval of the performance that experienced laboratories should achieve using accepted environmental methods. Use the QC PALs™ to realistically evaluate your performance against your peers.

4. The **PT Performance Acceptance Limits (PT PALs™)** are calculated using the regression equations and fixed acceptance criteria specified in the NELAC proficiency testing requirements. Use the PT PALs™ when analyzing this QC standard alongside USEPA and NELAC compliant PT standards. Please note that many PT study acceptance limits are concentration dependent (some non-linearly) and, therefore, the acceptance limits of this QC standard and any PT standard may differ relative to their difference in concentrations.

5. The **PT Data/Traceability** data include the mean value, percent recovery and number of data points reported by the laboratories in our Proficiency Testing study compared to the Certified Values. In addition, where NIST Standard Reference Materials (SRMs) are available, each analyte has been analytically traced to the NIST SRM listed. This product is traceable to the lot numbers of its starting materials. All gravimetric and volumetric measurements related to its manufacture are traceable to NIST through an unbroken chain of comparisons.
Traceability Recovery (%) = [(% recovery certified standard)/(% recovery NIST SRM)]*100
The traceability data shown were compiled by analyzing the ERA standards or their associated stock solutions against the applicable NIST SRMs.

6. For additional information on this product such as intended use, instructions for use, level of homogeneity, and safety information, please refer to the provided Instruction Sheet

If you have any questions or need technical assistance, please call ERA technical assistance at 1-800-372-0122 or send an email to info@eraqc.com.

Certifying Officer

Brian Miller

Brian Miller

Quality Officer

Matthew Seebeck

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Calculation of 7470A Mercury

Calculate Mercury concentration from the daily calibration curve. The curve is generated utilizing a straight-line equation defined as:

$$A = k1 + k2C$$

Where:

A = Average peak height of the sample/standard integrations
C = Sample/Standard Concentration, µg/L
k1 = y-intercept
k2 = slope

The instrument will plot peak height against concentration (µg/L). The result is generated in µg/L . This value is divided by 1000 to convert the units to mg/L. If the sample is diluted (DF), the result is multiplied by the DF to generate the final result.

Result, mg/L = (concentration, µg/L) x (1mg/1000µg) x (DF)

Calculation of 7471B Mercury

Calculate Mercury concentration from the daily calibration curve. The curve is generated utilizing a straight-line equation defined as:

$$A = k1 + k2C$$

Where:

A = Average peak height of the sample/standard integrations
C = Sample/Standard Concentration, µg/L
k1 = y-intercept
k2 = slope

The instrument will plot peak height against concentration (µg/L). The result is generated in µg/L . This value is divided by 1000 to convert the units to mg/L. If the sample is diluted (DF), the result is multiplied by the DF to generate the final result.

Result, mg/L = (concentration, µg/L) x (1mg/1000µg) x (DF)

The result in mg/kg is calculated on a dry weight basis using the sample weight digested(Wt), the final volume of the digestate(FV), and the percent total solids(%TS).

Result, mg/kg, wet = ((result, mg/L) x (FV)) /Wt

Result, mg/kg, dry wt = (Result, mg/kg wet)/(%TS)

Analytical Sequence

Method : 0.2-20ppb AQ102416

FIMS4
03/31/20b

REVIEWED
By dmorisseau at 8:56 am, Apr 01, 2020

Seq.	Loc.	Sample ID	Status
1	1	Calib Blank	Applied
2	2	0.2 ppb	Applied
3	3	1.0 ppb	Applied
4	4	2.0 ppb	Applied
5	5	5.0 ppb	Applied
6	6	10.0 ppb	Applied
7	7	20.0 ppb	Applied
8	8	ICV	QC Failed
9	8	ICV	QC Passed
10	9	ICB	QC Passed
11	2	0.2 PPB	Analyzed
12	12	WG1356775-1 T	Analyzed
13	13	WG1356775-2 T	Analyzed
14	14	L2013845-07 T	Analyzed
15	15	WG1356775-3 T	Analyzed
16	16	WG1356775-4 T	Analyzed
17	17	L2013642-02 T	Analyzed
18	18	L2013706-01 T	Analyzed
19	19	L2013706-02 T	Analyzed
20	20	L2013720-31 T	Analyzed
21	10	CCV	QC Passed
22	11	CCB	QC Passed
23	21	L2013733-01 T	Analyzed
24	22	L2013789-01 T	Analyzed
25	23	L2013789-02 T	Analyzed
26	24	L2013789-03 T	Analyzed
27	25	L2013845-08 T	Analyzed
28	26	L2013845-09 T	Analyzed
29	27	L2013845-10 T	Analyzed
30	28	L2013845-11 T	Analyzed
31	29	WG1356529-1 C	Analyzed
32	30	WG1356529-2 C	Analyzed
33	10	CCV	QC Passed
34	11	CCB	QC Passed
35	31	L2013580-01 C	Analyzed
36	32	WG1356529-3 C	Analyzed
37	33	WG1356529-4 C	Analyzed
38	34	L2013580-02 C	Analyzed
39	35	L2013580-03 C	Analyzed
40	36	L2013580-04 C	Analyzed
41	37	L2013580-05 C	Analyzed
42	38	L2013580-06 C	Analyzed
43	39	WG1356769-1 C	Analyzed
44	40	WG1356769-2 C	Analyzed
45	10	CCV	QC Passed
46	11	CCB	QC Passed
47	41	L2013418-01 C	Analyzed
48	42	WG1356769-3 C	Analyzed
49	43	WG1356769-4 C	Analyzed
50	44	L2013642-01 C	Analyzed
51	10	CCV	QC Passed
52	11	CCB	QC Passed
53	10	CCV	QC Passed
54	11	CCB	QC Passed
55	45	WG1356872-1 C	Analyzed
56	46	WG1356872-2 C	Analyzed
57	47	L2013441-01 C	Analyzed
58	48	WG1356872-3 C	Analyzed
59	49	WG1356872-4 C	Analyzed
60	50	L2013446-01 C	Analyzed
61	10	CCV	QC Passed
62	11	CCB	QC Passed

Analytical Sequence

Method : 0.2-20ppb AQ102416

Seq.	Loc.		Sample ID	Status
63	51		L2013446-02 C	Analyzed
64	52		L2013512-01 C	Analyzed
65	53		L2013512-02 C	Analyzed
66	54		L2013512-03 C	Analyzed
67	55		L2013512-04 C	Analyzed
68	56		L2013512-05 C	Analyzed
69	57		L2013512-06 C	Analyzed
70	58		L2013512-07 C	Analyzed
71	59		L2013512-08 C	Analyzed
72	60		L2013512-09 C	Analyzed
73	10	QC	CCV	QC Passed
74	11	QC	CCB	QC Passed
75	61		L2013512-10 C	Analyzed
76	62		L2013512-11 C	Analyzed
77	12		L2013512-12 C	Analyzed
78	13		L2013512-13 C	Analyzed
79	14		L2013512-14 C	Analyzed
80	15		L2013512-15 C	Analyzed
81	10	QC	CCV	QC Passed
82	11	QC	CCB	QC Passed

METALS ELN REPORT

Workgroup: WG1356775

Digestion

Prep Method	Acid Type 1	Acid 1 Lot	Acid Type 2	Acid 2 Lot	Spike Type	Lims Spike Lot	Spike Lot	Post Spike Spikelot	Spike Lot	Pipette Id
EPA 7470A	HNO3	19300047	H2SO4	19340192	METALS	METSPIKE	HG20143019 34EW	METSPIKE	HG20143019 34EW	241,251

Additional Reagent/Std	K2O8S2	PS2013231448EW
	KMnO4	PP2014301300KY
	NaCl-NH2OH.HCl	HH2016261010GD

Sample/ Type	Digestion Date	Analyst	Sample Vol ml	Spike Amt ml	Start Date/Time	Hot Block Unit	Temperature (C)	Stop Date/Time	Final Vol	Comments
L2013642-02 WATER	03/31/20 10:38	Owen Leeser	25		03/31/20 10:38	5	95.0	03/31/20 12:38	25	
L2013706-01 WATER	03/31/20 10:38	Owen Leeser	25		03/31/20 10:38	5	95.0	03/31/20 12:38	25	
L2013706-02 WATER	03/31/20 10:38	Owen Leeser	25		03/31/20 10:38	5	95.0	03/31/20 12:38	25	
L2013720-31 WATER	03/31/20 10:38	Owen Leeser	25		03/31/20 10:38	5	95.0	03/31/20 12:38	25	
L2013733-01 WATER	03/31/20 10:38	Owen Leeser	25		03/31/20 10:38	5	95.0	03/31/20 12:38	25	
L2013789-01 WATER	03/31/20 10:38	Owen Leeser	25		03/31/20 10:38	5	95.0	03/31/20 12:38	25	
L2013789-02 WATER	03/31/20 10:38	Owen Leeser	25		03/31/20 10:38	5	95.0	03/31/20 12:38	25	
L2013789-03 WATER	03/31/20 10:38	Owen Leeser	25		03/31/20 10:38	5	95.0	03/31/20 12:38	25	
L2013845-07 WATER	03/31/20 10:38	Owen Leeser	25		03/31/20 10:38	5	95.0	03/31/20 12:38	25	
L2013845-08 WATER	03/31/20 10:38	Owen Leeser	25		03/31/20 10:38	5	95.0	03/31/20 12:38	25	
L2013845-09 WATER	03/31/20 10:38	Owen Leeser	25		03/31/20 10:38	5	95.0	03/31/20 12:38	25	
L2013845-10 WATER	03/31/20 10:38	Owen Leeser	25		03/31/20 10:38	5	95.0	03/31/20 12:38	25	

Reported: 03-APR-20 11:46 AM

METALS ELN REPORT

Workgroup: WG1356775

Sample/ Type	Digestion Date	Analyst	Sample Vol ml	Spike Amt ml	Start Date/Time	Hot Block Unit	Temperature (C)	Stop Date/Time	Final Vol	Comments
L2013845-11 WATER	03/31/20 10:38	Owen Leeser	25		03/31/20 10:38	5	95.0	03/31/20 12:38	25	
WG1356775-1 BLANK	03/31/20 10:38	Owen Leeser	25		03/31/20 10:38	5	95.0	03/31/20 12:38	25	
WG1356775-2 LCS	03/31/20 10:38	Owen Leeser	25	0.25	03/31/20 10:38	5	95.0	03/31/20 12:38	25	
WG1356775-3 MS	03/31/20 10:38	Owen Leeser	25	1.25	03/31/20 10:38	5	95.0	03/31/20 12:38	25	
WG1356775-4 MSD	03/31/20 10:38	Owen Leeser	25	1.25	03/31/20 10:38	5	95.0	03/31/20 12:38	25	

Reagent	Actual Volume	Units
Sulfuric Acid (H2SO4)	1.25	ml
Nitric Acid (HNO3)	.625	ml
Potassium Permanganat	3.75	ml
Potassium Persulfate (K:	2	ml
NaCl-Hydroxylamine Hy	1.5	ml

Reported: 03-APR-20 11:46 AM

APPENDIX C – NYSDEC – IC & EC CERTIFICATION FORM

Enclosure 2
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
Site Management Periodic Review Report Notice
Institutional and Engineering Controls Certification Form

Site Details **Box 1**

Site No. **C314081**

Site Name Former A.C. Dutton Lumber Yard

Site Address: 1 Dutchess Avenue Zip Code: 12601
City/Town: Poughkeepsie
County: Dutchess
Site Acreage: 11.840

Reporting Period: ~~August 12, 2019 to April 01, 2020~~
April 1, 2019 to March 30, 2020

	YES	NO
1. Is the information above correct?	☐	☒
If NO, include handwritten above or on a separate sheet. (see Attachment A)		
2. Has some or all of the site property been sold, subdivided, merged, or undergone a tax map amendment during this Reporting Period?	☒	☐
3. Has there been any change of use at the site during this Reporting Period (see 6NYCRR 375-1.11(d))?	☐	☒
4. Have any federal, state, and/or local permits (e.g., building, discharge) been issued for or at the property during this Reporting Period? (See Attachment A)	☒	☐
If you answered YES to questions 2 thru 4, include documentation or evidence that documentation has been previously submitted with this certification form.		
5. Is the site currently undergoing development?	☒	☐

Box 2

	YES	NO
6. Is the current site use consistent with the use(s) listed below? Restricted-Residential, Commercial, and Industrial	☒	☐
7. Are all ICs/ECs in place and functioning as designed?	☒	☐

IF THE ANSWER TO EITHER QUESTION 6 OR 7 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

Signature of Owner, Remedial Party or Designated Representative Date

Box 2A

	YES	NO
8. Has any new information revealed that assumptions made in the Qualitative Exposure Assessment regarding offsite contamination are no longer valid?	☐	X

If you answered YES to question 8, include documentation or evidence that documentation has been previously submitted with this certification form.

9. Are the assumptions in the Qualitative Exposure Assessment still valid? (The Qualitative Exposure Assessment must be certified every five years)	X	☐

If you answered NO to question 9, the Periodic Review Report must include an updated Qualitative Exposure Assessment based on the new assumptions.

SITE NO. C314081 **Box 3**

Description of Institutional Controls

Parcel	Owner	Institutional Control
6062-02-763508	The O'Neill Group-Dutton, LLC	Site Management Plan Ground Water Use Restriction Landuse Restriction Soil Management Plan Monitoring Plan IC/EC Plan

The property may be used for: Restricted Residential as described in 6 NYCRR Part 375-1.8(g)(2)(ii), Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv);

The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Dutchess County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;

Groundwater monitoring must be performed as defined in the SMP;

The potential for vapor intrusion must be evaluated for any buildings developed on the site, and any potential impacts that are identified must be monitored or mitigated;

All future activities on the property that will disturb remaining contaminated material must be conducted in addordance with the SMP;

6062-59-766443	The O'Neill Group-Dutton, LLC	Site Management Plan Soil Management Plan Monitoring Plan IC/EC Plan Ground Water Use Restriction Landuse Restriction

The property may be used for: Restricted Residential as described in 6 NYCRR Part 375-1.8(g)(2)(ii), Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv);

The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the Dutchess County Department of Health to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;

Groundwater monitoring must be performed as defined in the SMP;

The potential for vapor intrusion must be evaluated for any buildings developed on the site, and any potential impacts that are identified must be monitored or mitigated;

All future activities on the property that will disturb remaining contaminated material must be conducted in addordance with the SMP;

Box 4

Description of Engineering Controls

Parcel	Engineering Control
6062-02-763508	Cover System

Exposure to remaining contamination at the site is prevented by a soil cover system placed over the site. This cover system is comprised of a minimum of 24 inches of clean soil. Asphalt pavement, concrete-covered sidewalks, and concrete building slabs and two-feet of clean soil in landscaped areas will be part of the covers system when the site is developed.

6062-59-766443	Cover System

Parcel	Engineering Control
Exposure to remaining contamination at the site is prevented by a soil cover system placed over the site. This cover system is comprised of a minimum of 24 inches of clean soil. Asphalt pavement, concrete-covered sidewalks, and concrete building slabs and two-feet of clean soil in landscaped areas will be part of the covers system when the site is developed.	

Box 5

Periodic Review Report (PRR) Certification Statements

1. I certify by checking "YES" below that:

   a) the Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

   b) to the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and the information presented is accurate and compete.

YES	NO
X	☐

2. If this site has an IC/EC Plan (or equivalent as required in the Decision Document), for each Institutional or Engineering control listed in Boxes 3 and/or 4, I certify by checking "YES" below that all of the following statements are true:

   (a) the Institutional Control and/or Engineering Control(s) employed at this site is unchanged since the date that the Control was put in-place, or was last approved by the Department;

   (b) nothing has occurred that would impair the ability of such Control, to protect public health and the environment;

   (c) access to the site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this Control;

   (d) nothing has occurred that would constitute a violation or failure to comply with the Site Management Plan for this Control; and

   (e) if a financial assurance mechanism is required by the oversight document for the site, the mechanism remains valid and sufficient for its intended purpose established in the document.

YES	NO
X	☐

IF THE ANSWER TO QUESTION 2 IS NO, sign and date below and DO NOT COMPLETE THE REST OF THIS FORM. Otherwise continue.

A Corrective Measures Work Plan must be submitted along with this form to address these issues.

_____ _____

Signature of Owner, Remedial Party or Designated Representative Date

IC CERTIFICATIONS
SITE NO. C314081

Box 6

SITE OWNER OR DESIGNATED REPRESENTATIVE SIGNATURE

I certify that all information and statements in Boxes 1,2, and 3 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I ANNA ONEILL at 241 Hudson St, Hackensack, NJ 07601
print name print business address

am certifying as Owner (Owner or Remedial Party)

for the Site named in the Site Details Section of this form.

[signature] 5-4-2020
Signature of Owner, Remedial Party, or Designated Representative Rendering Certification — Date

IC/EC CERTIFICATIONS

Box 7

Qualified Environmental Professional Signature

I certify that all information in Boxes 4 and 5 are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

I Fuad Dahan (print name) at SESI Consulting Engineers (print business address),

am certifying as a Qualified Environmental Professional for the Owner (Owner or Remedial Party)

Signature of Qualified Environmental Professional, for the Owner or Remedial Party, Rendering Certification	Stamp (Required for PE)	Date
		05/14/2020

ATTACHMENT A

Phase I
Owner-The O'Neill Group-Dutton, LLC
Building B 6062-59-758432; 20 Dutchess Landing Road
Building C 6062-59-760448; 30 Dutchess Landing Road
Building D 6062-59-780438: 5 Long Reach Road

Phase II
Owner-One Dutchess Phase 2, LLC
Building A 6062-59-752407: 10 Dutchess Landing Road
Building E 6062-59-776461; 15 Fin's Lane
Building F 6062-59-775476; 25 Shipyard Road
Building G 6062-59-758460; 40 Dutchess Landing Road
Building H 6062-59-758477: 50 Dutchess Landing Road

Phase III
Owner-One Dutchess Phase 3, LLC
BUILDING I 6062-02-781496; No street address designated yet
BUILDING J 6062-02-768525; No street address designated yet
BUILDING COMMERCIAL 6062-02-755495; No street address designated yet

Gary E. Beck, Jr.
Building Inspector

THE CITY OF POUGHKEEPSIE
NEW YORK
BUILDING PLANNING & ZONING

62 CIVIC CENTER PLAZA, 2ND FLOOR
POUGHKEEPSIE, NY 12601
Phone: (845) 451-4007 Fax: (845) 451-4006

BUILDING PERMIT

Owner
O'Neill Group-Dutton LLC
241 Hudson St
Hackensack, NJ 07601

Permit # BP-18-1436
Issue Date: 09/25/2018

Location
1 Dutchess Ave
POUGHKEEPSIE, NY 12601-0000

Description of Work:
BUILDING A - EXCAVATION AND FOUNDATION ONLY

Applicant
O'Neill Group-Dutton LLC
241 Hudson St
Hackensack, NJ 07601

Permit Type: Com. New Construction
Expiration Date:09/25/20

Tax Parcel ID # 6062-59-766443-0000
ID# 228070
Fees: $7099.00

Required Inspections

Footing (Rebar)
Foundation (Rebar)
Footing Drain
Foundation Waterproofing
Backfill
Concrete Floor
Preliminary Framing
Sheathing
Ice and Water Shield
Rough Heating
Rough Plumbing
Final Framing
Insulation
Drywall
Electrical (Third-Party)
Final

Please Call Building Inspector Gary E. Beck, Jr. at 845-451-4017 to schedule all required inspections.

Section 6-25 Performance of work under building permit

a. A building permit shall be effective to authorize the commencing of work in accordance with the application, plans and specifications on which it is based for a period of six (6) months after the date of its issuance. In the event that any work authorized under a building permit is not commenced within six (6) months from the date of its issuance, such permit shall expire.

Permit Conditions

1. If the structure or site IS NOT READY TO BE INSPECTED AT THE AGREED UPON TIME OR THE INSPECTION FAILS, a civil penalty WILL be assessed against the property owner, permit holder or his/her agent or representative in the sum of FIFTY ($50.00) DOLLARS residential and ONE HUNDRED ($100.00) DOLLARS commercial for a re-inspection.

2. All requests for inspections shall be made two (2) business days prior to all the actual inspection.

3. NO CERTIFICATE OF OCCUPANCY or CERTIFICATE OF COMPLIANCE will be issued for any building permit until all required final inspections have been completed and the work has been accepted.

Electrical permit and plumbing permit is required along with plans before any electrical or plumbing can be performed
Permit is for foundation only

Gary E. Beck, Jr., Building Inspector

Gary E. Beck, Jr.
Building Inspector

THE CITY OF POUGHKEEPSIE
NEW YORK
BUILDING DEPARTMENT
62 CIVIC CENTER PLAZA, 2ND FLOOR
POUGHKEEPSIE, NY 12601
Phone: (845) 451-4007 Fax: (845) 451-4006

BUILDING PERMIT

Owner
O'Neill Group-Dutton LLC
241 Hudson St
Hackensack, NJ 07601

Applicant
O'Neill Group-Dutton LLC
241 Hudson St
Hackensack, NJ 07601

Permit # BP-19-1187
Issue Date: 07/16/2019

Permit Type: Com. New Construction
Expiration Date:07/16/21

Location
1 Dutchess Ave
POUGHKEEPSIE, NY 12601-0000

Tax Parcel ID # 6062-59-766443-0000
ID# 228070
Fees: $9896.15

Description of Work:
BUILDING E - FOUNDATION AND COMPLETE STRUCTURE

Required Inspections

Backfill Edward Peters
Backfill Edward Peters
Backfill Edward Peters
Backfill Edward Peters
Insulation Edward Peters
Footing (Rebar) Electrical Underwriters
Site Edward Peters
Rough Plumbing Edward Peters
Foundation (Rebar)
Footing Drain
Foundation Waterproofing
Drywall
Fire Stopping
Ice and Water Shield
Insulation
Resilient channel (drywall)
Rough Heating
Rough Plumbing
Siding
Final
Duct work
Doors

Please Call Deputy Building Inspector Gary E. Beck, Jr. at 845-451-4015 or gbeck@cityofpoughkeepsie.com to schedule all required inspections.

Section 6-25 Performance of work under building permit

a. A building permit shall be effective to authorize the commencing of work in accordance with the application, plans and specifications on which it is based for a period of six (6) months after the date of its issuance. In the event that any work authorized under a building permit is not commenced within six (6) months from the date of its issuance, such permit shall expire.

Permit Conditions

1. **If the structure or site IS NOT READY TO BE INSPECTED AT THE AGREED UPON TIME OR THE INSPECTION FAILS, a civil penalty WILL be assessed against the property owner, permit holder or his/her agent or representative in the sum of FIFTY ($50.00) DOLLARS residential and ONE HUNDRED ($100.00) DOLLARS commercial for a re-inspection.**

. All requests for inspections shall be made two (2) business days prior to all the actual inspection.

3. NO CERTIFICATE OF OCCUPANCY or CERTIFICATE OF COMPLIANCE will be issued for any building permit until all required final inspections have been completed and the work has been accepted.

Design professional needs to submitted wind, and snow loads correction

Third party inspectors will be needed as per buildingsA, B,C and D.

Gary E. Beck, Jr., Deputy Building Inspector

Date Issued: 01/23/2020

Property ID# 228070

City Of Poughkeepsie

BUILDING PERMIT

Type of Work: BUILDING F - FOUNDATION ONLY

Location: 1 Dutchess Ave

Permit#: BP-20-0105

THE CITY OF POUGHKEEPSIE
NEW YORK
BUILDING DEPARTMENT
62 CIVIC CENTER PLAZA, 2ND FLOOR
POUGHKEEPSIE, NY 12601
Phone: (845) 451-4007 Fax: (845) 451-4006

BUILDING PERMIT

Owner
O'Neill Group-Dutton LLC
241 Hudson St
Hackensack, NJ 07601

Permit # BP-20-0105
Issue Date: 01/23/2020

Location
1 Dutchess Ave
POUGHKEEPSIE, NY 12601-0000

Description of Work:
BUILDING F -

Applicant
O'Neill Group-Dutton LLC
241 Hudson St
Hackensack, NJ 07601

Permit Type: Com. New Construction
Expiration Date:01/23/22

Tax Parcel ID # 6062-59-766443-0000
ID# 228070
Fees: $9896.15

Required Inspections

Foundation Waterproofing Edward Peters
Footing (Rebar)
Foundation (Rebar)
Footing Drain
Foundation Waterproofing
Backfill
Concrete Floor
Final
Drywall
Duct work
Electrical (Third-Party)
Fire Stopping
Ice and Water Shield
Insulation
Resilient channel (drywall)
Roofing
Rough Heating
Rough Plumbing
Under Slab Rough Plumbing

Please Call Deputy Building Inspector Edward Peters at 845-451-4017 or epeters@cityofpoughkeepsie.com to schedule all required inspections.

Section 6-25 Performance of work under building permit

a. A building permit shall be effective to authorize the commencing of work in accordance with the application, plans and specifications on which it is based for a period of six (6) months after the date of its issuance. In the event that any work authorized under a building permit is not commenced within six (6) months from the date of its issuance, such permit shall expire.

Permit Conditions

1. If the structure or site IS NOT READY TO BE INSPECTED AT THE AGREED UPON TIME OR THE INSPECTION FAILS, a civil penalty WILL be assessed against the property owner, permit holder or his/her agent or representative in the sum of FIFTY ($50.00) DOLLARS residential and ONE HUNDRED ($100.00) DOLLARS commercial for a re-inspection.

2. All requests for inspections shall be made two (2) business days prior to all the actual inspection.
3. NO CERTIFICATE OF OCCUPANCY or CERTIFICATE OF COMPLIANCE will be issued for any building permit until all required final inspections have been completed and the work has been accepted.
5. All inspections will be required to be performed by a Third Party inspection agency, this agency will require approval by the Building Inspector.
6. Building Dept. will meet with the third party inspector once a week at the job site to review all inspection records. Copies will be supplied to the Building Inspector at the weekly meeting at the job site.
7. Records will be maintain on site for examination at the request of the Building Inspector.
8. Plumbing, Heating, Electrical will need to file seperate permits
9. Sprinkler, Alarm systems need to be filed with the Fire Dept. for Approvals

Edward Peters, Deputy Building Inspector

Date Issued: 01/23/2020

Property ID# 228070

City Of Poughkeepsie

BUILDING PERMIT

Type of Work: BUILDING F -
Location: 1 Dutchess Ave

Permit#: BP-20-0105

CITY OF POUGHKEEPSIE BUILDING DEPARTMENT

POLICY ON CONSTRUCTION INSPECTIONS

A Building Permit is, essentially, a contract which allows for construction in accordance with the approved plans and specification. All requests for inspections shall be made two (2) business days prior to the actual inspection date. Depending upon work schedules, every effort will be made to perform the inspection within twenty-four (24) hours of the formal request. **If the structure or site is not ready to be inspected at the agreed upon time or the inspection fails, a civil penalty will be assessed against the property owner, permit holder or his/her agent or representative in the sum of FIFTY ($50.00) DOLLARS Residential and ONE HUNDRED ($100.00) DOLLARS Commercial for a re-inspection.**

1. **FOOTINGS** - When the excavation for the footings is completed, and before the footings are poured.
2. **FOUNDATIONS:**
   a. Poured Concrete - when forms and all required steel reinforcement are installed and before pouring concrete.
   b. Hollow Masonry Units (Concrete Blocks) - when the foundation has been erected with required anchor bolts installed, and before any backfilling has taken place.
3. **CONCRETE FLOORS AND SLABS** - When sub-grade has been established and required steel reinforcement has been installed, and prior to the pouring of concrete.
4. **FRAMING** (Preliminary) - When all framing has been completed and prior to the installation of plumbing and heating ?rough work?.
5. **FRAMING** (Completed) - When the plumbing and electrical ?rough work? has been completed, and any necessary bracing of the installations has been completed.
6. **SHEATHING** - Roof and wall sheathing prior to covering.
7. **INSULATION** - When insulation and vapor barrier is installed and before drywall.
8. **DRYWALL** - Before taping of fire rated assemblies; and,
9. **FINAL** - When all work is complete and before any occupancy of the building or structure.

Failure to request and obtain the required inspection may subject the permit holder to a penalty not exceeding ONE THOUSAND DOLLARS ($1,000.00) and for continuation of such violation, to an additional penalty not to exceed TEN DOLLARS ($10.00) per day, as stated in section 6-11 of the Code of Ordinances of the City of Poughkeepsie, New York.

In the case of renovations, repairs and alterations, some of these inspections may be suspended with. These cases will be dealt with in an individual manner.

Plumbing, Electrical and Heating Apparatus Installation contractors, (if any) are responsible for arranging all necessary inspections of their work with the appropriate inspectors.

NO CERTIFICATE OF OCCUPANCY will be issued for any Building Permit until all required final inspections (Building, Plumbing, Electrical, Heating Apparatus and others) have been completed and the work has been accepted.

BUILDING DEPARTMENT 451-4007

City Code, Section 6-20(d)
Tests. Whenever the same may be necessary or appropriate to assure compliance with the provisions of applicable laws, ordinances or regulations covering building construction, the Building Inspector may require the performance of tests by experienced, professional persons or by accredited and authoritative testing laboratories or service bureaus or agencies with the cost of such tests to be borne by the owner, lessee or their agents.

THE CITY OF POUGHKEEPSIE
NEW YORK
BUILDING DEPARTMENT
62 CIVIC CENTER PLAZA, 2ND FLOOR
POUGHKEEPSIE, NY 12601
Phone: (845) 451-4007 Fax: (845) 451-4006

BUILDING PERMIT

Owner
O'Neill Group-Dutton LLC
241 Hudson St
Hackensack, NJ 07601

Permit # BP-19-1873
Issue Date: 11/05/2019

Location
1 Dutchess Ave
POUGHKEEPSIE, NY 12601-0000

Applicant
O'Neill Group-Dutton LLC
241 Hudson St
Hackensack, NJ 07601

Permit Type: Com. New Construction
Expiration Date:11/05/21

Tax Parcel ID # 6062-59-766443-0000
ID# 228070
Fees: $13691.60

Description of Work:
EXCAVATION AND FOUNDATION, CONSTRUCTION OF NEW BUILDING G
BUILDING G - NEW CONSTRUCTION

Required Inspections

Rough Plumbing Edward Peters
ooting (Rebar)
Foundation (Rebar)
Footing Drain
Foundation Waterproofing
Backfill
Concrete Floor
Preliminary Framing
Sheathing
Ice and Water Shield
Rough Heating
Final Framing
Insulation
Drywall
Electrical (Third-Party)
Final

Please Call Deputy Building Inspector Edward Peters at 845-451-4017 or epeters@cityofpoughkeepsie.com to schedule all required inspections.

Section 6-25 Performance of work under building permit

a. A building permit shall be effective to authorize the commencing of work in accordance with the application, plans and specifications on which it is based for a period of six (6) months after the date of its issuance. In the event that any work authorized under a building permit is not commenced within six (6) months from the date of its issuance, such permit shall expire.

Permit Conditions

1. **If the structure or site IS NOT READY TO BE INSPECTED AT THE AGREED UPON TIME OR THE INSPECTION FAILS, a civil penalty WILL be assessed against the property owner, permit holder or his/her agent or representative in the sum of FIFTY ($50.00) DOLLARS residential and ONE HUNDRED ($100.00) DOLLARS commercial for a re-inspection.**
2. All requests for inspections shall be made two (2) business days prior to all the actual inspection.
3. NO CERTIFICATE OF OCCUPANCY or CERTIFICATE OF COMPLIANCE will be issued for any building permit until all required final inspections have been completed and the work has been accepted.

5. Special inspections will have to be inspected by Thi[illegible] Party inspectors approved by the Building Dept. Soil, Concrete, Steel, Framing, Electrical
6. Building Dept. will meet once a week at the job site to review all inspection records. Copies will be supplied to the Building Inspector at the weekly meeting at the job site.
7. Records will be maintain on site for examination at the request of the Building Inspector.
   Staircase wall that is adjacent to balconies and canopy needs to be a 2 hour rating see type 6 wall.
9. Fire Protection Plans need to be approved and inspections for Fire Protection inspected by the Fire Dept.

Edward Peters, Deputy Building Inspector

Date Issued: 11/05/2019

Property ID# 228070

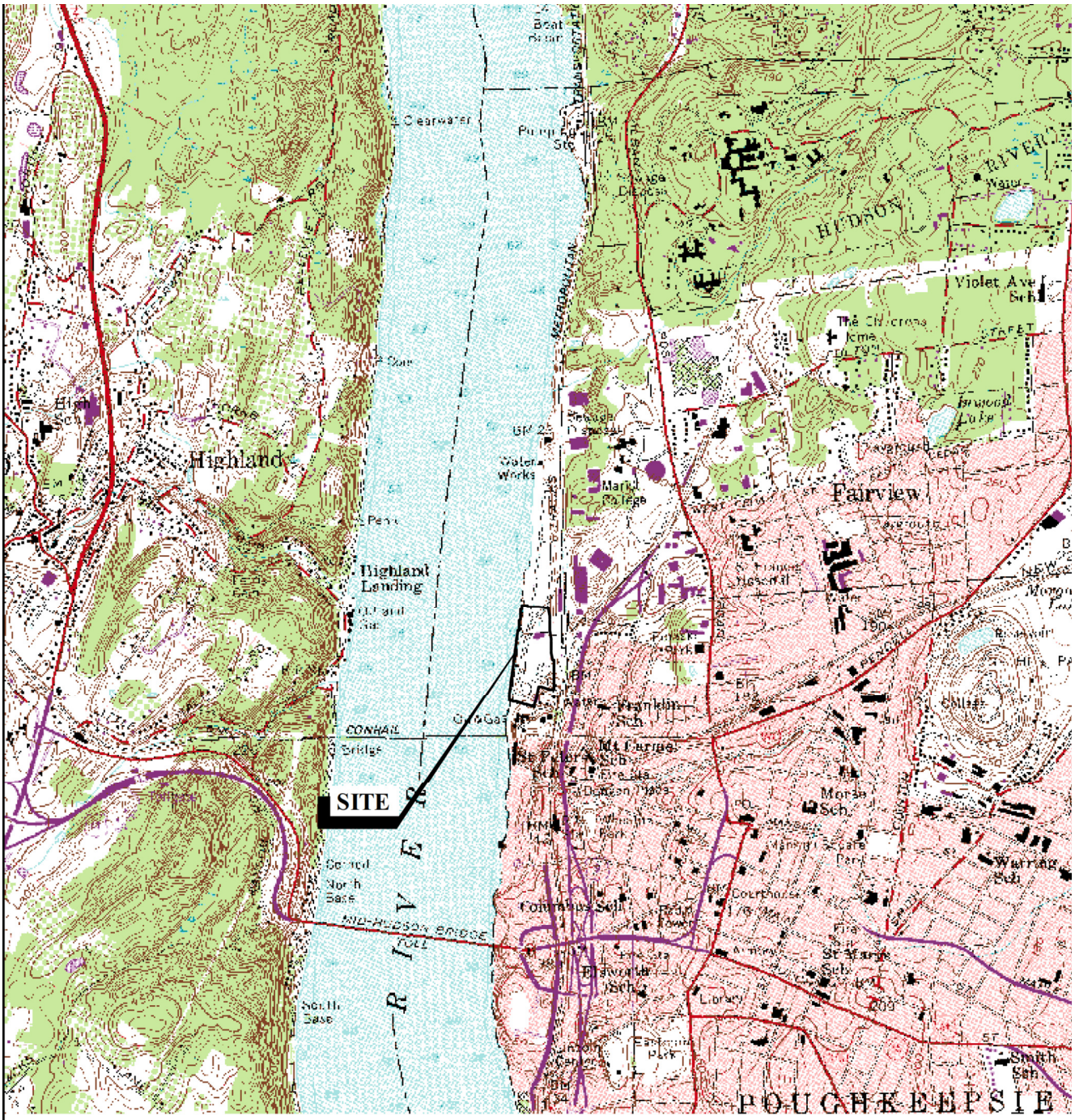
City Of Poughkeepsie

BUILDING PERMIT

Type of Work:
EXCAVATION AND FOUNDATION, CONSTRUCTION OF NEW BUILDING G
BUILDING G - NEW CONSTRUCTION
Location: 1 Dutchess Ave

Permit#: BP-19-1873

APPENDIX D – SITE MANAGEMENT PLAN (SMP) FIGURES



MAP REFERENCE
THIS MAP WAS PREPARED FROM THE FOLLOWING 7.5 MINUTE USGS MAP:
Poughkeepsie, 1957 Photorevised 1982.

FIGURE 1.1

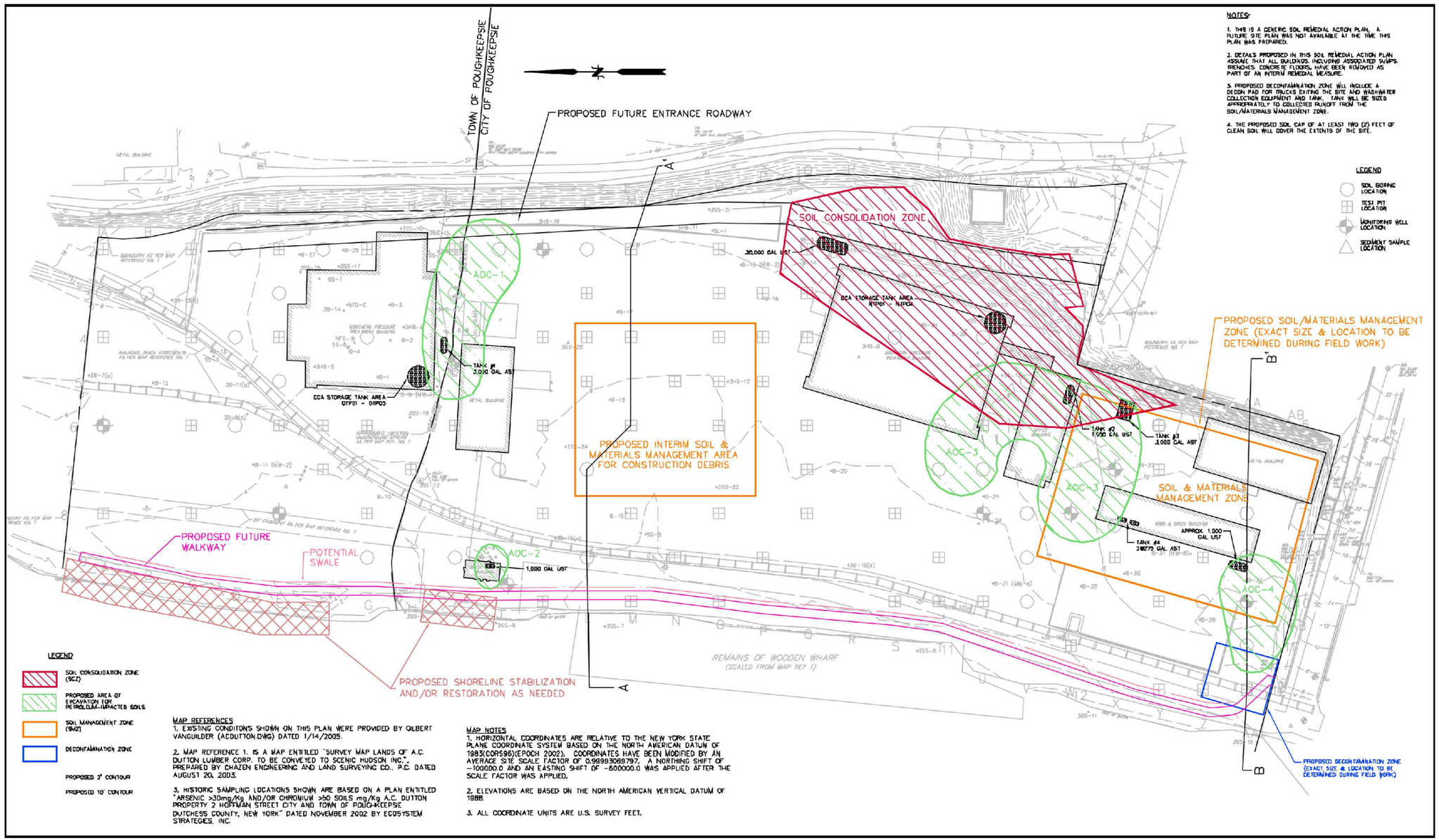
PROPERTY LOCATION MAP
FORMER A.C. DUTTON LUMBER YARD
1 DUTCHESS AVENUE AND 2 HOFFMAN STREET
POUGHKEEPSIE, NEW YORK

SITE PLAN

SESI
CONSULTING ENGINEERS, PC
SOILS / FOUNDATIONS
SITE DESIGN
ENVIRONMENTAL
12A MAPLE AVE. PINE BROOK, N.J. 07058 PH: 973-808-9050

DRAWN BY: YY
CHECKED BY: FD
SCALE: N.T.S.
DATE: 12/17/14
JOB NO.: 8604

N:\ACAD\8604\8604- FIG -1.1 NEW.dwg, 12/17/2014 3:49:54 PM



No.	DATE	DESCRIPTION	BY	PROJ. MANAGER:		
				CHIEF DESIGNER:		
				REVIEWED BY:		DATE
1.						

REVISIONS

SCALE:
HORZ: 1" = 100'
VERT:
DATUM
HORZ:
VERT:
0 50 100
GRAPHIC SCALE

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Disciplines to Deliver
80 WASHINGTON ST SUITE 301 POUGHKEEPSIE, NY 12601 845.452.6801

THE O'NEILL GROUP - DUTTON,LLC
PROPOSED SOIL REMEDIAL ACTION PLAN
FORMER A.C. DUTTON LUMBER FACILITY
2 HOFFMAN STREET
POUGHKEEPSIE NEW YORK

PROJ. No: 20040764.ATN
DATE: SEPTEMBER 2007
FIG. 5

dwg by: LH
chk by: FD
scale: NTS
date: 12/16/14

SESI CONSULTING ENGINEERS, PC
SOILS / FOUNDATIONS
SITE DESIGN
ENVIRONMENTAL
12A MAPLE AVE, PINE BROOK, N.J. 07058 PH: 973-808-9050

project: THE O'NELL GROUP - DUTTON LLC
CITY/TOWN OF POUGHKEEPSIE
DUTCHESS COUNTY, NY

drawing title: SITE GEOLOGICAL SECTIONS

job no: 8604
drawing no:
FIG. 1.2A

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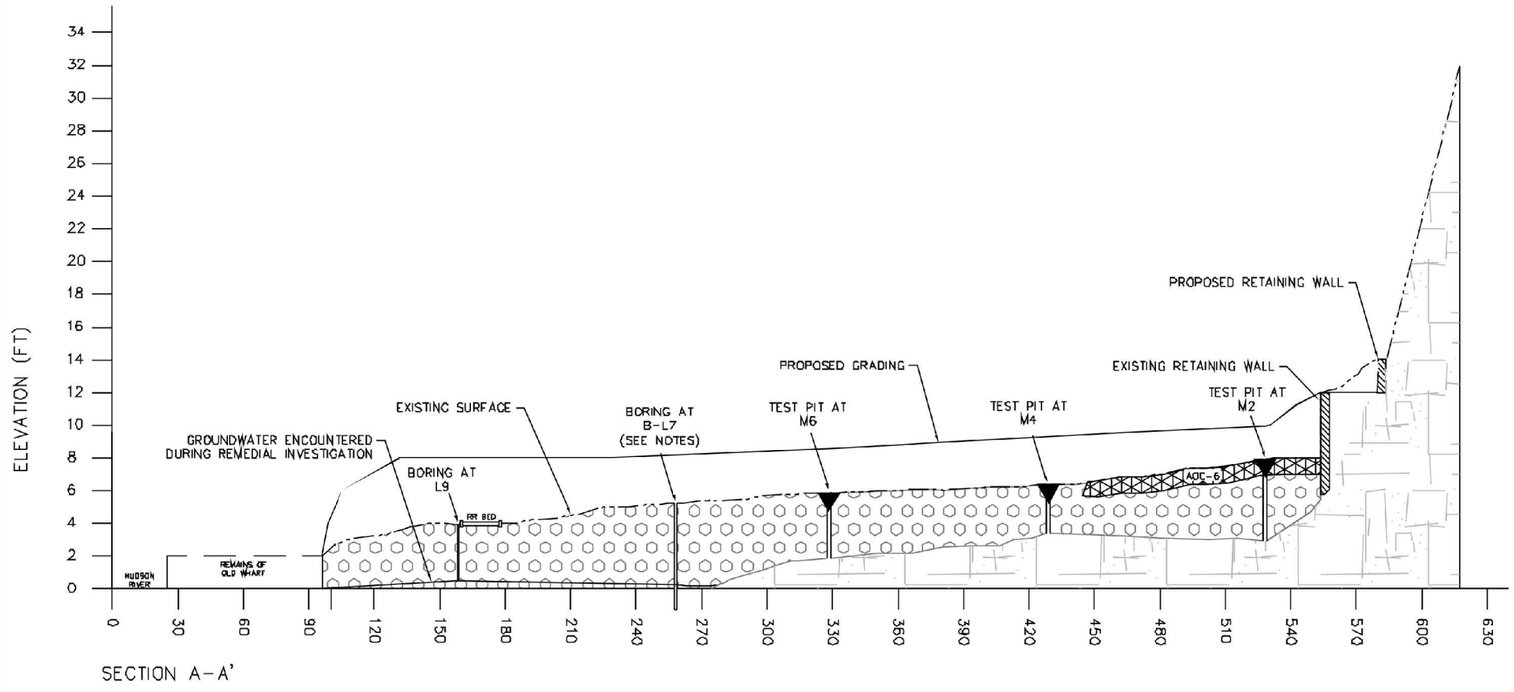
File Path: P:\DVGSP 2004\764\RAW\FIG\8076-M INSTPROP\RAW\FIG\8076-M INSTPROP-RAW.dwg, Layout FIG. 5 SOIL.PAP Thu, Sep 27, 2007 4:11 PM UserSTrotolli
CTB: FASO COLOR STANDARD HALF
LUNX: SOI.PAP
MS VIEW:
LUGS: WORLD



SECTION A-A'

LEGEND

- EXISTING SURFACE
- PROPOSED SURFACE
- APPROXIMATED ENTRANCE ROADWAY AND RAMPS INTO SITE
- ZONE OF METALS CONCENTRATIONS EXCEEDING ACTION LEVELS
- FILL MATERIAL
- BEDROCK

NOTES

1. FILL MATERIAL GENERALLY CONSISTS OF FINE TO MEDIUM SAND, GRAVEL, SOLIDIFIED KILN ASH, CRUSHED BRICK, AND CRUSHED SHALE/BLAST ROCK.

2. SUBSURFACE CONDITIONS ARE ESTIMATED BASED ON TEST PIT AND BORING DATA COLLECTED FROM THE LOCATIONS SHOWN, AS WELL AS LOCATIONS IN THE VICINITY OF THIS CROSS SECTION.

3. BORING B-L9 EXTENDS 1.5 FEET BELOW THE 0 FOOT ELEVATION (RIVER ELEVATION).

4. PROPOSED CONDITIONS (RAMP, ROAD, & RETAINING WALL) ARE APPROXIMATED. NO APPROVED SITE PLAN IS AVAILABLE FROM THE DEVELOPER FOR PLANNING PURPOSES. THIS SOIL RAP WAS DESIGNED IN GENERIC TERMS SO THAT IT MAY BE EASILY ADAPTABLE TO AN APPROVED SITE PLAN IN THE FUTURE.

No.	DATE	DESCRIPTION	BY
		REVISIONS	

PROJ. MANAGER:
CHIEF DESIGNER:
REVIEWED BY: DATE

TO MY KNOWLEDGE AND BELIEF, THESE MAPS ARE SUBSTANTIALLY CORRECT AS NOTED HEREON.

LAWRENCE R. GEISSLER, JR. 12327 LICENSE No.

SCALE:
HORZ: NTS
VERT:
DATUM
HORZ:
VERT:
0 NTS
GRAPHIC SCALE

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FUSS & O'NEILL
Disciplines to Deliver
80 WASHINGTON ST SUITE 301 POUGHKEEPSIE, NY 12601 845.452.6801

THE O'NEILL GROUP - DUTTON, LLC
CROSS SECTION A-A'
FORMER A.C. DUTTON LUMBER FACILITY
2 HOFFMAN STREET
POUGHKEEPSIE NEW YORK

PROJ. No. 20040764A2N
DATE: SEPTEMBER 2007

FIG. 9A

dwg by: LH
chk by: FD
scale: NTS
date: 12/16/14

SESI CONSULTING ENGINEERS, PC
SOILS / FOUNDATIONS
SITE DESIGN
ENVIRONMENTAL
12A MAPLE AVE. PINE BROOK, N.J. 07058 PH: 973-808-9050

project: THE O'NELL GROUP - DUTTON LLC
CITY/TOWN OF POUGHKEEPSIE
DUTCHESS COUNTY, NY

drawing title: SITE GEOLOGICAL SECTIONS

job no: 8604
drawing no:

FIG. 1.2B

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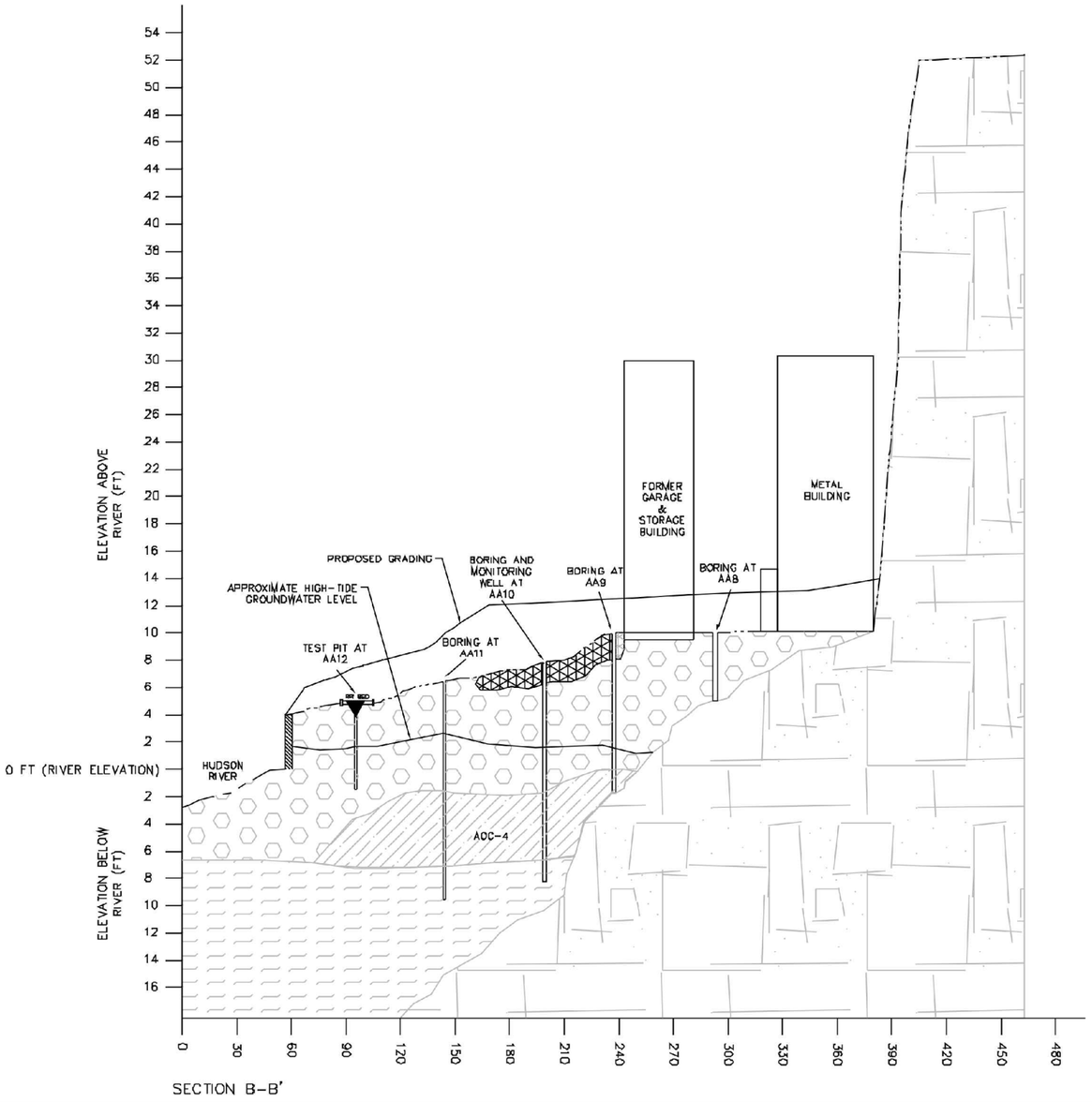
File Path: F:\DWG\P2004\07\64A\WP\G607SA\INSTPIC\25NAP.dwg, Layout:SECTION AA', Thu, Sep 27, 2007 - 4:16 PM, User:GGoshi
CTB: FAD STANDARD.MAP
LUM-N SECTION.MAP
MS VIEW
UCS: WORLD



SECTION B–B'

LEGEND

- EXISTING SURFACE
- PROPOSED SURFACE
- APPROXIMATE PETROLEUM-IMPACTED AREA OF CONCERN
- ZONE OF METALS CONCENTRATIONS EXCEEDING ACTION LEVELS
- FILL MATERIAL
- NATIVE MATERIAL
- BEDROCK

NOTES

1. FILL MATERIAL GENERALLY CONSISTS OF FINE TO MEDIUM SAND, GRAVEL, SOLIDIFIED KILN ASH, CRUSHED BRICK, AND CRUSHED SHALE/BLAST ROCK.
2. NATIVE MATERIAL GENERALLY CONSISTS OF TIGHTLY PACKED LIGHT BROWN FINE SAND AND SILT.
3. SUBSURFACE CONDITIONS ARE ESTIMATED BASED ON TEST PIT AND BORING DATA.

No.	DATE	DESCRIPTION	BY
		REVISIONS	

PROJ. MANAGER:
CHIEF DESIGNER:
REVIEWED BY: DATE

TO MY KNOWLEDGE AND BELIEF, THESE MAPS ARE SUBSTANTIALLY CORRECT AS NOTED HEREON.

LAWRENCE R. GEISSLER, JR. 12327 LICENSE No.

SCALE:
HORZ: NTS
VERT:
DATUM
HORZ:
VERT:
0 NTS
GRAPHIC SCALE

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THE O'NEILL GROUP - DUTTON, LLC
CROSS SECTION B-B'
SOIL REMEDIAL ACTION PLAN
2 HOFFMAN STREET
POUGHKEEPSIE NEW YORK

PROJ. No.: 20040764.A2N
DATE: SEPTEMBER 2007

FIG. 9B

dwg by: LH
chk by: FD
scale: NTS
date: 12/16/14

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project: THE O'NELL GROUP - DUTTON LLC
CITY/TOWN OF POUGHKEEPSIE
DUTCHESS COUNTY, NY

drawing title: SITE GEOLOGICAL SECTIONS

job no: 8604
drawing no:

FIG. 1.2C

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File Path: P:\DWGP 2004\764\RA\NP\GB764A1NST\P002RA.NP dwg, Layout SECTION B-B' Thu, Sep 27, 2007 - 4:17 PM User:Gbattl
USGS WORLD | MS VIEW: | LMAN_SECTION B-B' | CTB - FAO STANDARD A1.ctb

NORTH WATER STREET (DIT.)

MUNICIPAL BOUNDARY

PR-MW1

PR-MW2

PR-MW3

PR-MW4

HUDSON RIVER

HUDSON RIVER

TIE-LINE

METRO NORTH RAILROAD

KITTREDGE PLACE

HOFFMAN ST. (DIT.)

HOFFMAN STREET (UNIMPROVED)

RUTGERS AVENUE (DIT.)

NORTH WATER

TOWN OF POUGHKEEPSIE

CITY OF POUGHKEEPSIE

CONC. RAMP

CONC. PAD

CONC. FOUNDATION

GAS MARKER

WOOD BLDG.

BIT. & CONC.

EMERGENCY ACCESS (GRASS-CRETE SURFACE)

SHORELINE ARMORING AS REQUIRED

SEWER MANHOLE

STMH

SMH

HYD

GV

W.V.

DRAINAGE EASEMENT (SEE NOTE 5)

N.Y.S. PROPERTY LINE PERMANENT EASEMENT (SEE SPECIAL NOTE 4)

N02°09'16"E 51.10'

N06°54'44"E 51.04'

N02°09'16"E 6.70'

LEGEND

PR-MW1 — APPROX. LOCATION & NO. OF POST REMEDIATION MONITORING WELL

GROUNDWATER FLOW

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REFERENCE:
1. SITE INFORMATION ARE TAKEN FROM "CONCEPT PLAN FOR THE O'NELL GROUP" PREPARED BY MASER CONSULTING P.A. DATED3/20/13.

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checked by: FD
scale: N.T.S.
date: 9/15/14

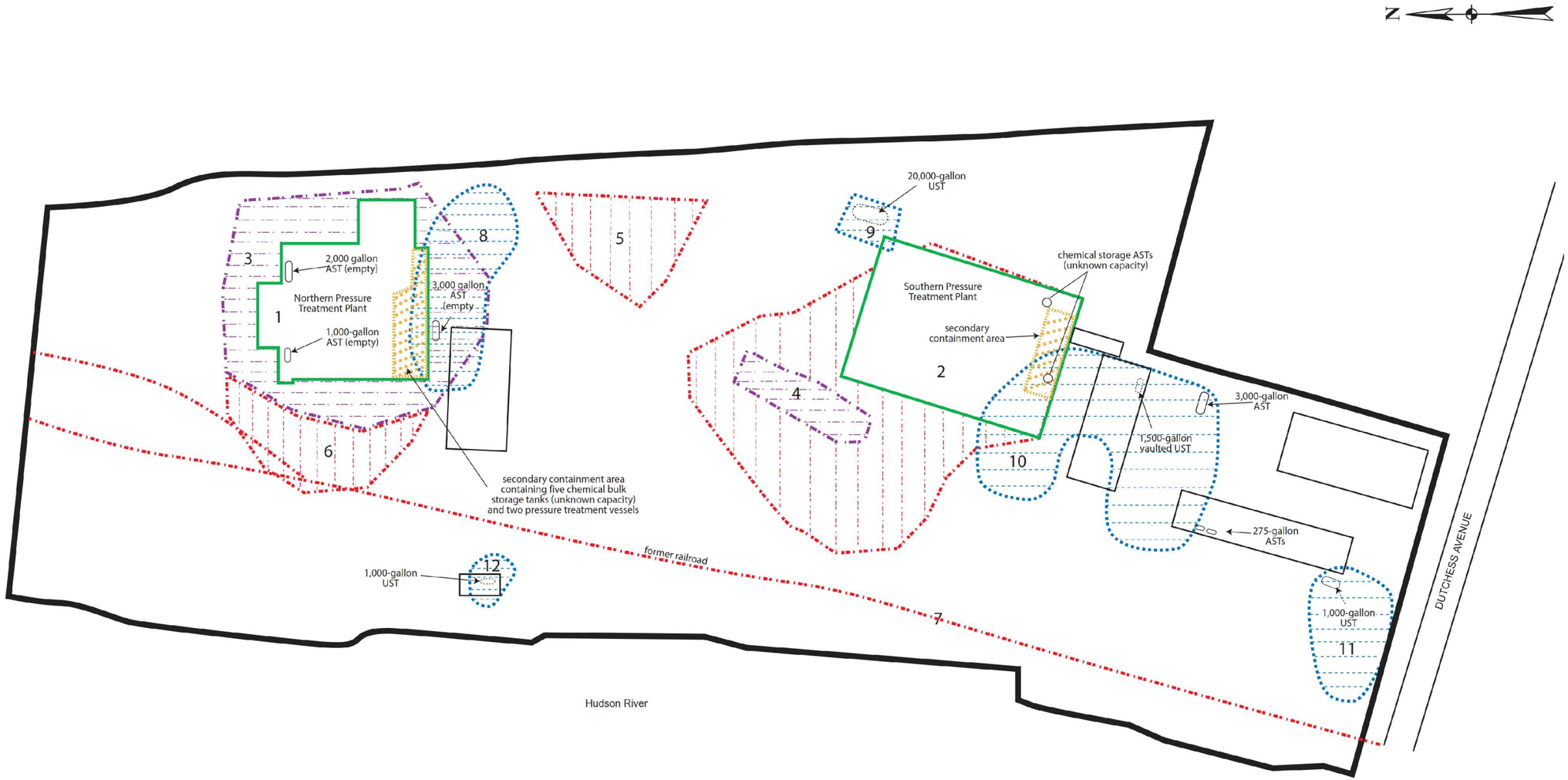
FUAD DAHAN, P.E.
PROFESSIONAL ENGINEER
N.Y. LIC. NO. 090531

project: THE O'NELL GROUP - DUTTON LLC
CITY/TOWN OF POUGHKEEPSIE
DUTCHESS COUNTY, NY

drawing title: GROUNDWATER FLOW (2014 DATA)

job no. 8604
drawing no. FIG 1.3
of

N:\ACAD\8604\8604 FIG 1.3 GW FLOW.dwg, 12/16/2014 8:51:00 AM



Notes:

Map based on Fuss and O'Neill proposed "Remedial Action Map" (July 2006)

Legend:

- property outline
- pressure treatment plant buildings
- existing buildings
- area of petroleum impacts
- area of arsenic contamination above 32 mg/Kg (0-1')
- area of arsenic contamination above 32 mg/Kg (0-3')

1 = area #

Figure 2 - Proposed Remediation Map - Excavation/Treatment (Partial Source Removal/Treatment - Arsenic Remediated to SBL of 32 mg/kg)

Former A.C. Dutton Facility
1 Dutchess Avenue and 2 Hoffman Street
Poughkeepsie, New York

ESI File: OP08022.41

September 2008 | Appendix B

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drawing title: 2008 INVESTIGATION RESULTS

job no: 8604
drawing no:

FIG. 1.4

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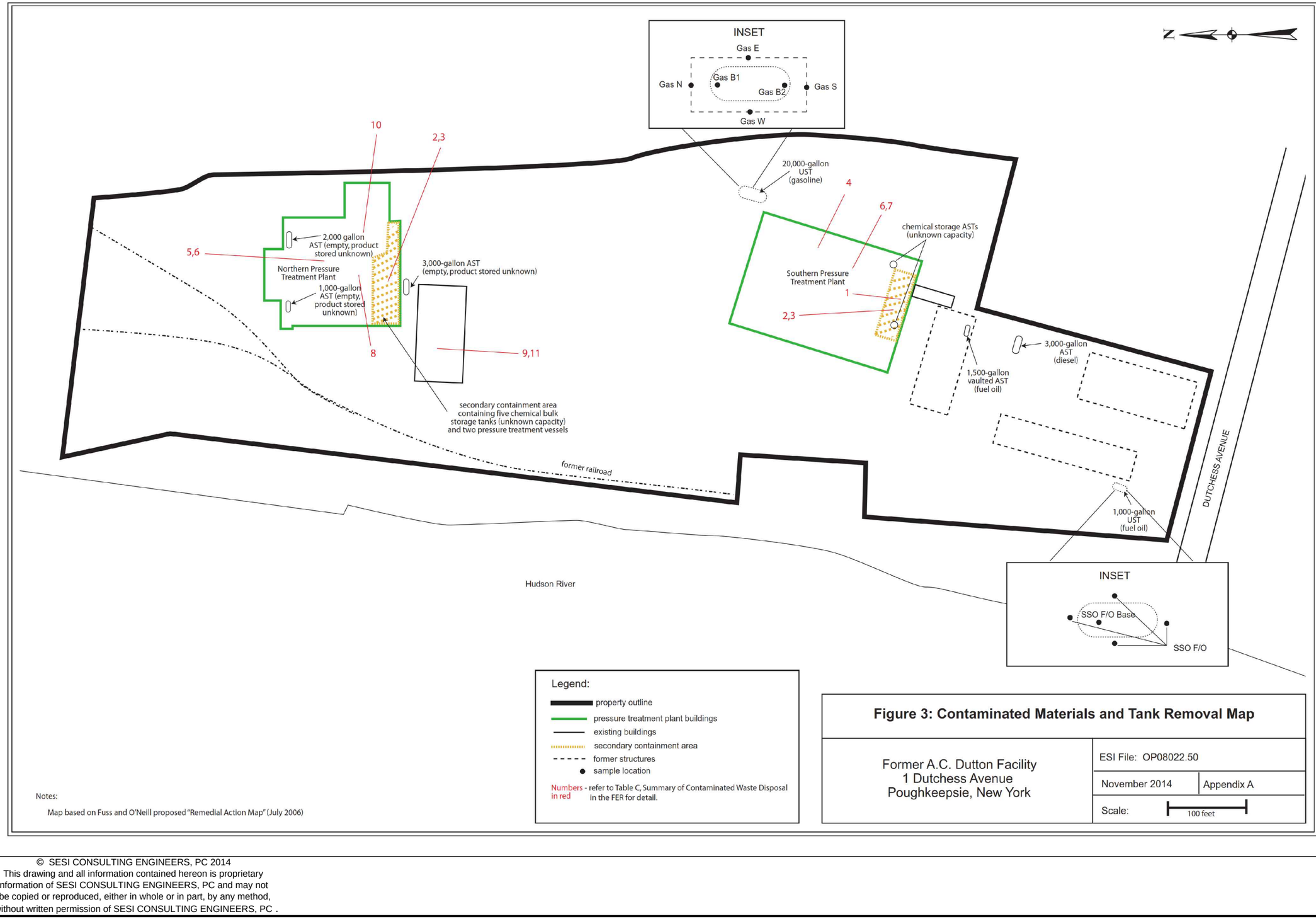

Figure 3: Contaminated Materials and Tank Removal Map

Former A.C. Dutton Facility
1 Dutchess Avenue
Poughkeepsie, New York

ESI File: OP08022.50

November 2014 | Appendix A

Scale: 100 feet

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drawing title: UST LOCATIONS

job no: 8604
drawing no:

FIG. 1.5

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Area of sub-asphalt floor comprised of soil and/or aggregate

Areas of concrete slab encountered subsequent to removal of asphalt floor

Areas of concrete flloor visible at surface prior to removal of asphalt floor

concrete proposed to remain

Contrete vault (possible truck scale/UST)

Excavation to 5'below underside of former floor level

Excavation to 3'below underside of former floor level

Excavation to 2'below underside of former floor level

Excavation to 1'below underside of former floor level

All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

Figure 7 - Excavation Depths at NTP as of 11/13/2012
Northern Treatment Plant
former A.C. Dutton Property
1 Dutchess Avenue
Poughkeepsie, New York

Legend:
- building outline
- floor drain
- sample location red = arsenic - blue = chromium (all results in mg/kg)
- concrete core sample and subslab soil sample location (10/25/12)

ESI File: OP08022.50
October 2014
Scale: 20'
Appendix A

FIG. 1.6

job no: 8604
drawing no:

project: THE O'NELL GROUP - DUTTON LLC
CITY/TOWN OF POUGHKEEPSIE
DUTCHESS COUNTY, NY

drawing title: EXCAVATION LOCATIONS & DEPTHS

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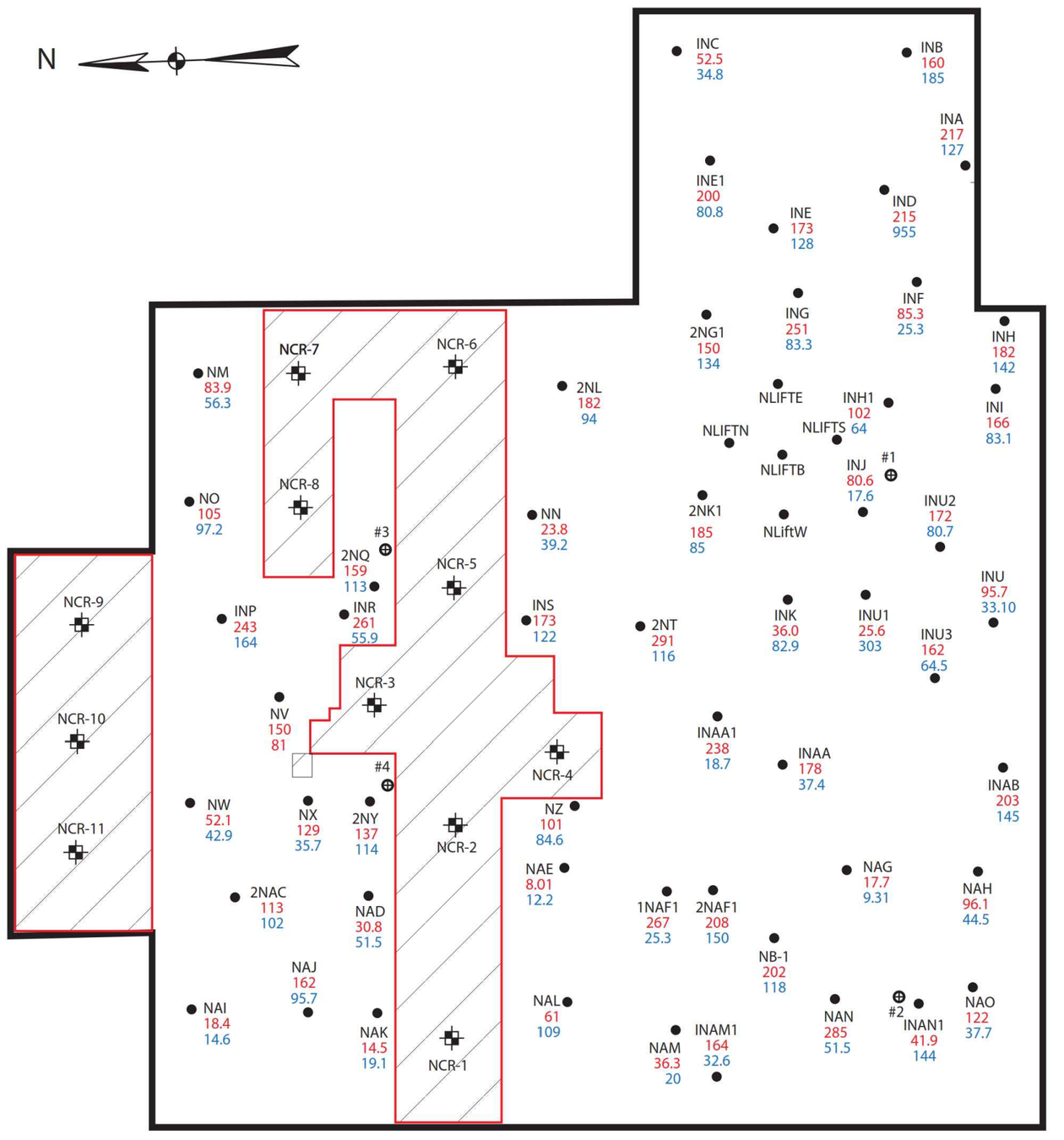

All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

Figure 4: Northern Pressure Treatment Plant Remediation Endpoint Sampling Map

Former A.C. Dutton Property
1 Dutchess Avenue
Poughkeepsie, New York

Legend:
- building outline
- floor drain
- sample location red = arsenic - blue = chromium (all results in mg/kg)
- concrete core sample and subslab soil sample location (10/25/12)

ESI File: OP08022.50
October 2014
Scale: 20'
Appendix A

FIG. 1.7A

job no:
drawing no: 8604

project: THE O'NELL GROUP - DUTTON LLC
CITY/TOWN OF POUGHKEEPSIE
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drawing title: POST EXCAVATION SAMPLES & RESULTS

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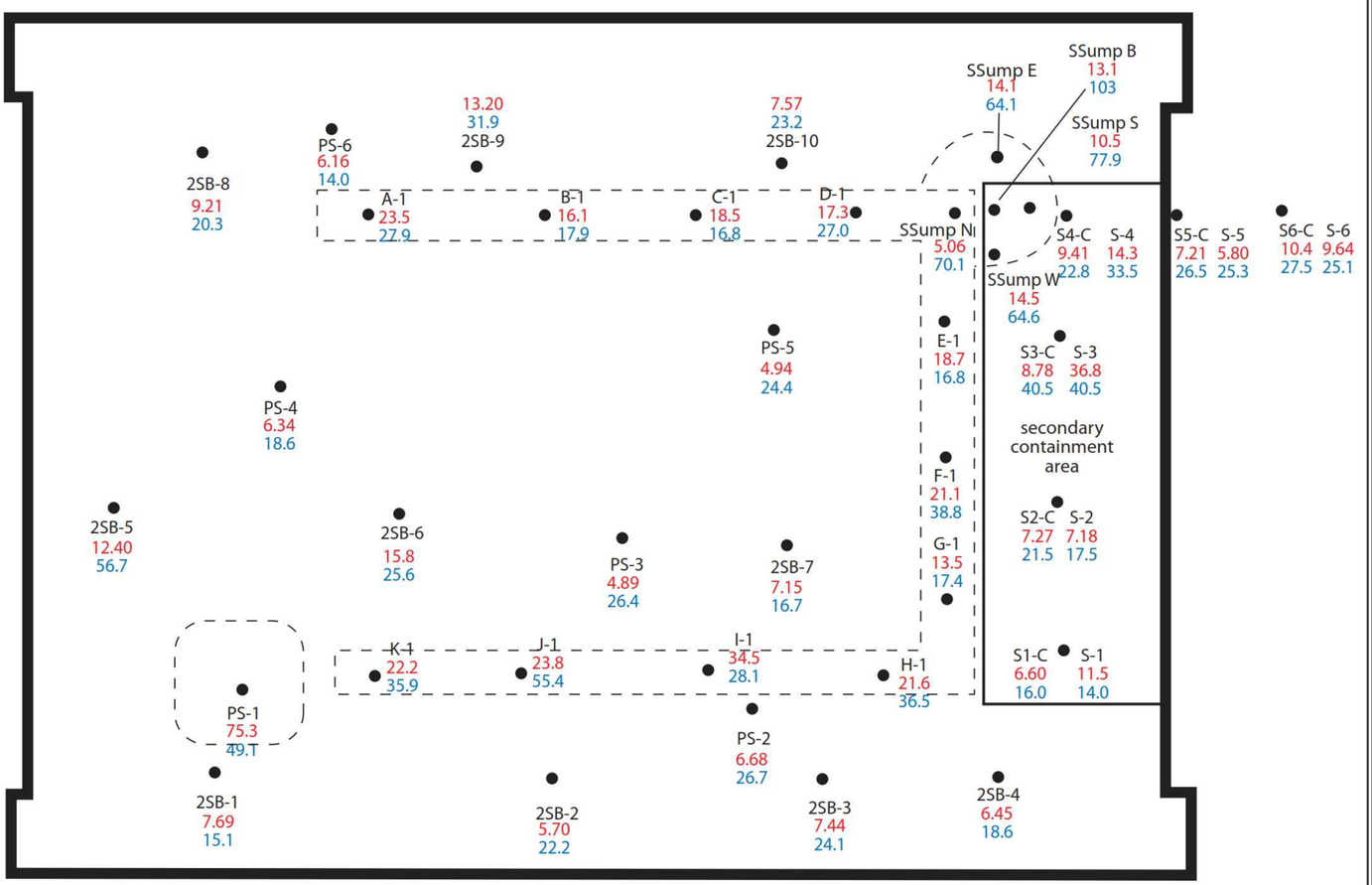
PHILIP A. BELL
LICENSED PROFESSIONAL ENGINEER
081943



2SB = subslab soil sample 9/24/2012
PS = post scarification concrete sample 9/04/2012
B and B-# = post excavation end point soil sample 10/11/2012 and 10/17/2012
S#-C = secondary containment concrete sample 11/19/2012
S-# secondary containment subconcrete soil sample 11/19/2012
SSump# = sump endpoint sample 11/19/2012

40 feet

All feature locations are approximate. This map is intended as a schematic to be used in conjunction with the associated report, and it should not be relied upon as a survey for planning or other activities.

Figure 5: Southern Treatment Plant Post Remediation End Point Sampling Map

Former A.C. Dutton Property
1 Dutchess Avenue and 2 Hoffman Street
Poughkeepsie, New York

Legend:
- building outline
- excavation area
- sample location red = arsenic - blue = chromium (all results in mg/kg)

ESI File: OP08022.50
October 2014
Scale: 1" = 40'
Appendix A

FIG. 1.7B

job no:
drawing no: 8604

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drawing title: POST EXCAVATION SAMPLES & RESULTS

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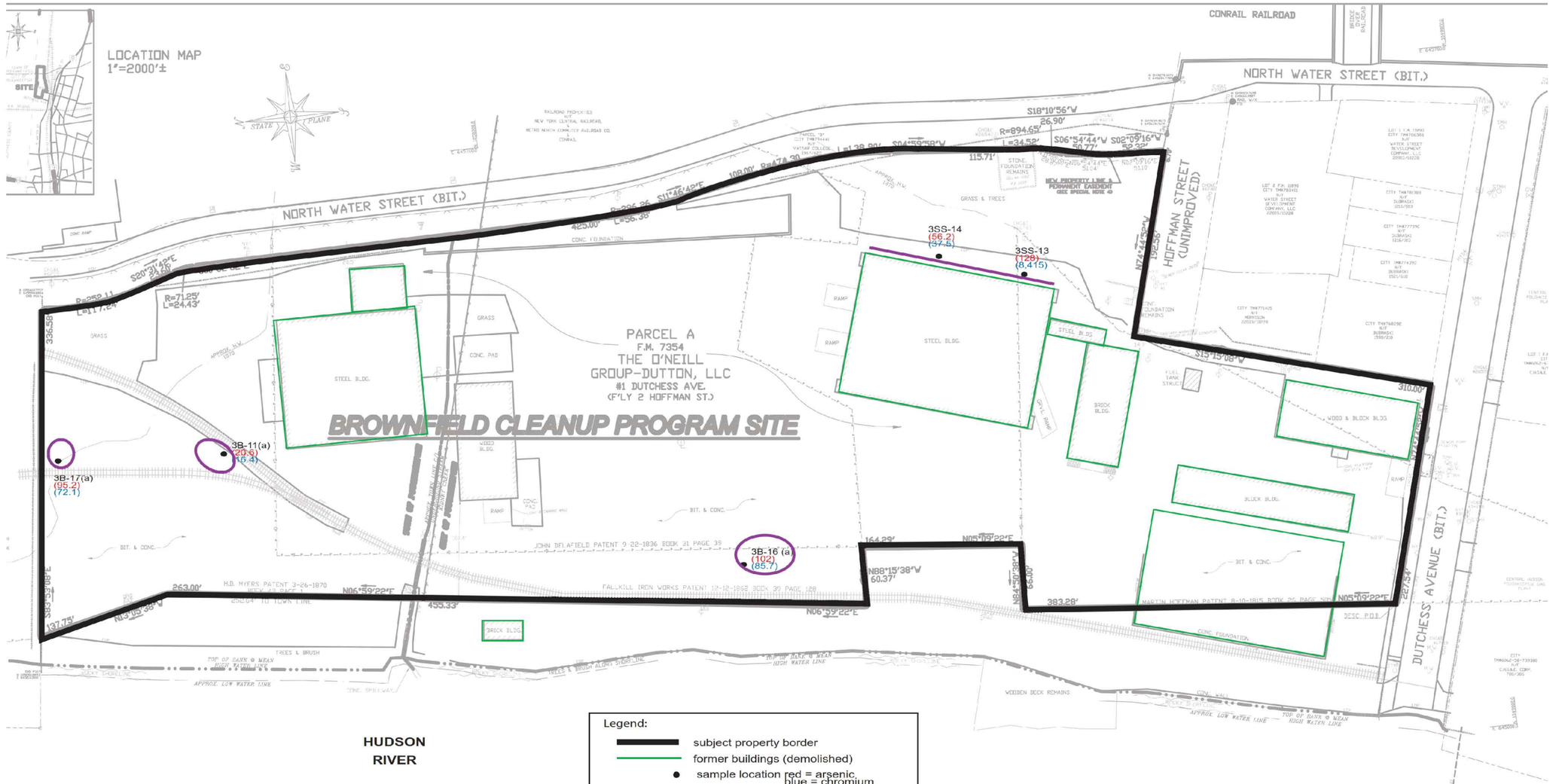

STEM NOTES:
: NEW YORK EAST, NAD 83 ZONE 3001
THIS PROJECT. BEARINGS WERE
RID NORTH.

" PARCEL WAS SURVEYED USING SURVEY
IPMENT. NYS COR STATION #039
'S USED AS A BASE. THE DATA FOR
IS:
N SCALE FACTOR = 0.999919330561
I FACTOR = 0.999999623235
ARA'TION = -1033.9863

STATE OF NEW YORK
PHILIP A. BELL
081943
LICENSED PROFESSIONAL ENGINEER

Figure 6: Exterior Areas - Post Remediation Endpoint Sample Map

Former A.C. Dutton Property 1 Dutchess Avenue Poughkeepsie, New York	ESI File: OP08022.50	
	October 2014	Appendix A

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drawing title: POST EXCAVATION SAMPLES & RESULTS

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drawing no:

FIG. 1.7C

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