ALS Environmental
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July 26, 2017

Analytical Report for Service Request No: K1705945

Robert Johnston
Marine Environmental Support Office - NW Space and Naval Warfare Systems Center 71760
4228 Fir Drive
Bremerton, WA 98310

RE: Mooring G - Kitsap Bremerton / CV62

Dear Robert,

Enclosed are the results of the sample(s) submitted to our laboratory June 28, 2017
For your reference, these analyses have been assigned our service request number **K1705945.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3275. You may also contact me via email at Chris.Leaf@ALSGlobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Chris Leaf
Project Manager

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Table of Contents

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- E The result is an estimate amount because the value exceeded the instrument calibration range.
- J The result is an estimated value.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
  DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.
- H The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

- # The control limit criteria is not applicable. See case narrative.
- J The result is an estimated value.
- E The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
- M The duplicate injection precision was not met.
- N The Matrix Spike sample recovery is not within control limits. See case narrative.
- S The reported value was determined by the Method of Standard Additions (MSA).
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
  DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- W The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
- i The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
- X See case narrative.
- + The correlation coefficient for the MSA is less than 0.995.
- Q See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

- * The result is an outlier. See case narrative.
- # The control limit criteria is not applicable. See case narrative.
- A A tentatively identified compound, a suspected aldol-condensation product.
- B The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
- C The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
- D The reported result is from a dilution.
- E The result is an estimated value.
- J The result is an estimated value.
- N The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
- P The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
- U The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL.
  DOD-QSM 4.2 definition : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
- i The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
- X See case narrative.
- Q See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

- F The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
- L The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
- H The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
- O The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
- Y The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
- Z The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L14-51
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

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ALS ENVIRONMENTAL

Client:	SPAWAR Systems Center San Diego	**Service Request No.:**	K1705945
Project:	Mooring G-Kitsap Bremerton/CV62	**Date Received:**	06/09/17
Sample Matrix:	Tissue		

Case Narrative

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier IV validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Five tissue samples were received for analysis at ALS Environmental on 06/09/17. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored frozen at –20ºC upon receipt at the laboratory.

Total Metals

No anomalies associated with the analysis of these samples were observed.

Approved by

Chain of Custody

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SAMPLE CHAIN OF CUSTODY FORM

Date: 8 June 2017

Page: 1 of 1

COC Number: COC_CV62Mussels

Box 2 of 2 in shipment

K1705945

Project No.: CV62
Project Name: Mooring G NBK Bremerton
Project Manager: Dr. Bob Johnston (johnston@spawar.navy.mil)
Phone: 360-961-9072

EVENT:
Whole mussel tissue

Testing Parameters (as per SOW)

Shuck and composite specimens by sample
Homogenize

Observations, Instructions

Lab. Use only: Lab ID	Sample ID	Sample Label	Collection Date/Time	Matrix	Total solid content	Total lipid content	Copper (ICP-MS)	Zinc (ICP-MS)							StationID	Comments
	CV62MUS-01	Belt1	12/10/2016 12:00	Mus	1	1	1	1							Transect 1	11 specimens
	CV62MUS-02	Belt2	12/11/2016 12:00	Mus	1	1	1	1							Transect 2	12 specimens
	CV62MUS-03	Belt3A	12/11/2016 12:00	Mus	1	1	1	1							Transect 3	7 specimens
	CV62MUS-04	Belt3B	12/11/2016 12:00	Mus	1	1	1	1							Transect 3	7 specimens Field Dup
	CV62MUS-05	Belt4-5	12/12/2016 12:00	Mus	1	1	1	1							Transects 4 and 5	13 specimens

Relinquished by: Leslie A Bolick 6/8/17 3:20pm
Signature Date Time
Leslie A Bolick SSC Pacific
Printed Name Company

Received by: [signature] 6/9/17
Signature
Sunf 0940
Printed Name

Total # of Containers
Shipment Method:
Shipment Method:

Sample Disposition:

Relinquished by:
Signature Date Time
Printed Name Company

Received by:
Signature
Printed Name

Distribution:
1) 2 copies to the Laboratory
2) 1 copy to project manager
3) Return completed original to
Battelle Marine Sciences Laboratory

ALS

PC CV

Cooler Receipt and Preservation Form

lient Spawar Service Request K17 05945

eceived: 6/9/17 Opened: 6/9/17 By: [signature] Unloaded: 6/9/17 By: [signature]

. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*

. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* ______ *NA*

. Were custody seals on coolers? NA Y N If yes, how many and where? ______

If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Raw Cooler Temp	Corrected. Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
-1.1	-1.1	—	—	0	328		7868 1084 1867	
4.9	4.6	—	—	-0.3	380		" 1070 6005	

4. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* ______
5. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA Y N
   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
11. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
12. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: ______

7/25/16 ***Page*** ____ ***of*** ____

Total Solids

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Analytical Report

Client:	SPAWAR Systems Center San Diego	**Service Request:**	K1705945
Project:	Mooring G - Kitsap Bremerton/CV62	**Date Collected:**	12/10/16 - 12/12/16
Sample Matrix:	Tissue	**Date Received:**	06/9/17
Analysis Method:	Freeze Dry	**Units:**	Percent
Prep Method:	None	**Basis:**	Wet

Total Solids

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
CV62MUS-01	K1705945-001	**17.0**	-	-	1	06/30/17 13:10	
CV62MUS-02	K1705945-002	**20.4**	-	-	1	06/30/17 13:10	
CV62MUS-03	K1705945-003	**18.6**	-	-	1	06/30/17 13:10	
CV62MUS-04	K1705945-004	**17.6**	-	-	1	06/30/17 13:10	
CV62MUS-05	K1705945-005	**17.3**	-	-	1	06/30/17 13:10	

QA/QC Report

Client:	SPAWAR Systems Center San Diego	**Service Request:**	K1705945
Project	Mooring G - Kitsap Bremerton/CV62	**Date Collected:**	12/12/16
Sample Matrix:	Tissue	**Date Received:**	06/09/17
		Date Analyzed:	06/30/17

Replicate Sample Summary
Inorganic Parameters

Sample Name:	CV62MUS-05	**Units:**	Percent
Lab Code:	K1705945-005	**Basis:**	Wet

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1705945-005DUP Result	Average	RPD	RPD Limit
Total Solids	Freeze Dry	-	17.3	17.4	17.4	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Metals

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Client:	SPAWAR Systems Center San Diego		**Service Request:**	K1705945
Project:	Mooring G - Kitsap Bremerton/CV62		**Date Collected:**	12/10/16 12:00
Sample Matrix:	Tissue		**Date Received:**	06/09/17 09:40
Sample Name:	CV62MUS-01		**Basis:**	Wet
Lab Code:	K1705945-001			

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Copper	6010C	**3.27**	mg/Kg	0.068	0.034	1	07/10/17 11:38	07/03/17	
Zinc	6010C	**24.8**	mg/Kg	0.068	0.034	1	07/10/17 11:38	07/03/17	

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Analytical Report

Client:	SPAWAR Systems Center San Diego	**Service Request:**	K1705945
Project:	Mooring G - Kitsap Bremerton/CV62	**Date Collected:**	12/11/16 12:00
Sample Matrix:	Tissue	**Date Received:**	06/09/17 09:40
Sample Name:	CV62MUS-02	**Basis:**	Wet
Lab Code:	K1705945-002		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Copper	6010C	**3.16**	mg/Kg	0.082	0.041	1	07/10/17 11:41	07/03/17	
Zinc	6010C	**26.3**	mg/Kg	0.082	0.041	1	07/10/17 11:41	07/03/17	

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Superset Reference:

ALS Group USA, Corp.
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Analytical Report

Client:	SPAWAR Systems Center San Diego	**Service Request:**	K1705945
Project:	Mooring G - Kitsap Bremerton/CV62	**Date Collected:**	12/11/16 12:00
Sample Matrix:	Tissue	**Date Received:**	06/09/17 09:40
Sample Name:	CV62MUS-03	**Basis:**	Wet
Lab Code:	K1705945-003		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Copper	6010C	**5.63**	mg/Kg	0.074	0.037	1	07/10/17 11:51	07/03/17	
Zinc	6010C	**33.8**	mg/Kg	0.074	0.037	1	07/10/17 11:51	07/03/17	

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Superset Reference:

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Analytical Report

Client:	SPAWAR Systems Center San Diego	**Service Request:**	K1705945
Project:	Mooring G - Kitsap Bremerton/CV62	**Date Collected:**	12/11/16 12:00
Sample Matrix:	Tissue	**Date Received:**	06/09/17 09:40
Sample Name:	CV62MUS-04	**Basis:**	Wet
Lab Code:	K1705945-004		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Copper	6010C	**4.87**	mg/Kg	0.070	0.035	1	07/10/17 11:53	07/03/17	
Zinc	6010C	**34.3**	mg/Kg	0.070	0.035	1	07/10/17 11:53	07/03/17	

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Analytical Report

Client:	SPAWAR Systems Center San Diego	**Service Request:**	K1705945
Project:	Mooring G - Kitsap Bremerton/CV62	**Date Collected:**	12/12/16 12:00
Sample Matrix:	Tissue	**Date Received:**	06/09/17 09:40
Sample Name:	CV62MUS-05	**Basis:**	Wet
Lab Code:	K1705945-005		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Copper	6010C	**2.59**	mg/Kg	0.069	0.035	1	07/10/17 11:28	07/03/17	
Zinc	6010C	**23.8**	mg/Kg	0.069	0.035	1	07/10/17 11:28	07/03/17	

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Analytical Report

Client:	SPAWAR Systems Center San Diego	**Service Request:**	K1705945
Project:	Mooring G - Kitsap Bremerton/CV62	**Date Collected:**	NA
Sample Matrix:	Tissue	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	Wet
Lab Code:	KQ1708952-02		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Copper	6010C	ND U	mg/Kg	0.07	0.035	1	07/10/17 11:18	07/03/17	
Zinc	6010C	ND U	mg/Kg	0.07	0.035	1	07/10/17 11:18	07/03/17	

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Superset Reference:

QA/QC Report

Client:	SPAWAR Systems Center San Diego	**Service Request:**	K1705945
Project	Mooring G - Kitsap Bremerton/CV62	**Date Collected:**	12/12/16
Sample Matrix:	Tissue	**Date Received:**	06/09/17
		Date Analyzed:	07/10/17

Replicate Sample Summary
Total Metals

Sample Name:	CV62MUS-05	**Units:**	mg/Kg
Lab Code:	K1705945-005	**Basis:**	Wet

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ1708952-05 Result	Average	RPD	RPD Limit
Copper	6010C	0.069	0.035	2.59	2.52	2.56	3	20
Zinc	6010C	0.069	0.035	23.8	23.6	23.7	1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Client:	SPAWAR Systems Center San Diego	**Service Request:**	K1705945
Project:	Mooring G - Kitsap Bremerton/CV62	**Date Collected:**	12/12/16
Sample Matrix:	Tissue	**Date Received:**	06/09/17
		Date Analyzed:	07/10/17
		Date Extracted:	07/3/17

Matrix Spike Summary
Total Metals

Sample Name:	CV62MUS-05	**Units:**	mg/Kg
Lab Code:	K1705945-005	**Basis:**	Wet
Analysis Method:	6010C		
Prep Method:	PSEP Metals		

Matrix Spike
KQ1708952-06

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Copper	2.59	6.40	4.33	88	75-125
Zinc	23.8	30.8	8.65	81	75-125

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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Client:	SPAWAR Systems Center San Diego	**Service Request:**	K1705945
Project:	Mooring G - Kitsap Bremerton/CV62	**Date Analyzed:**	07/10/17
Sample Matrix:	Tissue		

Lab Control Sample Summary
Total Metals

Units: mg/Kg
Basis: Wet

Lab Control Sample
KQ1708952-01

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Copper	6010C	25.1	25.0	100	80-120
Zinc	6010C	48.7	50.0	97	80-120

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QA/QC Report

Client:	SPAWAR Systems Center San Diego	**Service Request:**	K1705945
Project:	Mooring G - Kitsap Bremerton/CV62	**Date Collected:**	NA
LCS Matrix:	Tissue	**Date Received:**	NA
		Date Extracted:	07/03/17
		Date Analyzed:	07/10/17

Standard Reference Material Summary
Total Metals

Sample Name:	Standard Reference Material	Units:	mg/Kg (ppm)
Lab Code:	K1705945-SRM1	Basis:	Dry
Test Notes:	Dorm-4 Solids = 94.5%		

Source: N.R.C.C. Dorm-4

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	Control Limits	Result Notes
Copper	PSEP Tissue	6010C	15.9	14.7	92	12.0 - 20.2	
Zinc	PSEP Tissue	6010C	52.20	51.7	99	39.2 - 66.5	

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QA/QC Report

Client:	SPAWAR Systems Center San Diego	**Service Request:**	K1705945
Project:	Mooring G - Kitsap Bremerton/CV62	**Date Collected:**	NA
LCS Matrix:	Tissue	**Date Received:**	NA
		Date Extracted:	07/03/17
		Date Analyzed:	07/10/17

Standard Reference Material Summary
Total Metals

Sample Name:	Standard Reference Material	Units:	mg/Kg (ppm)
Lab Code:	K1705945-SRM2	Basis:	Dry
Test Notes:	Tort-3 Solids = 99.1%		

Source: N.R.C.C. Tort-3

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	Control Limits	Result Notes
Copper	PSEP Tissue	6010C	497	420	85	380-623	
Zinc	PSEP Tissue	6010C	136	131	96	104-170	

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dba ALS Environmental

Prep Summary Report

Client: SPAWAR Systems Center San Diego
Service Request: K1705945
Project: Mooring G - Kitsap Bremerton/CV62
Sample Matrix: Tissue

Metals

Prep Method: PSEP Metals
Extraction Lot: 292060
Analytical Method: 6010C

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
CV62MUS-01	K1705945-001	12/10/16	6/9/17	0.300 g	30 mL	
CV62MUS-02	K1705945-002	12/11/16	6/9/17	0.300 g	30 mL	
CV62MUS-03	K1705945-003	12/11/16	6/9/17	0.300 g	30 mL	
CV62MUS-04	K1705945-004	12/11/16	6/9/17	0.300 g	30 mL	
CV62MUS-05	K1705945-005	12/12/16	6/9/17	0.300 g	30 mL	
Lab Control Sample	KQ1708952-01LCS	NA	NA	0.300 g	30 mL	
Method Blank	KQ1708952-02MB	NA	NA	1.700 g	30 mL	
Duplicate	KQ1708952-05DUP	12/12/16	6/9/17	0.300 g	30 mL	
Matrix Spike	KQ1708952-06MS	12/12/16	6/9/17	0.300 g	30 mL	

Printed 7/13/2017 5:15:02 PM
Superset Reference:

Client: SPAWAR Systems Center San Diego
Service Request: K1705945
Project: Mooring G - Kitsap Bremerton/CV62

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Analyte	Method	Analysis Batch	Initial Calibration			Continuing Calibration			Continuing Calibration		
			True	Found	%R (1)	True	Found	%R (1)	True	Found	%R (1)
Copper	6010C	552890	625	613	98	250	251	100	250	250	100
Zinc	6010C	552890	1250	1240	99	250	251	101	250	253	101

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: SPAWAR Systems Center San Diego **Service Request:** K1705945
Project: Mooring G - Kitsap Bremerton/CV62

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

			Initial Calibration			Continuing Calibration			Continuing Calibration		
Analyte	**Method**	**Analysis Batch**	**True**	**Found**	**%R (1)**	**True**	**Found**	**%R (1)**	**True**	**Found**	**%R (1)**
Copper	6010C	552890				250	251	100	250	249	100
Zinc	6010C	552890				250	252	101	250	254	101

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: SPAWAR Systems Center San Diego **Service Request:** K1705945
Project: Mooring G - Kitsap Bremerton/CV62

INITIAL AND CONTINUING CALIBRATION BLANK

Concentration Units: ug/L

			Initial Calibration Blank		Continuing Calibration Blank		Continuing Calibration Blank		Continuing Calibration Blank	
Analyte	**Method**	**Analysis Batch**	**Result**	**C**	**Result**	**C**	**Result**	**C**	**Result**	**C**
Copper	6010C	552890	2.0	U	2.0	U	2.0	U	2.0	U
Zinc	6010C	552890	2.0	U	2.0	U	2.0	U	2.0	U

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client: SPAWAR Systems Center San Diego
Service Request: K1705945
Project: Mooring G - Kitsap Bremerton/CV62

INITIAL AND CONTINUING CALIBRATION BLANK

Concentration Units: ug/L

			Initial Calibration Blank		Continuing Calibration Blank		Continuing Calibration Blank		Continuing Calibration Blank	
Analyte	**Method**	**Analysis Batch**	**Result**	**C**	**Result**	**C**	**Result**	**C**	**Result**	**C**
Copper	6010C	552890			2.0	U				
Zinc	6010C	552890			2.0	U				

Client: SPAWAR Systems Center San Diego **Service Request:** K1705945
Project: Mooring G - Kitsap Bremerton/CV62

LOW LEVEL INITIAL AND LOW LEVEL CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
LLICV							
Copper	6010C	552890	2.9	4.0	73	70-130	07/10/17 10:44
Zinc	6010C	552890	4.1	4.0	103	70-130	07/10/17 10:44
LLCCV							
Copper	6010C	552890	3.2	4.0	80	70-130	07/10/17 12:49
Zinc	6010C	552890	4.1	4.0	103	70-130	07/10/17 12:49

Client: SPAWAR Systems Center San Diego **Service Request:** K1705945
Project: Mooring G - Kitsap Bremerton/CV62

ICP INTERFERENCE CHECK SAMPLE

Sample ID ICSA **Concentration Units:** ug/L

Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
Copper	6010C	552890	-4.90	-	-	-	07/10/17 10:58
Zinc	6010C	552890	-8.10	-	-	-	07/10/17 10:58

Client: SPAWAR Systems Center San Diego **Service Request:** K1705945
Project: Mooring G - Kitsap Bremerton/CV62

ICP INTERFERENCE CHECK SAMPLE

Sample ID ICSAB **Concentration Units:** ug/L

Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
Copper	6010C	552890	441	500	88	80-120	07/10/17 11:01
Zinc	6010C	552890	918	1000	92	80-120	07/10/17 11:01

Client: SPAWAR Systems Center San Diego **Service Request:** K1705945
Project: Mooring G - Kitsap Bremerton/CV62

ICP SERIAL DILUTIONS

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Initial Sample Result	Serial Dillution Result	% Diff	% Diff. Limit	Analysis Date
K1705945-005SDL							
Copper	6010C	552890	149.6	157	5	10	07/10/17 11:31
Zinc	6010C	552890	1377	1395	1	10	07/10/17 11:31

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	SPAWAR Systems Center San Diego	**Service Request:**	K1705945
Project:	Mooring G - Kitsap Bremerton/CV62		

Detection Limits

Matrix: Tissue

Analyte	Wavelength (nm)	Units	MRL	MDL	Method
Copper	3273	ug/L	4	2	6010C
Zinc	2062	ug/L	4	2	6010C

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	SPAWAR Systems Center San Diego	**Service Request:**	K1705945
Project:	Mooring G - Kitsap Bremerton/CV62		

ICP Linear Range (Quarterly)

Instrument: K-ICP-AES-04

Analyte	Concentration (ug/L)	Method
Copper 3273	90000	6010C
Zinc 2062	18000	6010C

Client: SPAWAR Systems Center San Diego **Service Request:** K1705945
Project: Mooring G - Kitsap Bremerton/CV62

Analysis Run Log

Instrument ID: **K-ICP-AES-04** **Analytical BatchID:** **552890**

Sample	Dilution Factor	Date/Time	Cu	Zn
ZZZZZZ	1	07/10/17 10:29		
ZZZZZZ	1	07/10/17 10:31		
ZZZZZZ	1	07/10/17 10:33		
ZZZZZZ	1	07/10/17 10:36		
ICV	1	07/10/17 10:39	X	X
ICB	1	07/10/17 10:41	X	X
LLICV	1	07/10/17 10:44	X	X
ZZZZZZ	1	07/10/17 10:46		
ZZZZZZ	0.5	07/10/17 10:48		
ZZZZZZ	1	07/10/17 10:51		
CCVA1	1	07/10/17 10:53	X	X
CCB	1	07/10/17 10:56	X	X
ICSA	1	07/10/17 10:58	X	X
ICSAB	1	07/10/17 11:01	X	X
ZZZZZZ	1	07/10/17 11:05		
KQ1708952-02MB	1	07/10/17 11:18	X	X
KQ1708952-01LCS	1	07/10/17 11:21	X	X
ZZZZZZ	1	07/10/17 11:23		
ZZZZZZ	1	07/10/17 11:26		
K1705945-005	1	07/10/17 11:28	X	X
K1705945-005SDL	5	07/10/17 11:31	X	X
K1705945-005DUP	1	07/10/17 11:33	X	X
K1705945-005MS	1	07/10/17 11:36	X	X
K1705945-001	1	07/10/17 11:38	X	X
K1705945-002	1	07/10/17 11:41	X	X
ZZZZZZ	1	07/10/17 11:43		
CCVA	1	07/10/17 11:46	X	X
CCB	1	07/10/17 11:48	X	X
K1705945-003	1	07/10/17 11:51	X	X
K1705945-004	1	07/10/17 11:53	X	X
ZZZZZZ	1	07/10/17 11:56		
ZZZZZZ	1	07/10/17 11:59		
ZZZZZZ	1	07/10/17 12:01		
ZZZZZZ	1	07/10/17 12:03		
ZZZZZZ	1	07/10/17 12:06		
ZZZZZZ	5	07/10/17 12:08		
ZZZZZZ	1	07/10/17 12:11		

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dba ALS Environmental

QA/QC Report

Client: SPAWAR Systems Center San Diego **Service Request:** K1705945
Project: Mooring G - Kitsap Bremerton/CV62

Analysis Run Log

Instrument ID: **K-ICP-AES-04** **Analytical BatchID:** **552890**

Sample	Dilution Factor	Date/Time	Cu	Zn
ZZZZZZ	1	07/10/17 12:13		
ZZZZZZ	1	07/10/17 12:15		
CCVA	1	07/10/17 12:18	X	X
CCB	1	07/10/17 12:20	X	X
ZZZZZZ	1	07/10/17 12:23		
ZZZZZZ	1	07/10/17 12:25		
ZZZZZZ	1	07/10/17 12:27		
ZZZZZZ	1	07/10/17 12:30		
ZZZZZZ	1	07/10/17 12:32		
ZZZZZZ	1	07/10/17 12:34		
ZZZZZZ	1	07/10/17 12:37		
ZZZZZZ	1	07/10/17 12:39		
CCVA	1	07/10/17 12:42	X	X
CCB	1	07/10/17 12:44	X	X
ZZZZZZ	1	07/10/17 12:47		
LLCCV	1	07/10/17 12:49	X	X
ZZZZZZ	1	07/10/17 12:52		
ZZZZZZ	0.5	07/10/17 12:54		

	Element, Wavelength and Order	Use?	# IECs	IEC	k1	k2	Calc-in-fit?
	Y 224.306 {450}*	☒	None				
	Y 360.073 { 94}*	☒	None				
	Y 360.073 { 94}2*	☒	None				
	Bi 223.061 {451}	☒	5	Cr	0.000625	0.000000	No
				Co	-0.004443	0.000000	No
				Cu	-0.003084	0.000000	No
				V	-0.000813	0.000000	No
				Fe	0.000115	0.000000	No
	S 182.034 {485}	☒	2	Mn	0.003199	0.000000	No
				Mo	0.001127	0.000000	No

LIPIDS

ALS Environmental—Kelso Laboratory
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ALS, Kelso

Analytical Report

Client:	SPAWAR Systems Center San Diego	**Service Request:**	K1705945
Project:	Mooring G - Kitsap Bremerton/CV62	**Date Collected:**	12/10/2016
Sample Matrix:	Tissue	**Date Received:**	6/9-6/28/17

Lipids, Total

Prep Method:	EPA 3541	Units:	PERCENT
Analysis Method:	NOAA	Basis:	As Received
Test Notes:			

Sample Name	Lab Code	MRL	Date Extracted	Date Analyzed	Result	Result Notes
CV62MUS-01	K1705945-001	0.17	6/29/2017	7/6/2017	2.1	
CV62MUS-02	K1705945-002	0.17	6/29/2017	7/6/2017	2.1	
CV62MUS-03	K1705945-003	0.16	6/29/2017	7/6/2017	1.8	
CV62MUS-04	K1705945-004	0.16	6/29/2017	7/6/2017	1.5	
CV62MUS-05	K1705945-005	0.17	6/29/2017	7/6/2017	1.9	
Method Blank	KWG1705440-4 MB	0.16	6/29/2017	7/6/2017	0.16	U

Approved By: ______________________ Date: __________

1A/092099p

ALS, Kelso

QA/QC Report

Client:	SPAWAR Systems Center San Diego	**Service Request:**	K1705945
Project:	Mooring G - Kitsap Bremerton/CV62	**Date Collected:**	12/10/2016
Sample Matrix:	Tissue	**Date Received:**	6/9-6/28/17
		Date Extracted:	6/29/2017
		Date Analyzed:	7/6/2017

Triplicate Summary
Lipids, Total

Sample Name:	Batch QC	Units:	PERCENT
Lab Code:	K1705554-003 TRP	Basis:	As Received
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Triplicate Sample Result	Average	Percent Relative Standard Deviation	Result Notes
Lipids, Total	EPA 3541	NOAA	0.17	1.8	1.7	1.4	1.6	15	

Approved By: ______________________________ Date: ______________

DUP/091599p

Client:	SPAWAR Systems Center San Diego	**Service Request:**	K1705945
Project:	Mooring G - Kitsap Bremerton/CV62	**Date Collected:**	NA
Matrix:	Tissue	**Date Received:**	NA
		Date Extracted:	6/29/2017
		Date Analyzed:	7/6/2017

Laboratory Control Sample
Lipids, Total

Sample Name:	KWG1705440-3 LCS	Units:	% (percent)
		Basis:	Wet Weight

Test Notes:

Analyte	**Prep Method**	**Analysis Method**	**Spike Level Percent**	**Result**	**CAS Advisory Limits**	**Result Notes**
Lipids, Total	EPA 3541	NOAA	100	101	70-130	

Approved By: ______________________________ Date: ________________

Raw Data

ALS Environmental—Kelso Laboratory
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Metals

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Benchsheet

Service Request #:	**K1705945, KQ1708538**	**Run #:**	**551394**
Test:	**Frz Dry**	**Balance ID:**	**K-Balance-45**
Method:	**Frz Dry**		

Pan ID:	Lab Code:	Tare (g)	Wet Wt. (g)	Tare + Dry Wt. (g)	Dry Weight (g)	% Total Solids	RPD
	K1705945-001	16.639	10.101	~~26.735~~ 6/28…	0.000 18.360		
	K1705945-002	16.861	10.017	~~26.875~~ 6/2…	0.000 18.901		
	K1705945-003	17.191	10.046		0.000 19.055		
	K1705945-004	16.935	10.086	18.712	0.000		
	K1705945-005	16.868	10.076	18.616	0.000		
	K1705945-005DUP	16.839	10.108	18.596	0.000		

FreezeDryer ID	Date In	Time In	Date Out	Time Out	Thermometer ID
	6/30/17	1:10	7/3/17	9:40	

Cal EQID	Cal Start Value	Cal End Value	Start Date	Start Time	End Date	End Time

Comments: CCL GB

ALS Inc.

Service Request Number(s): K1705945

TISSUE WHOLE BODY HOMOGENIZATION

Laboratory ID	Weight of Sample* (g)	Tare of Jar (g)				
K1705945 -1	127.208	112.099				
-2	① ~~8~~ 144.602	203.096				
-3	53.801	112.758				
-4	72.842	112.533				
-5	222.296	203.454				
			NA			

Comments: K5945-2 contained 1 small oyster-added to sample ① GB 6/27/17

* The weight of sample Is after homogenization.

Balance ID: K Balance 21B

Date Balance Checked: 6/27/17

Analyst: GBentley	Date: 6/27/17
Reviewed:	Date: 6/27/17

R\:ICP\misc\digforms\TISSUE Aliquot Bench Sheets1

ALS Inc.

Service Request Number(s): K1705945

Blank Data

Laboratory ID		Date	Time	Bottle Type	Preservative	
Rinsate Blank		6/27/17	0835	1L Amber	None	
Homogenization Blank		↓	0915	↓	↓	
Homogenization Blank		↓	0950	↓	↓	
Rinsate Bank		6/27/17	0835	500ml White	HNO_3	
Homogenization Blank		↓	0915	↓	↓	
Homogenization Blank		↓	0950	↓	↓	

GZ 6/27/17

Project Name: ______

Associated Sample(s): ______

Equipment used: ______

Comments: ______

Analyst: G Beaty	Date: 6/27/17
Reviewed: [signature]	Date: 6/27/17

R\:ICP\misc\digforms\TISSUE Aliquot Bench Sheets1

ALS Inc.

Service Request Number(s): K1705945
Analysis for: Lipids

ALIQUOT DATA

Service Request #		Wet Wt. (g)		Tare Wt. (g)		Matrix
K1705945-1		3.007		82.566		Mussels
~~-1 dup~~						
~~-1 trp~~		GB 6/27/17				
-2		3.015		80.926		
-3		3.074		82.618		
-4		3.055		82.422		
-5		3.026		80.929		
-5 dup		3.097		82.691		
-5 trp		3.064		80.716		
		NA				

Comments: 3g into 2oz jar, DUP/TRP	
Balance ID: K-Balance-45	Date Balance Checked: 6/27/17
Analyst: GBrating	Date: 6/27/17
Reviewed:	Date: 6/27/17

R\:ICP\misc\digforms\TISSUE Aliquot Bench Sheets1

Preparation Information Benchsheet

Prep Run: 292060 **Prep Workflow**: MetDigTissMS **Status**: Prepped **Prep Date**: 07/03/2017 16:50
Team: Metals **Prep Method**: PSEP Metals **Current Step**: Digestion **Due Date**: 06/26/2017
Analyst: CLUKKEN **Rush/NPDES**: N/A **Hold Date**: 06/08/2017

Lab Code	Client ID	Bottle #	Initial Amt	Initial Basis	Final Volume	Spike Amt	Spike ID	Comments
KQ1708952-02	Method Blank		0.300 g		30 mL			15% ULTREX HNO3
KQ1708952-01	Lab Control Sample		0.300 g		30 mL	0.05 mL 0.3 mL 0.05 mL	181490 182264 182266	15% ULTREX HNO3
KQ1708952-03	Standard Reference Material		0.300 g		30 mL	0.3 g	65838	15% ULTREX HNO3
KQ1708952-04	Standard Reference Material		0.300 g		30 mL	0.3 g	65841	15% ULTREX HNO3
K1705945-001	CV62MUS-01	.01	0.300 g	Freeze-Dried	30 mL			15% ULTREX HNO3
K1705945-002	CV62MUS-02	.01	0.300 g	Freeze-Dried	30 mL			15% ULTREX HNO3
K1705945-003	CV62MUS-03	.01	0.300 g	Freeze-Dried	30 mL			15% ULTREX HNO3
K1705945-004	CV62MUS-04	.01	0.300 g	Freeze-Dried	30 mL			15% ULTREX HNO3
K1705945-005	CV62MUS-05	.01	0.300 g	Freeze-Dried	30 mL			15% ULTREX HNO3
K1705945-005: KQ1708952-05	Duplicate	.01	0.300 g	Freeze-Dried	30 mL			15% ULTREX HNO3
K1705945-005: KQ1708952-06	Matrix Spike	.01	0.300 g	Freeze-Dried	30 mL	0.05 mL 0.3 mL 0.05 mL	181490 182264 182266	15% ULTREX HNO3

11 Total Samples consisting of 5 Client Samples, 2 Client QC Samples, 4 Batch QC Samples associated with the current Prep Run.

Spiking Solutions

Name	Type	ID	Expires
K-MET DORM-4	Spike	65838	7/31/2022
K-MET SS1	Spike	182264	11/29/2017
K-MET SS3	Spike	182266	1/6/2018
K-MET SS4	Spike	181490	8/15/2017
K-MET TORT-3	Spike	65841	4/30/2023

Preparation Materials

Step	Name	ID
Digestion	K-MET HNO3 ULTREX	176897
Digestion	K-MET 50ml Centrifuge Tube	181544

Preparation Hardware / Equipment

Step	Name	Property	Value	
Digestion	K-Metals-Oven-01	Observed Temperature In	105	deg C
Digestion	K-Metals-Oven-01	Observed Temperature Out	105	deg C

Preparation Steps

Step	Started	Finished	By	Assisted By	Training?	Comments
Digestion	03-JUL-17 16:50	05-JUL-17 11:10	CLUKKEN		N	

Comments

Review

Reviewed by: ______ Date: 7/5/17

METALS SPIKING SOLUTIONS CONCENTRATIONS FORM

Solution Name	Element	mLs of 1000ppm Solution	Final Volume	Solution Conc. mg/L	Enter mls Added
K-MET SS1	HNO3	50.0	1000ml	-	0.3
	Al	100*	1000ml	200	
	Ag	100*	1000ml	5	
	Ba	100*	1000ml	100	
	Be	100*	1000ml	5	
	Cd	100*	1000ml	5	
	Co	100*	1000ml	50	
	Cr	100*	1000ml	20	
	Cu	100*	1000ml	25	
	Fe	100*	1000ml	100	
	Pb	100*	1000ml	50	
*** Add after HNO3 and before ALS-89 when making the solution	Mn	100*	1000ml	50	
	Ni	100*	1000ml	50	
	Sb***	50	1000ml	50	
	V	100*	1000ml	50	
	Zn	100*	1000ml	50	
K-MET SS2	HNO3	25.0	500ml	-	
	As	2.0	500ml	4	
	Cd	2.0	500ml	4	
	Pb	2.0	500ml	4	
	Se	2.0	500ml	4	
	Tl	2.0	500ml	4	
	Cu	2.0	500ml	4	
K-MET SS3	HNO3	25.0	500ml	-	0.05
	As	50.0	500ml	100	
	Se	50.0	500ml	100	
	Tl	10.0	500ml	20	
	Hg	6	500	12	
K-MET SS4	HNO3	25	500ml	-	0.05
	B	50	500ml	100	
	Mo	50	500ml	100	
K-MET SS5	HNO3	10.0	200ml	-	
	K**	20	200ml	1000	
	Na**	20	200ml	1000	
	Mg**	20	200ml	1000	
	Ca**	20	200ml	1000	

K-MET GFLCSW	HNO3	10.0	1000ml	-	
	As, Pb, Se, Tl	5.0	1000ml	2.5	
	Cd	-	-	1.25	
	Cu	2.5	1000ml	2.5	
K-MET QCP-CICV-1	Ca, Mg, Na, K	no dilution	-	2500	
	Al, Ba	no dilution	-	1000	
	Fe	no dilution	-	500	
	Co, Mn, Ni, V, Zn	no dilution	-	250	
	Cu, Ag	no dilution	-	125	
	Cr	no dilution	-	100	
	Be	no dilution	-	25	
K-MET QCP-CICV-3	As, Pb, Se, Tl	no dilution	-	500	
	Cd	no dilution	-	250	

* Denotes volume of mixed stock standard.
** Denotes 10,000 ppm individual stock standards.

Standard	mls of standard	ppm	Logbook #	Exp. Date

Preparation Information Benchsheet

Prep Run:	292060	**Prep Workflow**:	MetDigTissMS	**Status**:	Draft	**Prep Date**:	07/03/2017 11:36
Team:	Metals	**Prep Method**:	PSEP Metals	**Current Step**:	Digestion	**Due Date**:	06/16/2017
Analyst:	CLUKKEN	**Rush/NPDES**:	N/A			**Hold Date**:	06/08/2017

Lab Code	Client ID	Bottle #	Initial Amt	Initial Basis	Final Volume	Spike Amt	Spike ID	Comments
KQ1708952-02	Method Blank							
KQ1708952-01	Lab Control Sample					0.05 mL 0.3 mL 0.05 mL	181490 182264 182266	
KQ1708952-03	Standard Reference Material		0.300			0.3 g	65838	
KQ1708952-04	Standard Reference Material		0.300			0.3 g	65841	
K1705945-001	CV62MUS-01	.01	0.300					
K1705945-002	CV62MUS-02	.01	0.300					
K1705945-003	CV62MUS-03	.01	0.300					
K1705945-004	CV62MUS-04	.01	0.300					
K1705945-005	CV62MUS-05	.01	0.300					
K1705945-005: KQ1708952-05	Duplicate	.01	0.300					
K1705945-005: KQ1708952-06	Matrix Spike	.01	0.300			0.05 mL 0.3 mL 0.05 mL	181490 182264 182266	

11 Total Samples consisting of 5 Client Samples, 2 Client QC Samples, 4 Batch QC Samples associated with the current Prep Run.

Spiking Solutions

Name	Type	ID	Expires
K-MET DORM-4	Spike	65838	7/31/2022
K-MET SS1	Spike	182264	11/29/2017
K-MET SS3	Spike	182266	1/6/2018
K-MET SS4	Spike	181490	8/15/2017
K-MET TORT-3	Spike	65841	4/30/2023

Preparation Materials

Step	Name	ID
Digestion	K-MET HNO3 ULTREX	176897
Digestion	K-MET 50ml Centrifuge Tube	181544

Preparation Hardware / Equipment

Step	Name	Property	Value
Digestion	K-Metals-Oven-01	Observed Temperature In	105 deg C
Digestion	K-Metals-Oven-01	Observed Temperature Out	105 deg C

Preparation Steps

Step	Started	Finished	By	Assisted By	Training?	Comments
Digestion	16:50 7/3/17	11:10 7/5/17				

Comments

Conversion from dry weight to wet weight:

ICP
#292060
7/3/2017

Sample I.D.	Dry Weight	Percent Solids	Wet Weight
K1705945-001	0.3000	17.0	1.7647
K1705945-002	0.3000	20.4	1.4706
K1705945-003	0.3000	18.6	1.6129
K1705945-004	0.3000	17.6	1.7045
K1705945-005	0.3000	17.3	1.7341
K1705945-005D	0.3000	17.3	1.7341
K1705945-005S	0.3000	17.3	1.7341

sp 7/13/17

Service Request #K1705945; K1706133 Redigest
Instrument ID# K-ICP-AES-04
Calibration 071017BICP04
ALS LIMS Run # 552890

ICP-OES Data Review Form

		Yes	No
1.	Appropriate standardization completed	X	
2.	ICV within control limits	X	
3.	CCV's in control	X	
4.	ICB/CCB's below MRL	X	
4.	LLICV standard analyzed and in control	X	
5.	ICS standards within 20% of true value	X	
6.	All analytes within instrument linear range	X	
7.	Adequate rinse out time allowed	X	
8.	Was the run terminated? If so, why.		X

See Benchsheet exception report for sample batch QC information.
Comments: Tissue Calibration
6010: NR Sb, As, Ag. MRL=2X for Al, P.

Primary Review by Am Date 7/10/17

Secondary Review by qc Date 7/11/17

Data Review Form

Instrument ID#: **K-ICP-AES-04**
DataFile Name: **R:\ICP\WIP\DATA\K-ICP-AES-04\071017BICP04.txt**
RUNNO: **552890**

K1705945

No exceptions to report.

K1706133

No exceptions to report.

Primary Approver: am 7/10/17
Secondary Approver: JC 7/11/17

Sample Name: BLK Acquired: 7/10/2017 10:29:02 Type: Cal
Method: 2017A-MOD-ICP04(v11) Mode: IR Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: INT. STD. ICP16-68-C

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0056**	**-24.75**	**.2289**	**.3900**	**.0098**	**-.92318**	**.1494**
Stddev	.0001	6.03	.4305	.5138	.0006	.03659	.4938
%RSD	.9803	24.37	188.1	131.8	6.478	3.9632	330.6
#1	.0056	-29.02	-.0756	.7533	.0094	-.94905	-.1998
#2	.0055	-20.49	.5333	.0267	.0103	-.89731	.4985

Elem	Cd2144	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0009**	**-.0001**	**.0010**	**.0158**	**.0001**	**.0000**	**-.0006**
Stddev	.0001	.0004	.0002	.0014	.0001	.000	.0003
%RSD	17.18	656.8	15.90	9.123	79.08	130.4	46.98
#1	.0008	.0002	.0012	.0148	.0002	-.0001	-.0008
#2	.0010	-.0003	.0009	.0168	.0001	.0000	-.0004

Elem	Cu3273	Fe2599	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**13.83**	**.0009**	**.0002**	**-.0004**	**.0000**	**.0750**	**.00004**
Stddev	5.24	.0005	.0003	.0005	.0002	2.298	.00004
%RSD	37.91	54.90	159.9	120.3	1165.	3064.	126.38
#1	17.53	.0012	.0004	-.0007	.0002	-1.550	.00007
#2	10.12	.0005	.0000	-.0001	-.0001	1.700	.00000

Elem	Mn2605	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.0000**	**.0004**	**-.0004**	**.0007**	**-70.80**	**.3800**	**3.021**
Stddev	.0000	.0001	.0004	.0001	26.06	.4148	.578
%RSD	35.32	27.62	110.1	21.32	36.81	109.2	19.12
#1	.0000	.0003	-.0001	.0008	-89.22	.6733	3.429
#2	.0000	.0005	-.0007	.0006	-52.37	.0867	2.613

Sample Name: BLK Acquired: 7/10/2017 10:29:02 Type: Cal
Method: 2017A-MOD-ICP04(v11) Mode: IR Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: INT. STD. ICP16-68-C

Elem	Ag3280	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**-6.938**	**-31.53**	**-.0003**	**.0016**	**.0001**	**-.0002**	**1.058**
Stddev	3.327	14.81	.0001	.0001	.0001	.0003	.722
%RSD	47.94	46.99	39.63	4.304	126.9	172.5	68.26
#1	-9.291	-21.05	-.0004	.0015	.0001	-.0003	.5472
#2	-4.586	-42.00	-.0002	.0016	.0000	.0000	1.568

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1940.6**	**34652.**	**3715.2**
Stddev	2.1	14.	14.7
%RSD	.10574	.04148	.39437
#1	1939.2	34642.	3704.9
#2	1942.1	34662.	3725.6

am
7/10/17

Sample Name: STD A Acquired: 7/10/2017 10:31:31 Type: Cal
Method: 2017A-MOD-ICP04(v11) Mode: IR Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: ICP16-62-D

Elem	Al1670	Sb2068	Be2348	B_2496	Cd2144	Cd2265	Ca3933	Cr2677
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.0191	60.14	5781.0	652.5	.9240	.7675	18.11	.0525
Stddev	.0001	.34	7.7	.4	.0002	.0006	.06	.0003
%RSD	.7677	.5591	.13273	.0591	.0237	.0723	.3330	.6476
#1	.0190	59.90	5786.4	652.2	.9238	.7679	18.07	.0527
#2	.0192	60.38	5775.5	652.8	.9241	.7671	18.15	.0522

Elem	Co2307	Cu2247	Cu3273	Pb2203	Mg2795	Mn2576	Mo2020	Ni2216
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	.3211	.1707	2130.	.0622	1.575	.29903	.2324	.3395
Stddev	.0007	.0004	8.	.0002	.005	.00002	.0003	.0014
%RSD	.2313	.2484	.3966	.2523	.2898	.00584	.1264	.4204
#1	.3217	.1710	2136.	.0621	1.572	.29904	.2322	.3405
#2	.3206	.1704	2124.	.0623	1.579	.29901	.2326	.3384

Elem	Se1960	Ag3280	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	30.67	183.6	.0271	.2823	.0760	.3390	952.4
Stddev	.07	6.7	.0004	.0001	.0004	.0000	2.2
%RSD	.2152	3.643	1.473	.0223	.4804	.0016	.2316
#1	30.72	188.3	.0268	.2823	.0763	.3390	954.0
#2	30.62	178.8	.0274	.2824	.0758	.3390	950.8

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1942.5	34520.	3720.0
Stddev	3.4	56.	20.0
%RSD	.17310	.16083	.53761
#1	1940.1	34480.	3734.2
#2	1944.9	34559.	3705.9

Sample Name: STD B Acquired: 7/10/2017 10:33:48 Type: Cal
Method: 2017A-MOD-ICP04(v11) Mode: IR Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: ICP16-60-C

Elem	Al3944	As1890	Ba4554	Ca3158	Fe2599	Mg2790	Mg2852	Mn2605
Units	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**51850.**	**193.9**	**183.8**	**1.114**	**1.906**	**.1950**	**21990.**	**.0812**
Stddev	453.	1.1	.3	.005	.000	.0004	17.	.0001
%RSD	.8736	.5470	.1405	.4513	.0233	.2225	.0783	.1002
#1	52170.	193.1	183.6	1.111	1.906	.1947	22000.	.0812
#2	51530.	194.6	184.0	1.118	1.906	.1954	21970.	.0813

Elem	P_1782	K_7664	Si2516	Na5895
Units	Cts/S	Cts/S	Cts/S	Cts/S
Avg	**.4546**	**8497.**	**2466.**	**30410.**
Stddev	.0013	13.	7.	61.
%RSD	.2784	.1525	.2830	.1998
#1	.4537	8506.	2461.	30450.
#2	.4555	8488.	2471.	30370.

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1896.0**	**33026.**	**3641.6**
Stddev	1.9	8.	2.1
%RSD	.09961	.02377	.05743
#1	1897.4	33031.	3643.1
#2	1894.7	33020.	3640.1

Sample Name: ICVB Acquired: 7/10/2017 10:36:41 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: ICP16-68-B

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.9703	1.021	.0064	-.0022	.0006	-.00039	2.045	-.0002
Stddev	.0150	.013	.0085	.0027	.0000	.00010	.001	.0000
%RSD	1.547	1.301	133.1	122.9	1.173	25.515	.0678	12.37
#1	.9809	1.030	.0124	-.0003	.0006	-.00046	2.046	-.0002
#2	.9597	1.011	.0004	-.0041	.0006	-.00032	2.044	-.0002
Check ?	Chk Pass	None	None	None	None	None	Chk Pass	None
Value								
Range								

Elem	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0003	5.004	5.039	-.0001	-.0004	.0007	-.0015	10.05
Stddev	.0000	.021	.019	.0016	.0003	.0007	.0002	.04
%RSD	18.19	.4262	.3696	1723.	82.60	99.93	14.74	.4451
#1	-.0003	4.988	5.026	.0010	-.0001	.0002	-.0013	10.02
#2	-.0002	5.019	5.052	-.0012	-.0006	.0011	-.0016	10.09
Check ?	None	None	Chk Pass	None	None	None	None	None
Value								
Range								

Elem	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576	Mn2605	Mo2020	Ni2216
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0019	5.339	4.865	5.135	9.5527	9.854	-.0004	.0000
Stddev	.0038	.032	.002	.006	.0036	.009	.0002	.0003
%RSD	194.5	.5980	.0313	.1240	.03772	.0889	44.92	9054000.
#1	.0007	5.362	4.866	5.139	9.5553	9.860	-.0003	-.0002
#2	-.0046	5.316	4.864	5.130	9.5502	9.848	-.0005	.0002
Check ?	None	None	Chk Pass	None	None	Chk Pass	None	None
Value								
Range								

Sample Name: ICVB Acquired: 7/10/2017 10:36:41 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: ICP16-68-B

Elem	P_1782	K_7664	Se1960	Si2516	Ag3280	Na5895	Tl1908	Ti3361
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.977**	**.0216**	**-.0049**	**5.045**	**.0052**	**14.42**	**-.0086**	**.0004**
Stddev	.002	.0842	.0030	.012	.0109	.01	.0006	.0000
%RSD	.0298	389.3	60.27	.2374	209.6	.0570	6.926	5.721
#1	4.976	.0812	-.0070	5.053	.0129	14.42	-.0090	.0004
#2	4.978	-.0379	-.0028	5.036	-.0025	14.41	-.0082	.0004
Check ?	Chk Pass	None	None	Chk Pass	None	None	None	None
Value								
Range								

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	**.0004**	**.0000**	**.0003**
Stddev	.0010	.000	.0001
%RSD	254.2	1017.	24.82
#1	-.0003	.0002	.0003
#2	.0012	-.0003	.0002
Check ?	None	None	None
Value			
Range			

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1918.2**	**33953.**	**3711.5**
Stddev	1.6	29.	2.0
%RSD	.08281	.08444	.05353
#1	1917.1	33974.	3710.1
#2	1919.4	33933.	3712.9

Sample Name: ICV Acquired: 7/10/2017 10:39:10 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: ICP16-68-E

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.319**	**5.172**	**2.347**	**2.481**	**5.032**	**.12667**	**.0040**	**1.226**
Stddev	.013	.009	.017	.001	.014	.00095	.0009	.000
%RSD	.3008	.1665	.7039	.0185	.2693	.75242	21.69	.0326
#1	4.310	5.178	2.359	2.482	5.022	.12734	.0046	1.226
#2	4.328	5.166	2.335	2.481	5.041	.12600	.0034	1.226
Check ?	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	None	Chk Pass
Value								
Range								

Elem	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.230**	**12.34**	**12.15**	**.4953**	**1.235**	**.6182**	**.6134**	**2.473**
Stddev	.003	.01	.07	.0027	.002	.0020	.0005	.005
%RSD	.2001	.0640	.6033	.5393	.1581	.3254	.0756	.1971
#1	1.229	12.33	12.09	.4934	1.234	.6168	.6137	2.476
#2	1.232	12.35	12.20	.4971	1.236	.6197	.6131	2.469
Check ?	Chk Pass	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Elem	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576	Mn2605	Mo2020	Ni2216
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.401**	**12.25**	**11.69**	**12.56**	**1.2189**	**1.242**	**.4774**	**1.220**
Stddev	.004	.02	.00	.00	.0018	.001	.0016	.001
%RSD	.1663	.1262	.0301	.0166	.14701	.0966	.3350	.0744
#1	2.398	12.26	11.69	12.56	1.2202	1.243	.4785	1.221
#2	2.404	12.24	11.69	12.55	1.2176	1.242	.4762	1.220
Check ?	Chk Pass	Chk Pass	None	Chk Pass	Chk Pass	None	Chk Pass	Chk Pass
Value								
Range								

Sample Name: ICV   Acquired: 7/10/2017 10:39:10   Type: QC
Method: 2017A-MOD-ICP04(v11)   Mode: CONC   Corr. Factor: 1.000000
User: admin   Dilution: 1   Test Type: Sample Type:
Comment: ICP16-68-E

Elem	P_1782	K_7664	Se1960	Si2516	Ag3280	Na5895	Tl1908	Ti3361
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0173	12.75	2.519	-.0131	F 7.397	12.69	2.410	1.961
Stddev	.0059	.02	.013	.0070	.003	.03	.003	.000
%RSD	33.85	.1539	.4993	53.16	.0454	.2577	.1250	.0069
#1	-.0132	12.74	2.528	-.0180	7.399	12.67	2.408	1.962
#2	-.0215	12.77	2.510	-.0082	7.394	12.71	2.412	1.961
Check ?	None	Chk Pass	Chk Pass	None	Chk Fail	Chk Pass	Chk Pass	Chk Pass
Value					.6250			
Range					10.44%			

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	1.254	1.241	1.239
Stddev	.000	.001	.001
%RSD	.0217	.1086	.0593
#1	1.254	1.240	1.240
#2	1.254	1.242	1.239
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1908.2	33740.	3727.6
Stddev	.8	28.	1.1
%RSD	.04012	.08359	.02914
#1	1908.7	33760.	3726.9
#2	1907.6	33720.	3728.4

Sample Name: ICB   Acquired: 7/10/2017 10:41:32   Type: QC
Method: 2017A-MOD-ICP04(v11)   Mode: CONC   Corr. Factor: 1.000000
User: admin   Dilution: 1   Test Type: Sample Type:
Comment:

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0008	-.0016	F .0909	.0019	.0004	.00000	.0001	-.0001
Stddev	.0040	.0031	.0047	.0109	.0001	.00002	.0031	.0000
%RSD	475.4	194.7	5.187	576.6	24.25	1221.6	3052.	22.30
#1	.0020	.0006	.0875	.0096	.0004	.00001	.0023	-.0001
#2	-.0036	-.0038	.0942	-.0058	.0005	-.00001	-.0021	-.0001
Check ?	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit			.0200					
Low Limit			-.0200					

Elem	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0001	-.0169	.0003	-.0010	-.0003	.0011	-.0010	-.0015
Stddev	.0002	.0056	.0000	.0001	.0003	.0005	.0006	.0034
%RSD	168.6	33.30	13.85	11.04	95.57	49.30	60.98	218.1
#1	-.0002	-.0130	.0003	-.0009	-.0005	.0015	-.0006	-.0039
#2	.0000	-.0209	.0003	-.0010	-.0001	.0007	-.0014	.0008
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576	Mn2605	Mo2020	Ni2216
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0039	.0043	.0006	.0008	.00010	-.0016	.0036	.0003
Stddev	.0012	.0339	.0000	.0004	.00008	.0003	.0008	.0005
%RSD	30.58	784.9	.5497	53.84	75.880	21.50	21.77	162.5
#1	-.0031	-.0197	.0006	.0011	.00005	-.0019	.0030	.0006
#2	-.0048	.0283	.0006	.0005	.00016	-.0014	.0041	.0000
Check ?	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass	None	Chk Pass	Chk Pass
High Limit								
Low Limit								

Sample Name: ICB Acquired: 7/10/2017 10:41:32 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment:

Elem	P_1782	K_7664	Se1960	Si2516	Ag3280	Na5895	Tl1908	Ti3361
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0015**	**.0174**	**.0126**	**-.0169**	**.0011**	**-.0051**	**.0000**	**.0008**
Stddev	.0067	.0121	.0037	.0072	.0012	.0032	.0081	.0001
%RSD	464.5	69.58	29.77	42.66	109.3	63.82	209200.	10.82
#1	.0033	.0259	.0152	-.0118	.0020	-.0073	-.0057	.0008
#2	-.0062	.0088	.0099	-.0220	.0003	-.0028	.0057	.0007
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	**.0000**	**.0004**	**-.0001**
Stddev	.0000	.0002	.0001
%RSD	277.3	51.01	79.32
#1	.0000	.0006	-.0001
#2	.0000	.0003	.0000
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1941.3**	**34872.**	**3707.8**
Stddev	.1	2.	23.9
%RSD	.00704	.00556	.64395
#1	1941.2	34874.	3724.7
#2	1941.4	34871.	3690.9

Sample Name: LLICV Acquired: 7/10/2017 10:44:00 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: ICP16-70-A 0.5/50mL

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144 *
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0083**	**.0083**	**F .0395**	**.0088**	**.0039**	**.00080**	**.0208**	**F .0007**
Stddev	.0032	.0008	.0011	.0031	.0002	.00015	.0016	.0001
%RSD	38.11	10.18	2.734	35.24	4.237	18.275	7.544	11.50
#1	.0106	.0077	.0402	.0110	.0038	.00091	.0219	.0006
#2	.0061	.0089	.0387	.0066	.0041	.00070	.0197	.0007
Check ?	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail
Value			.0200					.0010
Range			30.00%					-30.00%

Elem	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0008**	**F .0133**	**.0201**	**.0039**	**.0015**	**.0047**	**.0029**	**.0150**
Stddev	.0002	.0017	.0001	.0008	.0001	.0008	.0007	.0065
%RSD	24.36	12.58	.4340	20.82	8.004	17.79	22.69	43.73
#1	.0010	.0121	.0202	.0033	.0014	.0053	.0024	.0103
#2	.0007	.0145	.0201	.0044	.0016	.0041	.0033	.0196
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value		.0200						
Range		-30.00%						

Elem	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576	Mn2605	Mo2020	Ni2216
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0075**	**.0364**	**.0050**	**F .0078**	**.00103**	**.0025**	**.0039**	**.0042**
Stddev	.0018	.0173	.0002	.0012	.00010	.0000	.0002	.0010
%RSD	23.26	47.46	3.598	15.25	9.9111	.9610	6.184	23.88
#1	.0063	.0486	.0049	.0086	.00110	.0025	.0037	.0035
#2	.0088	.0242	.0051	.0070	.00096	.0024	.0041	.0050
Check ?	Chk Pass	None	Chk Pass	Chk Fail	Chk Pass	None	Chk Pass	Chk Pass
Value				.0050				
Range				30.00%				

*rerun
am 7/10/17

Sample Name: LLICV Acquired: 7/10/2017 10:44:00 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: ICP16-70-A 0.5/50mL

Elem	P_1782 *	K_7664	Se1960	Si2516	Ag3280	Na5895	Tl1908	Ti3361
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0262	**.2389**	**.0141**	.1931	F .0505	.2020	.0107	.0023
Stddev	.0061	.0095	.0095	.0105	.0006	.0033	.0015	.0001
%RSD	23.29	3.991	67.39	5.440	1.104	1.644	13.79	2.986
#1	.0219	.2321	.0208	.2005	.0509	.1997	.0097	.0023
#2	.0305	.2456	.0074	.1857	.0501	.2044	.0118	.0024
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
Value	.0400				.0040			
Range	30.00%				30.00%			

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	**.0036**	**.0041**	**.0040**
Stddev	.0005	.0003	.0001
%RSD	14.77	6.939	1.631
#1	.0040	.0043	.0040
#2	.0032	.0039	.0041
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

*2X
am 7/10/17

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1953.5**	**34784.**	**3711.7**
Stddev	6.1	19.	23.8
%RSD	.31384	.05354	.64059
#1	1949.2	34797.	3694.9
#2	1957.9	34771.	3728.5

Sample Name: LLICV Acquired: 7/10/2017 10:46:27 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: ICP16-70-A 0.5/50mL RERUN

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0016	.0092	F .0284	.0092	.0042	.00096	.0210	.0008
Stddev	.0040	.0015	.0023	.0025	.0001	.00002	.0018	.0002
%RSD	256.3	16.01	8.156	27.56	1.356	2.5210	8.509	31.04
#1	-.0013	.0081	.0267	.0110	.0042	.00098	.0197	.0006
#2	.0044	.0102	.0300	.0074	.0043	.00094	.0223	.0009
Check ?	Chk Fail	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value	.0100		.0200					
Range	-30.00%		30.00%					

Elem	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0007	F .0138	.0201	.0030	F .0012	.0039	F .0025	F .0130
Stddev	.0002	.0045	.0002	.0002	.0004	.0005	.0009	.0036
%RSD	22.11	32.60	.9256	6.931	34.36	12.78	35.52	27.92
#1	.0006	.0170	.0200	.0028	.0015	.0035	.0019	.0156
#2	.0008	.0106	.0203	.0031	.0009	.0042	.0031	.0105
Check ?	Chk Fail	Chk Fail	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Fail	Chk Fail
Value	.0010	.0200			.0020		.0040	.0200
Range	-30.00%	-30.00%			-30.00%		-30.00%	-30.00%

Elem	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576	Mn2605	Mo2020	Ni2216
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0062	.0942	.0051	F .0070	.00094	-.0002	F .0028	.0034
Stddev	.0000	.0041	.0002	.0027	.00010	.0010	.0004	.0003
%RSD	.3923	4.357	3.343	39.13	10.403	568.6	14.24	9.770
#1	.0062	.0913	.0049	.0051	.00101	.0005	.0025	.0032
#2	.0062	.0971	.0052	.0089	.00088	-.0009	.0031	.0036
Check ?	Chk Fail	None	Chk Pass	Chk Fail	Chk Pass	None	Chk Fail	Chk Pass
Value	.0100			.0050			.0040	
Range	-30.00%			30.00%			-30.00%	

Sample Name: LLICV Acquired: 7/10/2017 10:46:27 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: ICP16-70-A 0.5/50mL RERUN

Elem	P_1782	K_7664	Se1960	Si2516	Ag3280	Na5895	Tl1908	Ti3361
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0260	.2315	.0184	.1799	F .0549	.2026	.0120	.0022
Stddev	.0024	.0019	.0107	.0043	.0089	.0025	.0027	.0003
%RSD	9.134	.8378	58.43	2.365	16.20	1.215	22.47	13.78
#1	.0277	.2301	.0108	.1769	.0612	.2043	.0139	.0024
#2	.0243	.2329	.0260	.1829	.0486	.2009	.0101	.0019
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
Value	.0400				.0040			
Range	-30.00%				30.00%			

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	F .0027	.0039	.0043
Stddev	.0008	.0002	.0002
%RSD	28.36	5.061	5.033
#1	.0032	.0041	.0044
#2	.0021	.0038	.0041
Check ?	Chk Fail	Chk Pass	Chk Pass
Value	.0040		
Range	-30.00%		

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1950.0	34689.	3670.4
Stddev	4.7	73.	.1
%RSD	.24351	.21179	.00337
#1	1946.6	34637.	3670.3
#2	1953.3	34741.	3670.4

Sample Name: LLICV,0.5 Acquired: 7/10/2017 10:48:55 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: ICP16-70-A 1/50mL

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0176	.0202	.0409	.0140	.0081	.00203	.0406	.0019
Stddev	.0009	.0002	.0066	.0043	.0000	.00020	.0004	.0001
%RSD	4.887	.8779	16.14	30.87	.4729	9.9258	.9340	4.802
#1	.0182	.0203	.0456	.0171	.0081	.00189	.0404	.0018
#2	.0170	.0200	.0363	.0110	.0080	.00217	.0409	.0019
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Elem	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0018	.0310	.0403	.0069	.0039	.0096	.0081	.0338
Stddev	.0003	.0050	.0002	.0003	.0004	.0010	.0008	.0010
%RSD	18.04	16.20	.5539	4.365	10.21	10.15	10.41	2.893
#1	.0021	.0275	.0402	.0067	.0041	.0103	.0075	.0331
#2	.0016	.0346	.0405	.0071	.0036	.0090	.0087	.0345
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Elem	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576	Mn2605	Mo2020	Ni2216
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0181	.0444	.0099	.0104	.00199	F .0012	.0075	.0081
Stddev	.0013	.0087	.0002	.0014	.00001	.0019	.0003	.0002
%RSD	7.100	19.52	1.618	13.00	.70409	158.6	3.840	2.637
#1	.0172	.0505	.0098	.0094	.00200	-.0001	.0077	.0080
#2	.0190	.0382	.0100	.0114	.00198	.0025	.0073	.0083
Check ?	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass
Value						.0020		
Range						-30.00%		

Sample Name: LLICV,0.5 Acquired: 7/10/2017 10:48:55 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: ICP16-70-A 1/50mL

Elem	P_1782	K_7664	Se1960	Si2516	Ag3280	Na5895	Tl1908	Ti3361
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0679	.4194	.0428	.3879	F .1112	.3985	.0191	.0039
Stddev	.0077	.0326	.0021	.0125	.0017	.0006	.0066	.0001
%RSD	11.27	7.771	4.915	3.225	1.501	.1516	34.73	2.415
#1	.0625	.4425	.0443	.3968	.1123	.3989	.0238	.0039
#2	.0733	.3964	.0413	.3791	.1100	.3980	.0144	.0038
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
Value					.0080			
Range					30.00%			

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0072	.0080	.0080
Stddev	.0008	.0000	.0004
%RSD	11.59	.1106	5.065
#1	.0078	.0080	.0077
#2	.0066	.0080	.0083
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1946.3	34632.	3682.2
Stddev	5.8	165.	14.7
%RSD	.29636	.47539	.40039
#1	1950.4	34515.	3692.6
#2	1942.2	34748.	3671.8

Sample Name: CCVB1 Acquired: 7/10/2017 10:51:23 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment:

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**7.490**	**10.42**	**.0111**	**.9945**	**10.01**	**.00004**	**.0036**	**-.0001**
Stddev	.003	.06	.0009	.0122	.04	.00004	.0008	.0003
%RSD	.0389	.5941	7.977	1.224	.3526	97.586	21.33	511.6
#1	7.488	10.46	.0118	1.003	9.984	.00001	.0041	.0002
#2	7.492	10.37	.0105	.9859	10.03	.00007	.0030	-.0003
Check ?	None	Chk Pass	None	Chk Pass	Chk Pass	None	None	None
Value								
Range								

Elem	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0000**	**9.944**	**9.852**	**-.0002**	**-.0003**	**.0016**	**.0003**	**10.01**
Stddev	.000	.006	.135	.0001	.0003	.0005	.0001	.04
%RSD	1246.	.0573	1.374	73.80	106.5	32.43	15.24	.3873
#1	-.0001	9.948	9.756	-.0001	-.0001	.0012	.0004	9.986
#2	.0001	9.940	9.948	-.0003	-.0005	.0020	.0003	10.04
Check ?	None	Chk Pass	None	None	None	None	None	Chk Pass
Value								
Range								

Elem	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576	Mn2605	Mo2020	Ni2216
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0037**	**10.27**	**9.628**	**10.13**	**1.0010**	**.9988**	**-.0005**	**-.0001**
Stddev	.0012	.11	.042	.04	.0013	.0032	.0005	.0004
%RSD	31.18	1.072	.4409	.3458	.13172	.3246	104.5	265.1
#1	-.0045	10.35	9.598	10.16	1.0020	.9965	-.0008	-.0004
#2	-.0029	10.19	9.658	10.11	1.0001	1.001	-.0001	.0001
Check ?	None	Chk Pass	None	Chk Pass	None	Chk Pass	None	None
Value								
Range								

Sample Name: CCVB1 Acquired: 7/10/2017 10:51:23 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment:

Elem	P_1782	K_7664	Se1960	Si2516	Ag3280	Na5895	Tl1908	Ti3361
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.02**	**10.09**	**-.0127**	**9.996**	**.0048**	**10.13**	**.0018**	**.0002**
Stddev	.03	.07	.0031	.032	.0097	.03	.0039	.0002
%RSD	.3361	.7022	24.45	.3183	203.6	.3339	218.5	100.7
#1	10.05	10.14	-.0105	10.02	.0116	10.16	-.0010	.0001
#2	9.999	10.04	-.0149	9.974	-.0021	10.11	.0045	.0003
Check ?	Chk Pass	Chk Pass	None	Chk Pass	None	Chk Pass	None	None
Value								
Range								

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	**.0007**	**.0000**	**.0000**
Stddev	.0002	.000	.0003
%RSD	33.68	4604.	2538.
#1	.0008	.0002	.0003
#2	.0005	-.0003	-.0002
Check ?	None	None	None
Value			
Range			

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1915.8**	**33565.**	**3671.1**
Stddev	.3	33.	22.3
%RSD	.01747	.09937	.60871
#1	1916.0	33542.	3686.9
#2	1915.6	33589.	3655.3

Sample Name: CCVA1 Acquired: 7/10/2017 10:53:57 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment:

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2540	.2683	.2463	.2487	.2538	.24879	.2531	.2517
Stddev	.0029	.0068	.0049	.0001	.0004	.00029	.0026	.0001
%RSD	1.127	2.539	1.998	.0577	.1390	.11485	1.012	.0316
#1	.2520	.2732	.2428	.2488	.2536	.24899	.2513	.2516
#2	.2560	.2635	.2498	.2486	.2541	.24859	.2549	.2517
Check ?	Chk Pass	None	Chk Pass	None	None	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Elem	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2505	.4977	.5014	.2524	.2485	.2525	.2510	.2493
Stddev	.0004	.0038	.0013	.0016	.0007	.0016	.0005	.0101
%RSD	.1721	.7640	.2566	.6437	.2723	.6241	.1949	4.056
#1	.2508	.5004	.5005	.2535	.2490	.2514	.2513	.2422
#2	.2502	.4950	.5023	.2513	.2480	.2536	.2507	.2565
Check ?	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	None
Value								
Range								

Elem	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576	Mn2605	Mo2020	Ni2216
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2462	.3063	.2518	.2566	.25566	.2470	.2514	.2489
Stddev	.0032	.0564	.0004	.0020	.00002	.0017	.0013	.0005
%RSD	1.295	18.40	.1671	.7772	.00614	.6823	.4984	.1899
#1	.2485	.2665	.2515	.2552	.25567	.2458	.2522	.2492
#2	.2439	.3462	.2521	.2580	.25565	.2482	.2505	.2485
Check ?	Chk Pass	None	Chk Pass	None	Chk Pass	None	Chk Pass	Chk Pass
Value								
Range								

Sample Name: CCVA1 Acquired: 7/10/2017 10:53:57 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment:

Elem	P_1782	K_7664	Se1960	Si2516	Ag3280	Na5895	Tl1908	Ti3361
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0192	2.550	.2380	.1097	F .6486	.2554	.2559	.2525
Stddev	.0021	.015	.0014	.0142	.0030	.0072	.0096	.0004
%RSD	11.16	.5746	.5890	12.90	.4650	2.838	3.735	.1749
#1	-.0207	2.560	.2370	.1198	.6465	.2503	.2627	.2529
#2	-.0177	2.539	.2390	.0997	.6508	.2606	.2492	.2522
Check ?	None	None	Chk Pass	None	Chk Fail	None	Chk Pass	Chk Pass
Value					.2500			
Range					10.44%			

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.2511	.2513	.2511
Stddev	.0005	.0006	.0006
%RSD	.1846	.2572	.2209
#1	.2507	.2509	.2515
#2	.2514	.2518	.2507
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1939.2	34490.	3696.8
Stddev	.5	19.	6.1
%RSD	.02325	.05569	.16608
#1	1939.5	34504.	3692.5
#2	1938.9	34477.	3701.2

Sample Name: CCB   Acquired: 7/10/2017 10:56:20   Type: QC
Method: 2017A-MOD-ICP04(v11)   Mode: CONC   Corr. Factor: 1.000000
User: admin   Dilution: 1   Test Type: Sample Type:
Comment:

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0038	.0008	.0085	-.0085	.0000	.00000	-.0001	-.0001
Stddev	.0022	.0003	.0008	.0054	.000	.00015	.0001	.0000
%RSD	58.78	32.31	9.498	62.97	2999.	6129.9	97.80	33.67
#1	-.0022	.0006	.0090	-.0123	.0001	.00011	.0000	-.0001
#2	-.0054	.0010	.0079	-.0047	-.0002	-.00010	-.0002	-.0002
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0002	.0028	-.0002	-.0004	-.0004	.0012	-.0001	-.0014
Stddev	.0002	.0126	.0000	.0002	.0004	.0010	.0010	.0065
%RSD	117.2	444.4	7.727	45.15	107.7	80.45	1212.	453.7
#1	.0000	-.0061	-.0002	-.0005	-.0001	.0019	-.0008	-.0060
#2	-.0004	.0118	-.0003	-.0003	-.0006	.0005	.0006	.0031
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576	Mn2605	Mo2020	Ni2216
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0029	-.0121	.0000	.0016	-.00004	.0009	.0008	.0002
Stddev	.0006	.0059	.000	.0026	.00004	.0007	.0011	.0009
%RSD	19.07	48.24	153.5	159.0	100.68	72.16	141.7	364.4
#1	-.0033	-.0163	-.0001	-.0002	-.00007	.0005	.0000	-.0004
#2	-.0026	-.0080	.0000	.0035	-.00001	.0014	.0015	.0008
Check ?	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass	None	Chk Pass	Chk Pass
High Limit								
Low Limit								

Sample Name: CCB Acquired: 7/10/2017 10:56:20 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment:

Elem	P_1782	K_7664	Se1960	Si2516	Ag3280	Na5895	Tl1908	Ti3361
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0042	-.0018	.0036	-.0151	F .0090	-.0040	-.0032	.0001
Stddev	.0092	.0434	.0035	.0142	.0064	.0039	.0011	.0005
%RSD	218.2	2474.	97.91	93.72	70.99	97.41	33.05	488.6
#1	.0023	-.0325	.0061	-.0051	.0045	-.0012	-.0040	-.0003
#2	-.0107	.0290	.0011	-.0252	.0135	-.0067	-.0025	.0005
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit					.0040			
Low Limit					-.0040			

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0001	.0001	.0000
Stddev	.0002	.0002	.0002
%RSD	167.5	126.3	3116.
#1	.0000	.0002	-.0001
#2	.0003	.0000	.0001
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1949.3	34609.	3685.3
Stddev	.9	51.	8.2
%RSD	.04538	.14707	.22321
#1	1948.7	34645.	3691.1
#2	1950.0	34573.	3679.5

Sample Name: ICSA Acquired: 7/10/2017 10:58:49 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: ICP16-71-C

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**23.30**	**476.9**	-.0257	-.0012	**.0002**	-.00038	**.0116**	-.0002
Stddev	.10	.4	.0053	.0045	.0003	.00018	.0016	.0001
%RSD	.4209	.0935	20.51	370.0	131.7	48.254	13.62	47.80
#1	23.23	477.3	-.0220	.0020	.0004	-.00025	.0105	-.0001
#2	23.37	476.6	-.0294	-.0044	.0000	-.00051	.0127	-.0002
Check ?	None	None	None	None	None	None	None	None
Value								
Range								

Elem	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0001	**479.8**	*****	-.0034	-.0083	-.0043	-.0049	**183.7**
Stddev	.0000	3.0	-----	.0003	.0009	.0009	.0011	1.4
%RSD	27.17	.6344	-----	8.984	11.26	20.64	22.79	.7412
#1	-.0001	481.9	-----	-.0031	-.0089	-.0037	-.0041	184.7
#2	-.0001	477.6	-----	-.0036	-.0076	-.0050	-.0057	182.7
Check ?	None	Chk Pass	None	None	None	None	None	Chk Pass
Value								
Range								

Elem	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576	Mn2605	Mo2020	Ni2216
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0019**	**587.1**	**183.9**	**421.0**	-.00272	**.0010**	-.0029	-.0050
Stddev	.0064	3.9	1.5	.2	.00006	.0022	.0012	.0002
%RSD	341.1	.6679	.7892	.0534	2.3419	231.0	43.74	3.318
#1	.0064	589.8	185.0	420.9	-.00277	-.0006	-.0037	-.0052
#2	-.0027	584.3	182.9	421.2	-.00268	.0025	-.0020	-.0049
Check ?	None	Chk Pass	None	None	None	None	None	None
Value								
Range								

Sample Name: ICSA Acquired: 7/10/2017 10:58:49 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: ICP16-71-C

Elem	P_1782	K_7664	Se1960	Si2516	Ag3280	Na5895	Tl1908	Ti3361
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0135	.0227	-.0249	.0033	-.0258	.0047	-.0124	-.0010
Stddev	.0202	.0259	.0098	.0023	.0075	.0046	.0105	.0001
%RSD	150.2	114.0	39.31	68.76	29.14	98.09	84.01	6.317
#1	-.0008	.0044	-.0180	.0049	-.0311	.0014	-.0051	-.0010
#2	.0278	.0410	-.0319	.0017	-.0205	.0079	-.0198	-.0011
Check ?	None	None	None	None	None	None	None	None
Value								
Range								

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0009	-.0081	-.0065
Stddev	.0011	.0007	.0000
%RSD	125.8	9.004	.7140
#1	.0001	-.0076	-.0065
#2	.0016	-.0086	-.0064
Check ?	None	None	None
Value			
Range			

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1691.0	28891.	3441.0
Stddev	6.5	44.	34.9
%RSD	.38682	.15184	1.0147
#1	1686.3	28922.	3416.3
#2	1695.6	28860.	3465.7

Sample Name: ICSAB Acquired: 7/10/2017 11:01:32 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: ICP16-71-D

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**23.33**	**472.2**	**F .7658**	**.0077**	**.4979**	**.48783**	**.0122**	**.9319**
Stddev	.07	.8	.0095	.0015	.0015	.00030	.0021	.0003
%RSD	.2874	.1677	1.236	20.15	.2934	.06190	17.32	.0359
#1	23.37	472.8	.7725	.0088	.4969	.48804	.0137	.9322
#2	23.28	471.6	.7591	.0066	.4990	.48762	.0107	.9317
Check ?	None	None	Chk Fail	None	Chk Pass	Chk Pass	None	Chk Pass
Value			1.000					
Range			-20.00%					

Elem	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.9184**	**469.5**	*****	**.4745**	**.4310**	**.4507**	**.4413**	**180.1**
Stddev	.0030	2.8	-----	.0002	.0015	.0011	.0008	1.0
%RSD	.3217	.5933	-----	.0333	.3565	.2499	.1740	.5455
#1	.9205	467.6	-----	.4746	.4321	.4499	.4408	179.4
#2	.9163	471.5	-----	.4744	.4299	.4515	.4419	180.8
Check ?	Chk Pass	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Elem	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576	Mn2605	Mo2020	Ni2216
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.8686**	**572.2**	**181.1**	**420.0**	**.47195**	**.5073**	**-.0035**	**.8577**
Stddev	.0049	3.7	.6	.5	.00050	.0030	.0009	.0004
%RSD	.5645	.6475	.3357	.1246	.10577	.5994	25.06	.0523
#1	.8652	569.6	180.7	419.6	.47159	.5051	-.0029	.8580
#2	.8721	574.8	181.6	420.4	.47230	.5094	-.0042	.8573
Check ?	Chk Pass	Chk Pass	None	None	Chk Pass	Chk Pass	None	Chk Pass
Value								
Range								

Sample Name: ICSAB Acquired: 7/10/2017 11:01:32 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: ICP16-71-D

Elem	P_1782	K_7664	Se1960	Si2516	Ag3280	Na5895	Tl1908	Ti3361
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0014**	**-.0033**	**-.0338**	**-.0246**	**F 11.88**	**.0170**	**-.0204**	**-.0009**
Stddev	.0115	.0146	.0048	.0097	.00	.0053	.0139	.0005
%RSD	816.7	443.3	14.12	39.28	.0058	30.98	68.19	60.66
#1	-.0095	-.0136	-.0372	-.0178	11.88	.0208	-.0302	-.0005
#2	.0067	.0070	-.0305	-.0315	11.88	.0133	-.0106	-.0013
Check ?	None	None	None	None	Chk Fail	None	None	None
Value					1.000			
Range					20.00%			

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	**.4925**	**.9181**	**.8973**
Stddev	.0004	.0016	.0008
%RSD	.0792	.1746	.0922
#1	.4922	.9193	.8978
#2	.4927	.9170	.8967
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1699.2**	**29125.**	**3484.0**
Stddev	.0	13.	19.3
%RSD	.00222	.04410	.55473
#1	1699.2	29134.	3497.7
#2	1699.2	29116.	3470.4

Sample Name: 200ppm Fe STD   Acquired: 7/10/2017 11:05:40   Type: QC
Method: 2017A-MOD-ICP04(v11)   Mode: CONC   Corr. Factor: 1.000000
User: admin   Dilution: 1   Test Type: Sample Type:
Comment: 0.2/10mL Fe 10,000ppm MET2-94-L

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000	.0000	.0000	.0018	.0001	.00020	.0000	.0000
Stddev	.0096	.0027	.0018	.0006	.0002	.00006	.002	.0000
%RSD	1658000.	41420.	15030.	31.99	201.7	29.090	32040.	3525000.
#1	-.0068	.0019	-.0013	.0022	.0002	.00024	.0012	.0000
#2	.0068	-.0019	.0013	.0014	.0000	.00016	-.0012	.0000
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000	.0000	.0000	-.0009	-.0002	-.0010	-.0023	F 190.3
Stddev	.0006	.006	.0037	.0006	.0005	.0011	.0004	.5
%RSD	1475000.	111400.	1200e6	73.39	217.8	108.5	19.05	.2793
#1	-.0004	-.0042	-.0026	-.0013	-.0006	-.0018	-.0020	190.7
#2	.0004	.0042	.0026	-.0004	.0001	-.0002	-.0026	189.9
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail
High Limit								.0200
Low Limit								-.0200

Elem	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576	Mn2605	Mo2020	Ni2216
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0037	.0408	.0000	.0000	.00007	.0011	-.0025	.0006
Stddev	.0009	.0041	.0036	.004	.00003	.0001	.0012	.0001
%RSD	24.89	10.03	1345e6	265000.	46.694	9.389	47.39	9.289
#1	.0044	.0379	-.0026	-.0025	.00004	.0011	-.0033	.0005
#2	.0031	.0437	.0026	.0025	.00009	.0012	-.0017	.0006
Check ?	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass	None	Chk Pass	Chk Pass
High Limit								
Low Limit								

Sample Name: 200ppm Fe STD Acquired: 7/10/2017 11:05:40 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: 0.2/10mL Fe 10,000ppm MET2-94-L

Elem	P_1782	K_7664	Se1960	Si2516	Ag3280	Na5895	Tl1908	Ti3361
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0183	.0034	-.0078	-.0208	.0000	-.0030	.0028	.0003
Stddev	.0049	.0260	.0040	.0058	.0034	.0131	.0029	.0000
%RSD	26.70	770.8	50.53	27.86	1320e6	432.3	105.3	4.202
#1	.0148	.0217	-.0050	-.0167	.0024	.0062	.0007	.0003
#2	.0217	-.0150	-.0106	-.0249	-.0024	-.0123	.0049	.0003
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0001	-.0039	.0000
Stddev	.0004	.0001	.000
%RSD	366.7	2.279	8923.
#1	.0002	-.0039	-.0003
#2	-.0004	-.0038	.0003
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1905.7	33571.	3673.2
Stddev	5.3	56.	14.5
%RSD	.27728	.16773	.39511
#1	1901.9	33611.	3662.9
#2	1909.4	33531.	3683.5

Sample Name: KQ1708952-02 Acquired: 7/10/2017 11:18:49 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B K1705945-MB

Elem	Al1670	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0002	.0171	-.0089	-.0001	.00001	-.0023	-.0002	-.0001
#1	.0055	.0166	-.0098	-.0001	-.00022	-.0028	-.0002	-.0001
#2	-.0060	.0176	-.0080	-.0001	.00023	-.0017	-.0002	-.0001

Elem	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203	Mg2795
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0065	-.0003	-.0011	.0010	-.0005	F .0376	-.0025	.0013
#1	.0066	-.0006	-.0014	.0003	-.0006	.0362	-.0030	.0015
#2	.0065	.0001	-.0007	.0017	-.0004	.0390	-.0020	.0012

Elem	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.00008	-.0002	-.0004	-.0126	.0263	-.0096	-.0267	-.0005
#1	-.00002	-.0006	-.0004	-.0023	.0160	-.0075	-.0426	-.0107
#2	-.00015	.0001	-.0004	-.0229	.0366	-.0117	-.0107	.0097

Elem	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0108	.0002	.0004	-.0004	.0001	.0001
#1	-.0108	.0036	.0004	-.0011	.0001	.0003
#2	-.0109	-.0033	.0005	.0002	.0001	-.0001

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1947.0	34477.	3656.4
#1	1942.6	34417.	3656.8
#2	1951.3	34537.	3656.0

Sample Name: KQ1708952-01 Acquired: 7/10/2017 11:21:18 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B K1705945-LCSW

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.943**	**2.047**	**.5066**	**.1633**	**.9973**	**.04941**	**.0865**	**.0486**
#1	1.941	2.050	.5080	.1651	.9971	.04956	.0872	.0486
#2	1.945	2.044	.5052	.1615	.9976	.04927	.0857	.0486

Elem	Cd2265	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0486**	**.0105**	**.1960**	**.4940**	**.2459**	**.2508**	**.9907**	**.4852**
#1	.0487	.0105	.1968	.4955	.2462	.2522	.9971	.4873
#2	.0485	.0105	.1953	.4925	.2455	.2494	.9844	.4831

Elem	Mg2795	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0018**	**.48740**	**.1734**	**.4871**	**-.0061**	**.0231**	**.1747**	**-.0076**
#1	.0019	.48675	.1741	.4872	-.0110	.0072	.1707	-.0109
#2	.0018	.48805	.1727	.4870	-.0012	.0391	.1788	-.0042

Elem	Ag3280	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.6273**	**.0035**	**.0356**	**.0003**	**.4909**	**.4868**	**.4901**
#1	.6180	.0011	.0347	.0003	.4914	.4860	.4893
#2	.6365	.0058	.0366	.0003	.4905	.4877	.4908

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1961.4**	**34882.**	**3718.2**
#1	1955.1	34922.	3700.0
#2	1967.8	34842.	3736.3

Sample Name: KQ1708952-03 Acquired: 7/10/2017 11:23:39 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B K1705945-SRM1 DORM-4

Elem	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**14.31**	**-.0041**	**.0685**	**.0495**	**.00013**	**.0817**	**.0030**	**.0025**
#1	14.34	-.0051	.0677	.0495	.00018	.0822	.0028	.0022
#2	14.27	-.0032	.0694	.0495	.00008	.0812	.0031	.0028

Elem	Ca3158	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203	Mg2795
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**21.98**	**.0178**	**.0019**	**.1443**	**.1393**	**3.087**	**-.0018**	**8.002**
#1	21.98	.0179	.0021	.1437	.1407	3.093	-.0016	8.007
#2	21.99	.0177	.0017	.1449	.1379	3.081	-.0020	7.997

Elem	Mg2852	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**8.644**	**.02842**	**.0026**	**.0115**	**73.98**	**128.7**	**.0392**	**8.370**
#1	8.654	.02855	.0024	.0118	74.06	129.0	.0381	8.410
#2	8.634	.02828	.0028	.0113	73.89	128.4	.0402	8.331

Elem	Ag3280	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0046**	**138.9**	**-.0005**	**.1112**	**.0149**	**.4888**	**.4795**
#1	.0056	139.2	.0008	.1115	.0148	.4888	.4803
#2	.0036	138.6	-.0019	.1109	.0150	.4888	.4788

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1850.1**	**32449.**	**3749.3**
#1	1851.1	32455.	3758.6
#2	1849.1	32443.	3739.9

Sample Name: KQ1708952-04 Acquired: 7/10/2017 11:26:03 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B K1705945-SRM2 TORT-3

Elem	Al1670	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0953**	**-.0006**	**.6266**	**.0023**	**.00001**	**.0270**	**.3888**	**.3857**
#1	.0980	-.0032	.6336	.0025	.00001	.0260	.3881	.3859
#2	.0927	.0021	.6196	.0022	.00000	.0281	.3895	.3855

Elem	Ca3158	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203	Mg2852
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**22.54**	**.0184**	**.0093**	**4.303**	**4.163**	**1.566**	**-.0009**	**10.69**
#1	22.52	.0180	.0093	4.305	4.160	1.568	-.0005	10.67
#2	22.57	.0189	.0094	4.301	4.166	1.564	-.0013	10.71

Elem	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.13894**	**.0304**	**.0468**	**>90.00**	**137.3**	**.1062**	**.2539**	**.2222**
#1	.13929	.0308	.0472	104.1	137.0	.1052	.2461	.2242
#2	.13858	.0300	.0465	103.4	137.5	.1071	.2616	.2202

Elem	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**189.5**	**.0008**	**.0089**	**.0824**	**1.295**	**1.255**
#1	189.3	.0012	.0089	.0828	1.291	1.252
#2	189.8	.0004	.0090	.0821	1.298	1.258

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1826.0**	**31985.**	**3745.4**
#1	1822.4	31942.	3738.7
#2	1829.7	32028.	3752.0

Sample Name: K1705945-005 Acquired: 7/10/2017 11:28:32 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B

Elem	Al1670	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.5978**	**.0050**	**.0711**	**.0055**	**.00000**	**.2470**	**.0309**	**.0305**
#1	.5898	.0043	.0710	.0053	-.00032	.2469	.0310	.0306
#2	.6059	.0057	.0712	.0057	.00031	.2471	.0308	.0304

Elem	Ca3158	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203	Mg2852
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**41.54**	**.0094**	**.0013**	**.1550**	**.1496**	**1.115**	**.0162**	**54.88**
#1	41.55	.0096	.0010	.1545	.1506	1.114	.0181	54.67
#2	41.53	.0092	.0015	.1556	.1485	1.116	.0144	55.09

Elem	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.51670**	**.0048**	**.0100**	**>90.00**	**85.63**	**.0260**	**.6857**	**.0041**
#1	.51682	.0051	.0098	110.5	85.15	.0209	.6822	.0067
#2	.51658	.0044	.0102	109.9	86.10	.0312	.6891	.0016

Elem	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**392.7**	**-.0015**	**.0366**	**.0055**	**1.377**	**1.329**
#1	390.7	-.0071	.0366	.0048	1.382	1.333
#2	394.7	.0041	.0365	.0062	1.372	1.325

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1776.4**	**30938.**	**3672.2**
#1	1774.5	30955.	3659.3
#2	1778.3	30922.	3685.1

Sample Name: K1705945-005L Acquired: 7/10/2017 11:31:08 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 5 Test Type: Sample Type:
Comment: EM 071017B 1/5

Elem	Al1670	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.1362**	**.0002**	**.0069**	**.0010**	**.00007**	**.0495**	**.0063**	**.0061**
#1	.1284	.0002	.0085	.0009	.00010	.0487	.0063	.0062
#2	.1439	.0003	.0053	.0010	.00005	.0503	.0063	.0061

Elem	Ca3158	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**8.420**	**8.401**	**.0014**	**.0005**	**.0337**	**.0314**	**.2183**	**.0042**
#1	8.435	8.401	.0016	.0000	.0336	.0324	.2207	.0022
#2	8.405	8.401	.0012	.0011	.0338	.0304	.2159	.0062

Elem	Mg2852	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**11.25**	**.10553**	**.0006**	**.0018**	**22.00**	**16.83**	**.0058**	**.1202**
#1	11.26	.10510	.0007	.0019	22.09	16.91	.0040	.1241
#2	11.23	.10595	.0004	.0016	21.92	16.76	.0075	.1162

Elem	Ag3280	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0046**	**78.98**	**.0006**	**.0073**	**.0005**	**.2790**	**.2723**
#1	-.0038	79.06	.0013	.0074	.0008	.2780	.2718
#2	.0129	78.91	.0000	.0073	.0003	.2801	.2727

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1872.5**	**32895.**	**3684.7**
#1	1867.3	32866.	3685.8
#2	1877.6	32925.	3683.5

Sample Name: KQ1708952-05 Acquired: 7/10/2017 11:33:35 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B K1705945-005D

Elem	Al1670	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.6224**	**.0102**	**.0692**	**.0056**	**.00008**	**.2434**	**.0306**	**.0302**
#1	.6222	.0090	.0725	.0055	-.00007	.2432	.0307	.0301
#2	.6226	.0114	.0660	.0056	.00024	.2436	.0304	.0303

Elem	Ca3158	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203	Mg2852
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**29.50**	**.0099**	**.0019**	**.1530**	**.1455**	**1.129**	**.0104**	**53.38**
#1	29.43	.0095	.0021	.1534	.1461	1.128	.0078	53.36
#2	29.57	.0103	.0017	.1527	.1449	1.130	.0130	53.40

Elem	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.51140**	**.0042**	**.0096**	**>90.00**	**83.08**	**.0211**	**.6556**	**.0132**
#1	.51317	.0043	.0094	107.3	83.09	.0243	.6556	.0082
#2	.50963	.0040	.0099	106.4	83.07	.0180	.6555	.0182

Elem	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**379.8**	**-.0065**	**.0381**	**.0046**	**1.363**	**1.300**
#1	381.8	-.0092	.0382	.0034	1.365	1.301
#2	377.8	-.0039	.0380	.0057	1.361	1.299

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1778.7**	**30770.**	**3640.5**
#1	1776.7	30771.	3643.9
#2	1780.6	30769.	3637.0

Sample Name: KQ1708952-06 Acquired: 7/10/2017 11:36:12 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B K1705945-005S

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**2.363**	**2.726**	**.4805**	**.2351**	**1.003**	**.04988**	**.3166**	**.0780**
#1	2.376	2.738	.4909	.2384	.9998	.04959	.3166	.0783
#2	2.350	2.714	.4700	.2317	1.006	.05016	.3165	.0778

Elem	Cd2265	Ca3158	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0772**	**32.89**	**.2051**	**.4775**	**.3821**	**.3701**	**2.026**	**.4661**
#1	.0772	32.70	.2044	.4798	.3836	.3735	2.019	.4654
#2	.0773	33.07	.2057	.4752	.3807	.3666	2.033	.4669

Elem	Mg2852	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**51.46**	**.96051**	**.1739**	**.4773**	**>90.00**	**80.20**	**.1976**	**.8100**
#1	51.46	.95935	.1742	.4784	103.1	80.24	.1943	.8130
#2	51.46	.96167	.1735	.4762	102.6	80.16	.2009	.8071

Elem	Ag3280	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.4854**	**366.4**	**.0273**	**.0323**	**.5108**	**1.781**	**1.712**
#1	.4929	366.1	.0287	.0323	.5137	1.782	1.714
#2	.4779	366.7	.0260	.0324	.5078	1.779	1.709

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1775.0**	**30912.**	**3665.0**
#1	1771.7	30912.	3676.7
#2	1778.3	30913.	3653.3

Sample Name: K1705945-001 Acquired: 7/10/2017 11:38:45 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B

Elem	Al1670	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.9562**	**.0020**	**.0894**	**.0095**	**.00048**	**.2341**	**.0250**	**.0250**
#1	.9517	-.0022	.0897	.0096	.00057	.2332	.0251	.0250
#2	.9608	.0063	.0891	.0094	.00039	.2351	.0248	.0250

Elem	Ca3158	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203	Mg2852
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**88.00**	**.0219**	**.0031**	**.2029**	**.1925**	**1.785**	**.0120**	**51.33**
#1	87.73	.0221	.0028	.2035	.1902	1.772	.0121	51.65
#2	88.26	.0218	.0034	.2022	.1947	1.797	.0119	51.00

Elem	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.17324	**.0068**	**.0149**	>90.00	**90.12**	**.0324**	**.8189**	**.0045**
#1	.17351	.0070	.0146	95.14	90.73	.0350	.8122	-.0028
#2	.17296	.0065	.0151	94.80	89.51	.0297	.8256	.0119

Elem	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**360.0**	**.0011**	**.0625**	**.0066**	**1.460**	**1.402**
#1	363.4	-.0019	.0629	.0074	1.462	1.404
#2	356.7	.0040	.0622	.0058	1.457	1.400

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1750.2**	**30627.**	**3657.9**
#1	1748.2	30540.	3693.6
#2	1752.2	30713.	3622.2

Sample Name: K1705945-002 Acquired: 7/10/2017 11:41:18 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B

Elem	Al1670	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.4995**	**.0026**	**.0620**	**.0058**	**.00023**	**.2154**	**.0272**	**.0266**
#1	.5084	.0045	.0601	.0059	.00034	.2145	.0274	.0267
#2	.4907	.0006	.0638	.0056	.00012	.2162	.0270	.0265

Elem	Ca3158	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203	Mg2852
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**37.89**	**.0117**	**.0015**	**.1598**	**.1550**	**1.163**	**.0092**	**45.22**
#1	38.04	.0119	.0026	.1620	.1572	1.171	.0107	45.42
#2	37.74	.0115	.0004	.1576	.1527	1.155	.0077	45.02

Elem	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.17045**	**.0051**	**.0079**	**>90.00**	**82.42**	**.0190**	**.5915**	**.0121**
#1	.16977	.0050	.0070	113.8	82.77	.0178	.5722	.0183
#2	.17113	.0052	.0088	113.6	82.06	.0201	.6108	.0058

Elem	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**311.2**	**-.0020**	**.0352**	**.0042**	**1.290**	**1.239**
#1	312.6	-.0041	.0348	.0046	1.289	1.239
#2	309.8	.0001	.0357	.0037	1.290	1.239

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1783.0**	**31147.**	**3663.6**
#1	1778.4	31104.	3654.9
#2	1787.7	31189.	3672.4

Sample Name: CCVB   Acquired: 7/10/2017 11:43:56   Type: QC
Method: 2017A-MOD-ICP04(v11)   Mode: CONC   Corr. Factor: 1.000000
User: admin   Dilution: 1   Test Type: Sample Type:
Comment:

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**7.681**	**10.20**	**-.0030**	**.9924**	**9.987**	**.00008**	**.0025**	**-.0001**
Stddev	.045	.02	.0080	.0004	.068	.00030	.0029	.0001
%RSD	.5910	.1496	263.0	.0443	.6811	367.04	116.0	54.02
#1	7.713	10.21	-.0087	.9921	10.03	-.00013	.0045	-.0001
#2	7.648	10.19	.0026	.9927	9.939	.00030	.0004	-.0002
Check ?	None	Chk Pass	None	Chk Pass	Chk Pass	None	None	None
Value								
Range								

Elem	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0004**	**9.998**	**9.793**	**.0002**	**-.0003**	**.0010**	**-.0004**	**10.04**
Stddev	.0000	.056	.096	.0010	.0001	.0003	.0006	.02
%RSD	4.977	.5579	.9776	605.1	23.16	30.19	127.3	.2231
#1	-.0004	9.959	9.861	-.0005	-.0002	.0008	.0000	10.03
#2	-.0004	10.04	9.725	.0008	-.0003	.0013	-.0008	10.06
Check ?	None	Chk Pass	None	None	None	None	None	Chk Pass
Value								
Range								

Elem	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576	Mn2605	Mo2020	Ni2216
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0061**	**10.15**	**9.655**	**10.10**	**.99621**	**.9894**	**-.0006**	**-.0005**
Stddev	.0016	.05	.005	.04	.00067	.0082	.0007	.0006
%RSD	25.93	.4847	.0473	.3660	.06699	.8324	115.8	124.6
#1	-.0073	10.11	9.658	10.08	.99574	.9836	-.0001	-.0001
#2	-.0050	10.18	9.652	10.13	.99668	.9952	-.0011	-.0008
Check ?	None	Chk Pass	None	Chk Pass	None	Chk Pass	None	None
Value								
Range								

Sample Name: CCVB   Acquired: 7/10/2017 11:43:56   Type: QC
Method: 2017A-MOD-ICP04(v11)   Mode: CONC   Corr. Factor: 1.000000
User: admin   Dilution: 1   Test Type: Sample Type:
Comment:

Elem	P_1782	K_7664	Se1960	Si2516	Ag3280	Na5895	Tl1908	Ti3361
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**10.08**	**10.11**	**-.0092**	**9.893**	**.0133**	**10.13**	**-.0008**	**.0003**
Stddev	.01	.08	.0004	.051	.0006	.11	.0037	.0000
%RSD	.1337	.7654	4.201	.5153	4.202	1.095	486.3	7.684
#1	10.09	10.05	-.0095	9.857	.0129	10.05	.0019	.0003
#2	10.07	10.16	-.0090	9.929	.0137	10.21	-.0034	.0003
Check ?	Chk Pass	Chk Pass	None	Chk Pass	None	Chk Pass	None	None
Value								
Range								

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	**-.0004**	**.0003**	**.0004**
Stddev	.0007	.0000	.0007
%RSD	197.2	5.778	172.0
#1	.0001	.0003	-.0001
#2	-.0008	.0003	.0009
Check ?	None	None	None
Value			
Range			

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1914.2**	**33629.**	**3640.8**
Stddev	8.0	54.	22.8
%RSD	.41764	.16010	.62567
#1	1908.6	33667.	3624.7
#2	1919.9	33591.	3656.9

Sample Name: CCVA Acquired: 7/10/2017 11:46:30 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment:

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2635	.2624	.2395	.2483	.2541	.24966	.2524	.2525
Stddev	.0027	.0098	.0048	.0020	.0009	.00017	.0013	.0002
%RSD	1.030	3.746	2.011	.8238	.3647	.06840	.5223	.0608
#1	.2616	.2693	.2429	.2498	.2548	.24978	.2533	.2524
#2	.2654	.2554	.2360	.2469	.2535	.24954	.2515	.2526
Check ?	Chk Pass	None	Chk Pass	None	None	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Elem	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2501	.5126	.5013	.2505	.2503	.2512	.2495	.2507
Stddev	.0001	.0142	.0003	.0015	.0008	.0017	.0007	.0052
%RSD	.0237	2.766	.0608	.6035	.3369	.6945	.2751	2.075
#1	.2502	.5226	.5015	.2494	.2509	.2524	.2500	.2470
#2	.2501	.5026	.5011	.2516	.2497	.2500	.2491	.2544
Check ?	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	None
Value								
Range								

Elem	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576	Mn2605	Mo2020	Ni2216
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2474	.3287	.2534	.2570	.25369	.2431	.2486	.2499
Stddev	.0004	.0040	.0003	.0011	.00006	.0037	.0004	.0001
%RSD	.1434	1.203	.1238	.4182	.02342	1.527	.1481	.0399
#1	.2471	.3315	.2532	.2563	.25373	.2458	.2488	.2499
#2	.2476	.3259	.2536	.2578	.25365	.2405	.2483	.2498
Check ?	Chk Pass	None	Chk Pass	None	Chk Pass	None	Chk Pass	Chk Pass
Value								
Range								

Sample Name: CCVA Acquired: 7/10/2017 11:46:30 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment:

Elem	P_1782	K_7664	Se1960	Si2516	Ag3280	Na5895	Tl1908	Ti3361
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0137	2.528	.2495	.1200	F .7021	.3011	.2490	.2521
Stddev	.0021	.004	.0042	.0127	.0162	.0097	.0047	.0005
%RSD	15.03	.1448	1.685	10.55	2.314	3.223	1.907	.1960
#1	-.0122	2.530	.2524	.1111	.6906	.3079	.2523	.2525
#2	-.0151	2.525	.2465	.1290	.7136	.2942	.2456	.2518
Check ?	None	None	Chk Pass	None	Chk Fail	None	Chk Pass	Chk Pass
Value					.2500			
Range					10.44%			

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.2493	.2526	.2510
Stddev	.0010	.0003	.0006
%RSD	.3976	.1217	.2512
#1	.2500	.2524	.2505
#2	.2486	.2528	.2514
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1953.4	34603.	3644.2
Stddev	3.8	49.	14.0
%RSD	.19699	.14303	.38548
#1	1950.7	34568.	3634.3
#2	1956.1	34638.	3654.1

Sample Name: CCB   Acquired: 7/10/2017 11:48:52   Type: QC
Method: 2017A-MOD-ICP04(v11)   Mode: CONC   Corr. Factor: 1.000000
User: admin   Dilution: 1   Test Type: Sample Type:
Comment:

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0097	-.0006	.0078	-.0076	.0004	-.00011	.0012	-.0001
Stddev	.0047	.0012	.0000	.0046	.0003	.00002	.0013	.0003
%RSD	49.08	202.0	.3796	60.50	69.69	16.238	106.4	216.7
#1	-.0063	.0003	.0078	-.0109	.0006	-.00013	.0022	-.0003
#2	-.0130	-.0015	.0078	-.0044	.0002	-.00010	.0003	.0001
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0003	-.0045	.0002	.0006	-.0002	.0009	-.0009	-.0027
Stddev	.0000	.0013	.0004	.0001	.0005	.0004	.0005	.0032
%RSD	3.105	27.80	177.7	23.80	291.9	48.38	49.24	117.6
#1	-.0003	-.0036	.0005	.0005	-.0005	.0006	-.0013	-.0049
#2	-.0003	-.0054	-.0001	.0007	.0002	.0012	-.0006	-.0005
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576	Mn2605	Mo2020	Ni2216
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0001	-.0212	.0003	.0003	-.00010	.0006	.0008	.0001
Stddev	.0008	.0292	.0005	.0017	.00005	.0016	.0008	.0001
%RSD	750.3	138.0	180.6	661.7	47.289	251.2	94.69	177.6
#1	.0005	-.0005	.0006	-.0009	-.00007	.0018	.0003	.0001
#2	-.0007	-.0419	-.0001	.0014	-.00014	-.0005	.0014	.0000
Check ?	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass	None	Chk Pass	Chk Pass
High Limit								
Low Limit								

Sample Name: CCB Acquired: 7/10/2017 11:48:52 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment:

Elem	P_1782	K_7664	Se1960	Si2516	Ag3280	Na5895	Tl1908	Ti3361
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0125	.0731	-.0034	-.0235	F .0121	.0520	-.0005	.0002
Stddev	.0042	.0171	.0000	.0005	.0037	.0047	.0009	.0000
%RSD	33.54	23.44	.0274	2.114	30.68	9.115	187.6	22.71
#1	-.0095	.0852	-.0034	-.0239	.0094	.0486	.0002	.0001
#2	-.0154	.0610	-.0034	-.0232	.0147	.0553	-.0011	.0002
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit					.0040			
Low Limit					-.0040			

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0009	.0003	-.0002
Stddev	.0007	.0000	.0001
%RSD	76.51	14.39	41.26
#1	-.0014	.0003	-.0001
#2	-.0004	.0004	-.0003
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1954.2	34474.	3627.0
Stddev	3.8	12.	6.8
%RSD	.19288	.03360	.18878
#1	1951.6	34483.	3622.2
#2	1956.9	34466.	3631.9

Sample Name: K1705945-003 Acquired: 7/10/2017 11:51:21 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B

Elem	Al1670	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.6829**	**.0034**	**.0546**	**.0091**	**.00028**	**.2487**	**.0221**	**.0219**
#1	.6753	.0010	.0539	.0091	.00025	.2499	.0221	.0220
#2	.6905	.0058	.0552	.0091	.00032	.2476	.0221	.0218

Elem	Ca3158	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203	Mg2852
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**53.76**	**.0387**	**.0035**	**.3184**	**.3026**	**1.440**	**.0243**	**50.40**
#1	53.70	.0401	.0034	.3172	.3032	1.450	.0254	50.40
#2	53.82	.0373	.0036	.3197	.3021	1.429	.0232	50.39

Elem	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.2306**	**.0077**	**.0276**	>90.00	**68.57**	**.0151**	**.6526**	**.0165**
#1	1.2302	.0077	.0275	95.68	68.68	.0211	.6555	.0175
#2	1.2310	.0077	.0276	95.30	68.46	.0092	.6496	.0156

Elem	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**374.2**	**-.0048**	**.0410**	**.0073**	**1.817**	**1.738**
#1	375.7	.0006	.0411	.0071	1.820	1.737
#2	372.7	-.0103	.0409	.0075	1.814	1.740

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1795.4**	**30979.**	**3648.9**
#1	1792.5	30911.	3652.0
#2	1798.3	31046.	3645.8

Sample Name: K1705945-004 Acquired: 7/10/2017 11:53:56 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B

Elem	Al1670	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.6822	.0029	.0722	.0121	.00023	.2619	.0506	.0503
#1	.6864	.0068	.0728	.0118	.00002	.2652	.0508	.0503
#2	.6780	-.0010	.0716	.0124	.00043	.2587	.0505	.0503

Elem	Ca3158	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203	Mg2852
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	54.39	.0275	.0036	.2877	.2769	1.566	.0309	54.71
#1	54.65	.0275	.0035	.2876	.2767	1.576	.0312	54.34
#2	54.14	.0275	.0037	.2879	.2771	1.556	.0306	55.08

Elem	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.2726	.0070	.0265	>90.00	67.47	.0167	.6959	.0063
#1	1.2747	.0072	.0265	96.21	66.79	.0099	.6974	-.0069
#2	1.2705	.0068	.0265	95.56	68.14	.0234	.6945	.0195

Elem	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	377.9	-.0070	.0451	.0140	1.949	1.877
#1	372.1	-.0078	.0452	.0140	1.956	1.887
#2	383.7	-.0062	.0449	.0140	1.943	1.867

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1774.4	31028.	3652.0
#1	1775.2	31028.	3626.6
#2	1773.7	31028.	3677.4

Sample Name: KQ1708815-02 Acquired: 7/10/2017 11:56:33 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B K1706133-MBR

Elem	Al1670	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0060	.0012	F -.0103	.0000	-.00007	.0007	.0001
#1	-.0054	-.0002	-.0066	-.0002	-.00013	.0005	.0001
#2	-.0066	.0026	-.0140	.0002	.00000	.0008	.0000

Elem	Cd2265	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0002	.0047	-.0001	-.0001	.0010	.0009	-.0065
#1	-.0005	.0035	.0000	.0002	.0018	.0009	-.0057
#2	.0000	.0059	-.0003	-.0005	.0001	.0009	-.0074

Elem	Pb2203	Mg2795	Mn2576	Mo2020	Ni2216	P_1782	K_7664
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0022	.0030	.00009	-.0005	.0003	-.0040	.1087
#1	-.0040	.0017	.00008	-.0003	.0010	.0030	.1055
#2	-.0005	.0042	.00009	-.0007	-.0003	-.0110	.1119

Elem	Se1960	Si2516	Ag3280	Na5895	Tl1908	Ti3361	V_2924
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0045	-.0185	F .0048	.1108	-.0010	-.0001	-.0011
#1	-.0077	-.0105	.0025	.1063	-.0067	-.0002	-.0009
#2	-.0013	-.0264	.0071	.1154	.0047	.0001	-.0013

Elem	Zn2062	Zn2138
Units	ppm	ppm
Avg	.0006	.0001
#1	.0004	.0000
#2	.0008	.0003

Sample Name: KQ1708815-02 Acquired: 7/10/2017 11:56:33 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B K1706133-MBR

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1949.1	34609.	3672.6
#1	1944.0	34539.	3656.4
#2	1954.3	34680.	3688.8

Sample Name: KQ1708815-01 Acquired: 7/10/2017 11:59:00 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B K1706133-LCSW

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.944**	**2.034**	**.4986**	**.1585**	**.9986**	**.04944**	**.0855**	**.0488**
#1	1.932	2.025	.4958	.1631	.9959	.04940	.0852	.0486
#2	1.955	2.042	.5014	.1539	1.001	.04949	.0858	.0489

Elem	Cd2265	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0490**	**1.743**	**.1994**	**.4943**	**.2433**	**.2437**	**.9898**	**.4867**
#1	.0489	1.737	.2002	.4955	.2428	.2426	.9927	.4894
#2	.0491	1.748	.1985	.4931	.2437	.2449	.9869	.4841

Elem	Mg2795	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.712**	**.48922**	**.1734**	**.4890**	**-.0184**	**1.815**	**.1719**	**-.0089**
#1	1.707	.48925	.1728	.4904	-.0230	1.815	.1727	-.0099
#2	1.718	.48918	.1741	.4877	-.0138	1.816	.1710	-.0078

Elem	Ag3280	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.6052**	**1.803**	**.0344**	**.0000**	**.4959**	**.4895**	**.4892**
#1	.5953	1.807	.0371	.0001	.4987	.4899	.4881
#2	.6151	1.799	.0318	-.0001	.4930	.4891	.4902

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1944.0**	**34309.**	**3658.2**
#1	1941.6	34227.	3670.2
#2	1946.4	34391.	3646.3

Sample Name: KQ1708815-03 Acquired: 7/10/2017 12:01:20 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B K1706133-SRM1 DORM-4

Elem	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**14.47**	**.0005**	**.0712**	**.0488**	**.00026**	**.0827**	**.0027**	**.0024**
#1	14.47	.0024	.0745	.0489	.00039	.0829	.0027	.0025
#2	14.47	-.0014	.0679	.0488	.00014	.0824	.0027	.0023

Elem	Ca3158	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203	Mg2795
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**21.83**	**.0161**	**.0022**	**.1437**	**.1418**	**3.105**	**.0017**	**8.129**
#1	21.88	.0173	.0023	.1448	.1425	3.098	.0016	8.139
#2	21.78	.0149	.0020	.1425	.1412	3.111	.0018	8.118

Elem	Mg2852	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**8.751**	**.02792**	**.0034**	**.0121**	**73.65**	**128.2**	**.0370**	**5.924**
#1	8.761	.02793	.0032	.0115	73.82	128.3	.0457	5.954
#2	8.741	.02792	.0036	.0126	73.49	128.1	.0284	5.893

Elem	Ag3280	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0126**	**138.1**	**-.0014**	**.0938**	**.0151**	**.4897**	**.4758**
#1	.0212	138.2	.0009	.0936	.0160	.4921	.4759
#2	.0040	138.0	-.0037	.0939	.0141	.4873	.4757

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1843.1**	**32359.**	**3705.3**
#1	1838.2	32332.	3708.3
#2	1848.0	32387.	3702.3

Sample Name: KQ1708815-04 Acquired: 7/10/2017 12:03:45 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B K1706133-SRM2 TORT-3

Elem	Al1670	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0792**	**.0044**	**.6354**	**.0023**	**.00017**	**.0264**	**.3914**	**.3886**
#1	.0836	.0057	.6363	.0025	.00017	.0265	.3912	.3895
#2	.0748	.0030	.6346	.0021	.00018	.0263	.3916	.3877

Elem	Ca3158	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203	Mg2852
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**23.05**	**.0193**	**.0096**	**4.335**	**4.225**	**1.588**	**-.0003**	**10.71**
#1	23.06	.0194	.0093	4.339	4.223	1.587	-.0003	10.65
#2	23.04	.0191	.0099	4.331	4.227	1.589	-.0003	10.76

Elem	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.13998**	**.0306**	**.0467**	**>90.00**	**137.5**	**.1029**	**.2355**	**.2464**
#1	.13981	.0305	.0463	104.7	137.0	.1020	.2429	.2323
#2	.14015	.0307	.0472	104.3	138.0	.1039	.2281	.2605

Elem	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**189.2**	**.0018**	**.0078**	**.0844**	**1.310**	**1.267**
#1	189.1	.0058	.0080	.0847	1.309	1.268
#2	189.3	-.0022	.0075	.0841	1.310	1.265

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1827.4**	**31760.**	**3684.1**
#1	1823.9	31745.	3665.4
#2	1830.8	31776.	3702.9

Sample Name: K1706133-002 Acquired: 7/10/2017 12:06:13 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B

Elem	Al1670	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0732	-.0030	.0020	.0275	.00009	-.0027	.0000	-.0003
#1	.0680	-.0019	.0073	.0276	.00025	-.0004	-.0001	-.0002
#2	.0784	-.0041	-.0032	.0273	-.00007	-.0049	.0001	-.0004

Elem	Ca3158	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203	Mg2852
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	>450.0	.1052	.0002	.0223	.0231	.7390	-.0004	18.79
#1	592.8	.1046	.0001	.0226	.0241	.7262	-.0010	18.72
#2	594.2	.1057	.0003	.0220	.0222	.7518	.0002	18.85

Elem	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.04619	.0013	.0421	>90.00	117.1	.0082	.5651	-.0066
#1	.04614	.0012	.0425	301.2	116.4	.0091	.5650	-.0073
#2	.04624	.0013	.0418	300.4	117.8	.0074	.5652	-.0059

Elem	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	47.65	-.0042	.0052	.0011	.6012	.5853
#1	47.50	-.0083	.0054	.0017	.6019	.5854
#2	47.81	.0000	.0049	.0005	.6005	.5852

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1741.4	30545.	3550.5
#1	1739.0	30590.	3545.2
#2	1743.7	30500.	3555.9

Sample Name: K1706133-002L Acquired: 7/10/2017 12:08:36 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 5 Test Type: Sample Type:
Comment: EM 071017B 1/5

Elem	Al1670	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0236	.0073	-.0042	.0053	.00015	-.0007	-.0001	-.0003
#1	.0286	.0082	-.0061	.0054	.00021	.0011	-.0003	-.0002
#2	.0187	.0064	-.0023	.0051	.00010	-.0024	.0000	-.0005

Elem	Ca3158	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203	Mg2795
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	120.6	.0203	.0001	.0056	.0170	.1423	-.0031	3.665
#1	120.6	.0192	-.0004	.0050	.0046	.1471	-.0042	3.660
#2	120.7	.0214	.0006	.0062	.0293	.1376	-.0020	3.671

Elem	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.01089	.0004	.0086	68.01	23.05	.0001	.0920	-.0015
#1	.00905	.0004	.0085	67.98	22.98	-.0025	.0925	-.0045
#2	.01273	.0003	.0088	68.03	23.11	.0028	.0916	.0014

Elem	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	9.386	-.0008	.0013	.0009	.1219	.1206
#1	9.362	-.0019	.0011	.0002	.1218	.1202
#2	9.409	.0002	.0015	.0016	.1219	.1210

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1869.2	32768.	3622.5
#1	1867.8	32625.	3618.4
#2	1870.6	32911.	3626.7

Sample Name: KQ1708815-05 Acquired: 7/10/2017 12:11:01 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B K1706133-002D

Elem	Al1670	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0447	.0014	.0038	.0262	-.00002	-.0029	-.0001	-.0004
#1	.0427	.0028	.0059	.0262	-.00004	-.0038	-.0001	-.0004
#2	.0466	.0001	.0017	.0262	.00000	-.0020	-.0001	-.0004

Elem	Ca3158	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203	Mg2852
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	>450.0	.0862	.0003	.0227	.0228	.6973	-.0001	18.83
#1	590.6	.0860	.0000	.0226	.0225	.6988	.0016	18.90
#2	594.4	.0865	.0005	.0227	.0230	.6958	-.0018	18.75

Elem	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.04502	.0013	.0348	>90.00	116.1	.0081	.5404	-.0108
#1	.04504	.0011	.0356	301.2	116.7	.0120	.5506	-.0106
#2	.04500	.0014	.0341	301.7	115.5	.0042	.5302	-.0111

Elem	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	47.45	-.0065	.0135	.0010	.5982	.5873
#1	47.67	-.0100	.0136	.0007	.5964	.5874
#2	47.23	-.0029	.0133	.0014	.6000	.5873

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1751.9	30586.	3600.5
#1	1752.3	30550.	3623.5
#2	1751.6	30621.	3577.4

Sample Name: KQ1708815-06 Acquired: 7/10/2017 12:13:23 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B K1706133-002S

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	1.897	2.144	.4852	.1708	1.038	.05047	.0815	.0482
#1	1.891	2.150	.4867	.1716	1.040	.05014	.0846	.0484
#2	1.903	2.138	.4837	.1700	1.036	.05081	.0785	.0481

Elem	Cd2265	Ca3158	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0479	>450.0	.2866	.4676	.2639	.2505	1.671	.4517
#1	.0480	537.0	.2866	.4686	.2646	.2487	1.675	.4544
#2	.0478	535.0	.2865	.4666	.2633	.2522	1.667	.4491

Elem	Mg2852	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	19.80	.52279	.1717	.4997	>90.00	123.4	.1840	.5338
#1	19.79	.52359	.1713	.5012	280.8	123.3	.1839	.5434
#2	19.81	.52198	.1720	.4982	279.0	123.5	.1841	.5243

Elem	Ag3280	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.5740	50.33	.0284	.0031	.5040	1.095	1.070
#1	.5794	50.22	.0290	.0033	.5026	1.098	1.070
#2	.5687	50.44	.0278	.0029	.5054	1.093	1.070

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1752.9	30646.	3614.5
#1	1748.7	30628.	3603.6
#2	1757.0	30664.	3625.5

Sample Name: CCVB   Acquired: 7/10/2017 12:15:43   Type: QC
Method: 2017A-MOD-ICP04(v11)   Mode: CONC   Corr. Factor: 1.000000
User: admin   Dilution: 1   Test Type: Sample Type:
Comment:

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**7.776**	**10.08**	**-.0009**	**.9990**	**10.01**	**-.00020**	**.0021**	**-.0003**
Stddev	.057	.03	.0046	.0065	.11	.00002	.0028	.0001
%RSD	.7330	.2513	484.1	.6536	1.136	10.928	132.2	22.99
#1	7.816	10.10	.0023	.9944	9.930	-.00019	.0040	-.0003
#2	7.736	10.06	-.0042	1.004	10.09	-.00022	.0001	-.0004
Check ?	None	Chk Pass	None	Chk Pass	Chk Pass	None	None	None
Value								
Range								

Elem	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0004**	**10.34**	**9.832**	**.0005**	**-.0004**	**.0014**	**.0000**	**10.01**
Stddev	.0002	.14	.043	.0014	.0005	.0003	.000	.05
%RSD	62.51	1.387	.4318	257.5	116.3	23.10	589.5	.5393
#1	-.0005	10.24	9.862	.0015	-.0008	.0011	.0002	9.969
#2	-.0002	10.44	9.802	-.0004	-.0001	.0016	-.0003	10.04
Check ?	None	Chk Pass	None	None	None	None	None	Chk Pass
Value								
Range								

Elem	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576	Mn2605	Mo2020	Ni2216
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0036**	**10.33**	**9.701**	**10.02**	**1.0110**	**.9999**	**.0000**	**-.0002**
Stddev	.0021	.15	.022	.03	.0030	.0042	.0001	.0004
%RSD	58.48	1.426	.2283	.3334	.29911	.4233	419.6	219.9
#1	-.0050	10.23	9.685	10.04	1.0088	.9969	.0001	.0001
#2	-.0021	10.43	9.716	9.995	1.0131	1.003	-.0001	-.0004
Check ?	None	Chk Pass	None	Chk Pass	None	Chk Pass	None	None
Value								
Range								

Sample Name: CCVB Acquired: 7/10/2017 12:15:43 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment:

Elem	P_1782	K_7664	Se1960	Si2516	Ag3280	Na5895	Tl1908	Ti3361
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.13	10.07	-.0071	9.944	.0029	10.03	-.0024	.0006
Stddev	.01	.04	.0093	.018	.0220	.04	.0044	.0002
%RSD	.0647	.3611	131.4	.1757	756.5	.4200	181.7	29.86
#1	10.13	10.09	-.0137	9.957	-.0126	10.06	.0007	.0004
#2	10.12	10.04	-.0005	9.932	.0184	10.00	-.0055	.0007
Check ?	Chk Pass	Chk Pass	None	Chk Pass	None	Chk Pass	None	None
Value								
Range								

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0006	.0005	.0002
Stddev	.0005	.0002	.0003
%RSD	80.93	34.50	168.3
#1	-.0010	.0006	.0000
#2	-.0003	.0004	.0004
Check ?	None	None	None
Value			
Range			

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1919.9	33465.	3618.3
Stddev	7.9	69.	8.3
%RSD	.41386	.20709	.22888
#1	1914.3	33514.	3624.2
#2	1925.5	33416.	3612.5

Sample Name: CCVA Acquired: 7/10/2017 12:18:16 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment:

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2599**	**.2638**	**.2404**	**.2495**	**.2552**	**.24778**	**.2555**	**.2531**
Stddev	.0005	.0020	.0055	.0051	.0008	.00128	.0037	.0014
%RSD	.2112	.7517	2.278	2.049	.3075	.51769	1.433	.5450
#1	.2603	.2624	.2365	.2459	.2557	.24869	.2529	.2521
#2	.2596	.2652	.2442	.2531	.2546	.24687	.2580	.2541
Check ?	Chk Pass	None	Chk Pass	None	None	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Elem	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2511**	**.5116**	**.5038**	**.2522**	**.2498**	**.2524**	**.2510**	**.2581**
Stddev	.0007	.0030	.0009	.0006	.0010	.0009	.0000	.0020
%RSD	.2699	.5816	.1833	.2445	.4163	.3751	.0181	.7821
#1	.2506	.5095	.5044	.2518	.2490	.2530	.2510	.2595
#2	.2516	.5138	.5031	.2527	.2505	.2517	.2509	.2566
Check ?	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	None
Value								
Range								

Elem	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576	Mn2605	Mo2020	Ni2216
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.2477**	**.3132**	**.2535**	**.2564**	**.25574**	**.2436**	**.2505**	**.2496**
Stddev	.0036	.0312	.0003	.0055	.00015	.0010	.0008	.0001
%RSD	1.449	9.951	.1271	2.134	.05790	.3955	.3167	.0407
#1	.2452	.2912	.2532	.2603	.25584	.2443	.2499	.2495
#2	.2502	.3353	.2537	.2526	.25563	.2430	.2510	.2497
Check ?	Chk Pass	None	Chk Pass	None	Chk Pass	None	Chk Pass	Chk Pass
Value								
Range								

Sample Name: CCVA   Acquired: 7/10/2017 12:18:16   Type: QC
Method: 2017A-MOD-ICP04(v11)   Mode: CONC   Corr. Factor: 1.000000
User: admin   Dilution: 1   Test Type: Sample Type:
Comment:

Elem	P_1782	K_7664	Se1960	Si2516	Ag3280	Na5895	Tl1908	Ti3361
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0079	2.588	.2503	.1329	F .7462	.3032	.2533	.2534
Stddev	.0042	.042	.0001	.0036	.0035	.0066	.0071	.0004
%RSD	53.90	1.623	.0312	2.679	.4732	2.185	2.812	.1578
#1	-.0049	2.618	.2502	.1304	.7437	.3079	.2483	.2537
#2	-.0109	2.558	.2504	.1354	.7487	.2985	.2583	.2532
Check ?	None	None	Chk Pass	None	Chk Fail	None	Chk Pass	Chk Pass
Value					.2500			
Range					10.44%			

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.2492	.2522	.2527
Stddev	.0005	.0014	.0003
%RSD	.1919	.5627	.1015
#1	.2489	.2512	.2525
#2	.2496	.2532	.2528
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1953.8	34552.	3654.8
Stddev	.7	2.	1.2
%RSD	.03386	.00557	.03245
#1	1954.3	34551.	3655.7
#2	1953.3	34554.	3654.0

Sample Name: CCB Acquired: 7/10/2017 12:20:37 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment:

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0028	.0008	.0095	-.0014	.0002	.00004	.0006	-.0001
Stddev	.0044	.0009	.0015	.0066	.0003	.00010	.0006	.0001
%RSD	155.2	116.1	15.66	477.0	133.3	252.19	112.8	93.02
#1	.0003	.0015	.0084	-.0060	.0000	.00011	.0001	.0000
#2	-.0059	.0001	.0105	.0033	.0004	-.00003	.0010	-.0002
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0001	-.0049	.0015	.0007	-.0001	.0009	-.0005	-.0030
Stddev	.0000	.0001	.0013	.0001	.0003	.0005	.0000	.0078
%RSD	26.46	1.276	84.08	9.664	269.2	63.23	.8151	258.1
#1	-.0001	-.0049	.0006	.0007	.0001	.0005	-.0005	-.0085
#2	-.0001	-.0048	.0024	.0008	-.0003	.0012	-.0005	.0025
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576	Mn2605	Mo2020	Ni2216
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0026	.0269	.0000	.0011	.00005	-.0004	.0003	.0005
Stddev	.0025	.0074	.0000	.0005	.00011	.0033	.0002	.0004
%RSD	94.86	27.57	76.29	47.99	216.94	874.6	61.79	87.31
#1	-.0009	.0217	.0000	.0007	.00013	.0020	.0004	.0002
#2	-.0044	.0322	.0001	.0014	-.00003	-.0027	.0002	.0008
Check ?	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass	None	Chk Pass	Chk Pass
High Limit								
Low Limit								

Sample Name: CCB Acquired: 7/10/2017 12:20:37 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment:

Elem	P_1782	K_7664	Se1960	Si2516	Ag3280	Na5895	Tl1908	Ti3361
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0032	.0838	-.0089	-.0071	F .0067	.0333	-.0043	.0003
Stddev	.0051	.0042	.0016	.0013	.0072	.0097	.0052	.0001
%RSD	157.1	4.992	17.44	18.07	108.4	29.25	123.2	29.72
#1	.0004	.0808	-.0078	-.0062	.0016	.0264	-.0080	.0004
#2	-.0068	.0867	-.0100	-.0081	.0118	.0402	-.0005	.0002
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit					.0040			
Low Limit					-.0040			

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0002	.0001	.0000
Stddev	.0009	.0001	.0002
%RSD	521.5	99.08	2056.
#1	.0005	.0001	-.0001
#2	-.0008	.0000	.0001
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1959.9	34510.	3624.6
Stddev	5.4	82.	16.5
%RSD	.27570	.23728	.45561
#1	1956.1	34568.	3636.2
#2	1963.8	34452.	3612.9

Sample Name: K1706133-001 Acquired: 7/10/2017 12:23:07 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B

Elem	Al1670	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.439**	**.0087**	**.0042**	**.1047**	**.00006**	**.0067**	**.0002**	**-.0001**
#1	1.433	.0092	.0015	.1049	.00009	.0068	.0002	-.0003
#2	1.444	.0081	.0069	.1044	.00003	.0066	.0002	.0000

Elem	Ca3158	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203	Mg2852
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**429.3**	**.0275**	**.0005**	**.0399**	**.0385**	**1.504**	**-.0005**	**16.78**
#1	429.5	.0266	.0002	.0398	.0387	1.498	-.0014	16.78
#2	429.1	.0285	.0007	.0400	.0382	1.509	.0004	16.78

Elem	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.19215**	**.0010**	**.0095**	**>90.00**	**115.8**	**.0189**	**.8759**	**.0131**
#1	.19198	.0008	.0093	250.3	115.5	.0100	.8705	.0158
#2	.19232	.0012	.0097	250.3	116.0	.0277	.8813	.0105

Elem	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**46.20**	**.0007**	**.0334**	**.0044**	**1.890**	**1.828**
#1	46.20	-.0029	.0330	.0032	1.888	1.827
#2	46.21	.0043	.0339	.0056	1.892	1.830

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1772.7**	**30721.**	**3585.4**
#1	1771.2	30673.	3582.3
#2	1774.1	30768.	3588.5

Sample Name: K1706133-003 Acquired: 7/10/2017 12:25:29 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B

Elem	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**3.790**	**.0045**	**.0068**	**.0846**	**.00035**	**.0052**	**.0000**	**-.0002**
#1	3.788	.0054	.0093	.0842	.00026	.0058	.0000	-.0003
#2	3.793	.0035	.0043	.0849	.00043	.0046	.0000	-.0001

Elem	Ca3158	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203	Mg2852
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**415.0**	**.0485**	**.0021**	**.0580**	**.0551**	**2.923**	**.0064**	**17.53**
#1	414.2	.0479	.0019	.0570	.0556	2.932	.0066	17.55
#2	415.8	.0491	.0023	.0589	.0545	2.915	.0062	17.51

Elem	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.30300**	**.0005**	**.0200**	**>90.00**	**111.1**	**.0200**	**1.024**	**-.0060**
#1	.30345	-.0001	.0195	244.9	111.2	.0188	1.029	.0024
#2	.30254	.0011	.0206	244.2	111.0	.0211	1.020	-.0145

Elem	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**40.90**	**-.0028**	**.0733**	**.0096**	**1.950**	**1.908**
#1	40.97	-.0064	.0728	.0097	1.954	1.915
#2	40.84	.0008	.0738	.0096	1.947	1.901

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1767.1**	**30986.**	**3613.1**
#1	1769.4	31006.	3624.9
#2	1764.8	30965.	3601.4

Sample Name: K1706133-004 Acquired: 7/10/2017 12:27:51 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B

Elem	Al1670	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0339	.0060	.0001	.0155	-.00009	-.0023	-.0001	-.0002
#1	.0324	.0069	.0011	.0159	-.00008	-.0034	-.0001	-.0001
#2	.0354	.0051	-.0009	.0151	-.00010	-.0013	-.0001	-.0003

Elem	Ca3158	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203	Mg2852
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	>450.0	.0177	.0001	.0154	.0164	.4128	-.0020	19.16
#1	630.8	.0175	.0001	.0144	.0180	.4162	-.0028	19.25
#2	626.8	.0178	.0002	.0164	.0147	.4095	-.0011	19.07

Elem	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.03651	.0004	.0053	>90.00	130.8	.0237	.4040	-.0171
#1	.03664	.0000	.0050	325.2	131.1	.0231	.3889	-.0021
#2	.03639	.0008	.0056	324.9	130.5	.0243	.4192	-.0320

Elem	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	48.29	.0003	.0039	.0004	.7154	.6959
#1	48.45	.0010	.0039	-.0003	.7157	.6958
#2	48.14	-.0004	.0040	.0011	.7152	.6961

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1724.3	30181.	3527.0
#1	1723.6	30105.	3522.1
#2	1724.9	30258.	3531.8

Sample Name: K1706133-005 Acquired: 7/10/2017 12:30:14 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B

Elem	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**4.597**	**.0027**	**.0133**	**.1595**	**.00011**	**.0122**	**.0000**	**-.0002**
#1	4.612	-.0010	.0166	.1593	.00029	.0119	.0000	-.0003
#2	4.581	.0065	.0100	.1597	-.00008	.0125	.0000	-.0001

Elem	Ca3158	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203	Mg2852
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**422.3**	**.0270**	**.0016**	**.0396**	**.0404**	**3.096**	**.0043**	**16.78**
#1	421.6	.0277	.0020	.0402	.0407	3.094	.0059	16.78
#2	423.0	.0262	.0013	.0390	.0402	3.098	.0027	16.78

Elem	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.18048**	**.0011**	**.0117**	>90.00	**121.8**	**.0112**	**1.179**	**.0019**
#1	.18034	.0008	.0115	230.5	121.7	.0070	1.192	.0018
#2	.18062	.0014	.0119	230.8	121.9	.0153	1.165	.0020

Elem	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**47.09**	-.0035	**.0937**	**.0104**	**1.726**	**1.674**
#1	47.11	-.0048	.0940	.0106	1.725	1.677
#2	47.08	-.0023	.0933	.0101	1.727	1.671

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1749.2**	**30867.**	**3618.6**
#1	1752.8	30878.	3623.0
#2	1745.6	30856.	3614.2

Sample Name: K1706133-006 Acquired: 7/10/2017 12:32:36 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B

Elem	Al1670	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.1471	.0090	.0023	.0632	.00006	-.0032	-.0002	-.0005
#1	.1442	.0084	.0027	.0636	.00006	-.0024	-.0001	-.0008
#2	.1500	.0096	.0019	.0627	.00007	-.0039	-.0003	-.0002

Elem	Ca3158	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203	Mg2852
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	>450.0	.0191	-.0008	.0293	.0298	.4856	-.0020	22.21
#1	749.6	.0188	-.0003	.0315	.0290	.4955	-.0021	22.17
#2	748.3	.0195	-.0012	.0271	.0305	.4757	-.0018	22.26

Elem	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.02404	.0010	.0045	>90.00	116.5	.0203	.6190	-.0108
#1	.02397	.0014	.0047	361.5	116.3	.0280	.6240	-.0066
#2	.02412	.0006	.0044	360.8	116.6	.0126	.6140	-.0150

Elem	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	47.93	-.0068	.0083	.0014	.6595	.6421
#1	47.78	-.0052	.0082	.0018	.6575	.6410
#2	48.07	-.0085	.0084	.0010	.6615	.6431

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1716.6	30058.	3547.3
#1	1712.9	30053.	3538.3
#2	1720.3	30063.	3556.3

Sample Name: K1706133-007 Acquired: 7/10/2017 12:34:58 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B

Elem	Al1670	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**1.617**	**.0039**	**-.0011**	**.1138**	**.00003**	**.0028**	**-.0001**	**-.0001**
#1	1.619	.0051	-.0025	.1138	.00009	.0034	.0000	-.0001
#2	1.615	.0027	.0003	.1137	-.00003	.0023	-.0001	-.0001

Elem	Ca3158	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203	Mg2852
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**>450.0**	**.0345**	**.0017**	**.0468**	**.0448**	**1.945**	**.0021**	**17.00**
#1	470.5	.0344	.0013	.0467	.0449	1.932	.0019	17.00
#2	471.4	.0345	.0020	.0470	.0447	1.958	.0022	17.01

Elem	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.21197**	**.0002**	**.0136**	**>90.00**	**112.4**	**.0230**	**.8103**	**-.0005**
#1	.21108	.0003	.0136	246.7	112.4	.0255	.8192	-.0071
#2	.21287	.0002	.0136	246.6	112.5	.0205	.8015	.0061

Elem	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**38.22**	**-.0043**	**.0447**	**.0067**	**1.876**	**1.815**
#1	38.25	-.0048	.0445	.0067	1.867	1.816
#2	38.18	-.0038	.0448	.0067	1.884	1.814

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1758.2**	**30701.**	**3589.5**
#1	1757.4	30721.	3590.6
#2	1758.9	30681.	3588.3

Sample Name: K1706133-008 Acquired: 7/10/2017 12:37:19 Type: Unk
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: EM 071017B

Elem	Al1670	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144	Cd2265
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0475	.0082	-.0056	.0541	.00015	-.0038	-.0002	-.0005
#1	-.0528	.0122	-.0105	.0541	-.00001	-.0041	-.0004	-.0005
#2	-.0423	.0042	-.0006	.0540	.00031	-.0036	.0001	-.0005

Elem	Ca3158	Cr2677	Co2307	Cu2247	Cu3273	Fe2599	Pb2203	Mg2852
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	>450.0	.0173	-.0004	.0206	.0216	.4769	-.0015	24.57
#1	891.8	.0170	-.0008	.0207	.0215	.4848	-.0050	24.59
#2	896.7	.0177	.0000	.0204	.0216	.4690	.0020	24.54

Elem	Mn2576	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516	Ag3280
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.04023	-.0003	.0019	>90.00	102.0	.0194	.2742	-.0095
#1	.04042	-.0005	.0017	401.0	102.1	.0186	.2640	.0000
#2	.04004	-.0001	.0022	397.3	101.8	.0203	.2844	-.0189

Elem	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm
Avg	60.91	-.0054	.0008	.0016	.6559	.6401
#1	60.94	-.0001	.0010	.0015	.6573	.6406
#2	60.89	-.0107	.0006	.0017	.6545	.6396

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1711.6	29792.	3552.7
#1	1706.8	29771.	3562.4
#2	1716.4	29812.	3543.0

Sample Name: CCVB Acquired: 7/10/2017 12:39:43 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment:

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**7.841**	**10.25**	**.0002**	**.9969**	**10.07**	**-.00001**	**.0000**	**-.0001**
Stddev	.019	.03	.0023	.0021	.11	.00003	.001	.0002
%RSD	.2440	.2678	1091.	.2152	1.073	326.79	6994.	295.5
#1	7.855	10.23	.0018	.9954	9.993	-.00003	-.0010	.0001
#2	7.828	10.27	-.0014	.9984	10.15	.00001	.0010	-.0002
Check ?	None	Chk Pass	None	Chk Pass	Chk Pass	None	None	None
Value								
Range								

Elem	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0005**	**10.11**	**10.04**	**-.0002**	**-.0003**	**.0010**	**.0001**	**10.02**
Stddev	.0001	.03	.03	.0007	.0001	.0006	.0011	.06
%RSD	13.26	.3113	.2775	285.5	26.98	61.67	1283.	.5918
#1	-.0004	10.08	10.02	-.0007	-.0004	.0006	.0009	9.981
#2	-.0005	10.13	10.06	.0002	-.0003	.0015	-.0007	10.06
Check ?	None	Chk Pass	None	None	None	None	None	Chk Pass
Value								
Range								

Elem	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576	Mn2605	Mo2020	Ni2216
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**-.0011**	**10.34**	**9.689**	**9.992**	**1.0178**	**1.002**	**-.0002**	**-.0004**
Stddev	.0001	.13	.036	.030	.0016	.000	.0002	.0004
%RSD	8.313	1.278	.3694	.3002	.15713	.0284	73.83	97.62
#1	-.0010	10.24	9.664	9.971	1.0189	1.002	-.0003	-.0001
#2	-.0012	10.43	9.715	10.01	1.0166	1.002	-.0001	-.0006
Check ?	None	Chk Pass	None	Chk Pass	None	Chk Pass	None	None
Value								
Range								

Sample Name: CCVB Acquired: 7/10/2017 12:39:43 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment:

Elem	P_1782	K_7664	Se1960	Si2516	Ag3280	Na5895	Tl1908	Ti3361
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	10.24	10.15	-.0018	10.00	.0027	10.09	.0016	.0006
Stddev	.02	.01	.0052	.00	.0017	.04	.0025	.0006
%RSD	.1769	.0912	294.2	.0388	61.54	.3873	159.8	92.96
#1	10.23	10.15	-.0055	10.01	.0039	10.06	.0034	.0011
#2	10.25	10.16	.0019	10.000	.0015	10.12	-.0002	.0002
Check ?	Chk Pass	Chk Pass	None	Chk Pass	None	Chk Pass	None	None
Value								
Range								

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0003	-.0002	.0002
Stddev	.0012	.0005	.0003
%RSD	354.2	232.8	181.0
#1	-.0011	.0001	.0003
#2	.0005	-.0005	.0000
Check ?	None	None	None
Value			
Range			

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1915.1	33402.	3624.4
Stddev	.3	119.	5.8
%RSD	.01378	.35734	.16001
#1	1915.2	33318.	3628.5
#2	1914.9	33487.	3620.3

Sample Name: CCVA Acquired: 7/10/2017 12:42:17 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment:

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2698	.2660	.2426	.2505	.2552	.24791	.2529	.2531
Stddev	.0094	.0068	.0014	.0030	.0010	.00006	.0016	.0001
%RSD	3.471	2.549	.5874	1.185	.4103	.02619	.6182	.0354
#1	.2765	.2612	.2416	.2526	.2559	.24795	.2540	.2532
#2	.2632	.2708	.2436	.2484	.2544	.24786	.2518	.2531
Check ?	Chk Pass	None	Chk Pass	None	None	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Elem	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2515	.4896	.5095	.2516	.2511	.2518	.2491	.2505
Stddev	.0002	.0308	.0027	.0011	.0011	.0022	.0009	.0054
%RSD	.0599	6.286	.5253	.4188	.4322	.8789	.3462	2.158
#1	.2514	.4678	.5114	.2523	.2504	.2534	.2497	.2467
#2	.2516	.5113	.5076	.2508	.2519	.2502	.2485	.2543
Check ?	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	None
Value								
Range								

Elem	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576	Mn2605	Mo2020	Ni2216
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.2490	.3145	.2548	.2580	.25675	.2458	.2513	.2510
Stddev	.0022	.0211	.0008	.0007	.00031	.0016	.0008	.0005
%RSD	.8829	6.721	.3069	.2699	.11927	.6419	.3016	.1801
#1	.2474	.3294	.2554	.2575	.25697	.2469	.2519	.2513
#2	.2505	.2995	.2543	.2585	.25654	.2447	.2508	.2507
Check ?	Chk Pass	None	Chk Pass	None	Chk Pass	None	Chk Pass	Chk Pass
Value								
Range								

Sample Name: CCVA Acquired: 7/10/2017 12:42:17 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment:

Elem	P_1782	K_7664	Se1960	Si2516	Ag3280	Na5895	Tl1908	Ti3361
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0042	2.579	.2517	.1157	F .7614	.3122	.2546	.2530
Stddev	.0010	.008	.0050	.0005	.0178	.0071	.0030	.0001
%RSD	23.66	.2972	1.979	.4013	2.343	2.274	1.193	.0313
#1	-.0035	2.574	.2552	.1160	.7487	.3072	.2525	.2530
#2	-.0049	2.584	.2482	.1153	.7740	.3173	.2568	.2529
Check ?	None	None	Chk Pass	None	Chk Fail	None	Chk Pass	Chk Pass
Value					.2500			
Range					10.44%			

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.2521	.2535	.2525
Stddev	.0010	.0017	.0002
%RSD	.4030	.6805	.0646
#1	.2529	.2547	.2526
#2	.2514	.2522	.2523
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1945.0	34325.	3619.3
Stddev	2.8	62.	19.2
%RSD	.14630	.18147	.52940
#1	1943.0	34281.	3605.7
#2	1947.0	34369.	3632.8

Sample Name: CCB Acquired: 7/10/2017 12:44:41 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment:

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0036	-.0025	.0130	-.0056	.0003	.00008	.0008	-.0001
Stddev	.0020	.0003	.0044	.0099	.0005	.00002	.0014	.0004
%RSD	55.46	12.78	34.08	177.2	179.4	19.820	175.0	572.5
#1	-.0050	-.0027	.0098	-.0126	.0007	.00007	-.0002	-.0004
#2	-.0022	-.0023	.0161	.0014	-.0001	.00009	.0018	.0002
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0002	-.0017	.0009	.0000	.0001	.0022	-.0014	.0000
Stddev	.0001	.0032	.0002	.000	.0001	.0004	.0010	.0003
%RSD	40.87	189.0	27.81	682.1	122.9	19.39	72.52	1146.
#1	-.0002	-.0040	.0010	.0000	.0000	.0024	-.0021	.0002
#2	-.0001	.0006	.0007	.0000	.0002	.0019	-.0007	-.0002
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit								
Low Limit								

Elem	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576	Mn2605	Mo2020	Ni2216
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0003	.0200	.0002	.0036	-.00005	.0013	.0005	.0003
Stddev	.0000	.1032	.0000	.0002	.00006	.0010	.0005	.0000
%RSD	6.970	514.6	25.28	6.276	110.37	76.68	113.6	9.978
#1	-.0003	.0930	.0002	.0038	-.00001	.0020	.0001	.0003
#2	-.0002	-.0529	.0001	.0034	-.00009	.0006	.0008	.0003
Check ?	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass	None	Chk Pass	Chk Pass
High Limit								
Low Limit								

Sample Name: CCB Acquired: 7/10/2017 12:44:41 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment:

Elem	P_1782	K_7664	Se1960	Si2516	Ag3280	Na5895	Tl1908	Ti3361
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	-.0174	.0651	-.0001	-.0178	F .0079	.0478	.0024	.0001
Stddev	.0029	.0109	.0030	.0043	.0003	.0019	.0035	.0001
%RSD	16.71	16.72	2676.	24.06	3.320	3.887	147.6	98.40
#1	-.0194	.0574	-.0022	-.0208	.0081	.0465	-.0001	.0002
#2	-.0153	.0727	.0020	-.0148	.0077	.0491	.0048	.0000
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
High Limit					.0040			
Low Limit					-.0040			

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	-.0008	.0000	.0001
Stddev	.0005	.000	.0002
%RSD	59.20	1049.	222.9
#1	-.0005	-.0003	.0000
#2	-.0011	.0002	.0002
Check ?	Chk Pass	Chk Pass	Chk Pass
High Limit			
Low Limit			

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1945.4	34358.	3583.8
Stddev	2.9	128.	4.5
%RSD	.14708	.37163	.12693
#1	1947.4	34268.	3587.1
#2	1943.4	34449.	3580.6

Sample Name: CCB   Acquired: 7/10/2017 12:47:09   Type: QC
Method: 2017A-MOD-ICP04(v11)   Mode: CONC   Corr. Factor: 1.000000
User: admin   Dilution: 1   Test Type: Sample Type:
Comment: RERUN

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F -.0109	-.0014	.0019	-.0035	.0002	-.00003	.0021
Stddev	.0075	.0012	.0055	.0021	.0004	.00020	.0011
%RSD	69.48	81.40	286.2	59.64	153.1	603.59	55.06
#1	-.0055	-.0006	-.0020	-.0020	.0000	.00011	.0013
#2	-.0162	-.0022	.0058	-.0050	.0005	-.00017	.0029
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit	.0100						
Low Limit	-.0100						

Elem	Cd2144	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0000	.0000	.0117	.0060	-.0007	-.0006	.0005
Stddev	.000	.000	.0073	.0085	.0008	.0005	.0017
%RSD	430.1	165.1	62.05	141.3	113.9	86.32	334.5
#1	-.0001	.0000	.0066	.0000	-.0012	-.0009	-.0007
#2	.0001	-.0001	.0169	.0121	-.0001	-.0002	.0017
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Cu3273	Fe2599	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0002	-.0064	-.0014	-.0197	.0003	.0005	-.00009
Stddev	.0019	.0013	.0007	.0104	.0005	.0010	.00001
%RSD	871.1	20.44	48.03	52.75	181.7	183.4	7.8953
#1	.0016	-.0055	-.0019	-.0124	-.0001	.0012	-.00010
#2	-.0011	-.0074	-.0010	-.0271	.0006	-.0002	-.00009
Check ?	Chk Pass	Chk Pass	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

am
7/10/17

Sample Name: CCB Acquired: 7/10/2017 12:47:09 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: RERUN

Elem	Mn2605	Mo2020	Ni2216	P_1782	K_7664	Se1960	Si2516
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0010**	**-.0006**	**.0003**	**-.0054**	**.0954**	**-.0039**	**-.0180**
Stddev	.0006	.0002	.0001	.0010	.0116	.0025	.0099
%RSD	57.56	30.38	24.85	18.51	12.20	64.63	54.77
#1	.0014	-.0005	.0004	-.0061	.0872	-.0021	-.0110
#2	.0006	-.0007	.0002	-.0047	.1036	-.0056	-.0250
Check ?	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Elem	Ag3280	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0018**	**.0412**	**-.0010**	**.0003**	**-.0008**	**.0002**	**-.0001**
Stddev	.0106	.0052	.0078	.0000	.0005	.0005	.0000
%RSD	594.0	12.63	792.3	5.029	66.41	232.9	67.47
#1	-.0057	.0449	-.0065	.0003	-.0011	.0006	.0000
#2	.0093	.0375	.0045	.0003	-.0004	-.0001	-.0001
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
High Limit							
Low Limit							

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1948.8**	**34582.**	**3586.3**
Stddev	5.1	13.	43.9
%RSD	.26123	.03822	1.2230
#1	1945.2	34591.	3617.3
#2	1952.4	34573.	3555.2

am
7/10/17

Sample Name: LLCCV Acquired: 7/10/2017 12:49:38 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment:

Elem	Al1670 ②	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0032	F .0130	.0160	F .0012	.0039	.00096	.0225
Stddev	.0070	.0076	.0069	.0013	.0000	.00014	.0002
%RSD	217.0	58.51	43.41	112.6	.8795	14.572	1.098
#1	.0081	.0184	.0209	.0002	.0038	.00106	.0223
#2	-.0017	.0076	.0111	.0021	.0039	.00086	.0227
Check ?	Chk Fail	Chk Fail	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
Value	.0100	.0100		.0100			
Range	-30.00%	30.00%		-30.00%			

Elem	Cd2144	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0009	.0010	F .0068	.0208	.0035	.0019	.0040
Stddev	.0001	.0000	.0014	.0003	.0005	.0000	.0005
%RSD	9.996	3.937	20.13	1.220	15.50	2.193	12.79
#1	.0010	.0010	.0078	.0210	.0031	.0019	.0043
#2	.0009	.0010	.0059	.0206	.0039	.0020	.0036
Check ?	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value			.0200				
Range			-30.00%				

Elem	Cu3273	Fe2599 ①	Pb2208 ①	Mg2790	Mg2795	Mg2852 ①	Mn2576
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0032	F .0109	F .0056	.0771	.0049	F .0087	F .00145
Stddev	.0024	.0033	.0010	.0139	.0001	.0014	.00083
%RSD	75.79	30.10	16.97	18.08	2.068	15.95	57.279
#1	.0049	.0086	.0049	.0672	.0050	.0077	.00204
#2	.0015	.0133	.0063	.0869	.0048	.0096	.00086
Check ?	Chk Pass	Chk Fail	Chk Fail	None	Chk Pass	Chk Fail	Chk Fail
Value		.0200	.0100			.0050	.00100
Range		-30.00%	-30.00%			30.00%	30.000%

① rerun
② 2x
am 7/10/17

Sample Name: LLCCV Acquired: 7/10/2017 12:49:38 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment:

Elem	Mn2605	Mo2020	Ni2216	P_1782	K_7664	* Se1960	Si2516
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0016	.0031	.0037	.0318	.2578	F .0095	.1761
Stddev	.0028	.0009	.0004	.0124	.0276	.0004	.0020
%RSD	173.2	29.16	9.559	39.00	10.70	4.084	1.118
#1	-.0004	.0024	.0040	.0406	.2383	.0092	.1775
#2	.0035	.0037	.0034	.0231	.2773	.0098	.1747
Check ?	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass
Value						.0200	
Range						-30.00%	

Elem	Ag3280	Na5895	Tl1908	Ti3361	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0514	.2209	.0107	.0021	.0037	.0041	.0040
Stddev	.0044	.0010	.0018	.0001	.0002	.0000	.0001
%RSD	8.470	.4312	16.54	2.692	5.818	.0913	2.062
#1	.0545	.2216	.0119	.0021	.0036	.0041	.0041
#2	.0484	.2202	.0094	.0022	.0039	.0041	.0039
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value	.0040						
Range	30.00%						

*rerun
am 7/10/17

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1948.4	34419.	3547.0
Stddev	1.7	70.	8.0
%RSD	.08524	.20277	.22485
#1	1947.2	34369.	3552.7
#2	1949.6	34468.	3541.4

Sample Name: LLCCV   Acquired: 7/10/2017 12:52:06   Type: QC
Method: 2017A-MOD-ICP04(v11)   Mode: CONC   Corr. Factor: 1.000000
User: admin   Dilution: 1   Test Type: Sample Type:
Comment: RERUN

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0056	.0098	.0169	F .0000	.0042	.00087	.0208	.0008
Stddev	.0011	.0010	.0031	.010	.0000	.00015	.0019	.0000
%RSD	19.17	10.22	18.32	275300.	.1382	16.839	9.201	5.039
#1	.0049	.0091	.0191	-.0069	.0042	.00097	.0222	.0008
#2	.0064	.0105	.0147	.0068	.0042	.00077	.0195	.0008
Check ?	Chk Fail	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value	.0100			.0100				
Range	-30.00%			-30.00%				

Elem	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0009	F .0005	.0200	.0037	.0020	.0049	F .0026	.0197
Stddev	.0002	.0066	.0000	.0012	.0005	.0004	.0008	.0056
%RSD	19.59	1220.	.2275	32.03	24.25	7.938	32.26	28.13
#1	.0008	.0052	.0201	.0045	.0017	.0052	.0020	.0158
#2	.0010	-.0041	.0200	.0029	.0023	.0046	.0031	.0237
Check ?	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass
Value		.0200					.0040	
Range		-30.00%					-30.00%	

Elem	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576	Mn2605	Mo2020	Ni2216
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0080	.0442	.0049	.0052	.00095	.0012	.0030	.0037
Stddev	.0019	.0794	.0000	.0037	.00018	.0005	.0000	.0001
%RSD	24.29	179.8	.7563	70.65	19.168	41.42	.2464	1.776
#1	.0094	-.0120	.0048	.0026	.00082	.0016	.0030	.0038
#2	.0066	.1003	.0049	.0078	.00108	.0009	.0030	.0037
Check ?	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass	None	Chk Pass	Chk Pass
Value								
Range								

Sample Name: LLCCV Acquired: 7/10/2017 12:52:06 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment: RERUN

Elem	P_1782	K_7664	Se1960	Si2516	Ag3280	Na5895	Tl1908	Ti3361
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	F .0277	F .2753	.0187	.1627	F .0652	.2352	.0107	.0022
Stddev	.0051	.0331	.0069	.0097	.0018	.0046	.0060	.0004
%RSD	18.23	12.02	36.60	5.955	2.838	1.976	56.25	16.60
#1	.0313	.2519	.0139	.1696	.0639	.2319	.0150	.0025
#2	.0241	.2987	.0236	.1559	.0665	.2384	.0064	.0020
Check ?	Chk Fail	Chk Fail	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
Value	.0400	.2000			.0040			
Range	-30.00%	30.00%			30.00%			

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	.0035	.0040	.0041
Stddev	.0011	.0003	.0001
%RSD	31.51	6.363	3.500
#1	.0027	.0042	.0042
#2	.0043	.0039	.0040
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	1957.9	34487.	3630.7
Stddev	2.2	51.	16.9
%RSD	.11476	.14823	.46417
#1	1956.4	34523.	3642.7
#2	1959.5	34451.	3618.8

Sample Name: LLCCV,0.5 Acquired: 7/10/2017 12:54:33 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment:

Elem	Al1670	Al3944	Sb2068	As1890	Ba4554	Be2348	B_2496	Cd2144
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0161	.0201	.0355	F .0128	.0082	.00190	.0390	.0019
Stddev	.0059	.0008	.0050	.0050	.0002	.00013	.0026	.0001
%RSD	36.77	3.789	14.14	38.70	1.886	6.7324	6.657	5.820
#1	.0119	.0195	.0390	.0093	.0083	.00199	.0371	.0019
#2	.0203	.0206	.0320	.0163	.0081	.00181	.0408	.0018
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value				.0200				
Range				-30.00%				

Elem	Cd2265	Ca3158	Ca3933	Cr2677	Co2307	Cu2247	Cu3273	Fe2599
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0019	.0282	.0405	.0074	.0033	.0087	.0077	.0379
Stddev	.0001	.0008	.0003	.0009	.0003	.0001	.0001	.0018
%RSD	6.440	2.878	.7693	12.08	9.887	1.174	1.424	4.753
#1	.0020	.0276	.0407	.0080	.0030	.0088	.0076	.0392
#2	.0018	.0287	.0402	.0067	.0035	.0086	.0078	.0367
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Elem	Pb2203	Mg2790	Mg2795	Mg2852	Mn2576	Mn2605	Mo2020	Ni2216
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	.0177	.0386	.0098	.0124	.00197	.0026	.0074	.0078
Stddev	.0007	.0373	.0001	.0015	.00007	.0019	.0003	.0000
%RSD	3.789	96.61	.8424	12.49	3.4440	72.39	3.655	.4266
#1	.0172	.0122	.0098	.0135	.00192	.0013	.0076	.0078
#2	.0181	.0650	.0099	.0113	.00201	.0039	.0072	.0078
Check ?	Chk Pass	None	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Pass
Value								
Range								

Sample Name: LLCCV,0.5 Acquired: 7/10/2017 12:54:33 Type: QC
Method: 2017A-MOD-ICP04(v11) Mode: CONC Corr. Factor: 1.000000
User: admin Dilution: 1 Test Type: Sample Type:
Comment:

Elem	P_1782	K_7664	Se1960	Si2516	Ag3280	Na5895	Tl1908	Ti3361
Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
Avg	**.0756**	**.4616**	**.0436**	**.3658**	F **.1061**	**.4365**	**.0204**	**.0045**
Stddev	.0055	.0065	.0091	.0019	.0139	.0067	.0028	.0001
%RSD	7.230	1.412	20.91	.5238	13.06	1.543	13.61	1.238
#1	.0718	.4570	.0371	.3645	.0963	.4413	.0224	.0045
#2	.0795	.4663	.0500	.3672	.1159	.4317	.0184	.0044
Check ?	Chk Pass	Chk Pass	Chk Pass	Chk Pass	Chk Fail	Chk Pass	Chk Pass	Chk Pass
Value					.0080			
Range					30.00%			

Elem	V_2924	Zn2062	Zn2138
Units	ppm	ppm	ppm
Avg	**.0076**	**.0083**	**.0078**
Stddev	.0002	.0004	.0004
%RSD	3.004	4.221	5.082
#1	.0075	.0081	.0075
#2	.0078	.0086	.0080
Check ?	Chk Pass	Chk Pass	Chk Pass
Value			
Range			

Int. Std.	Y_2243	Y_3600	Y_3600-2
Units	Cts/S	Cts/S	Cts/S
Avg	**1955.3**	**34403.**	**3630.0**
Stddev	1.0	109.	5.0
%RSD	.05231	.31752	.13790
#1	1954.6	34326.	3626.4
#2	1956.0	34481.	3633.5

Benchsheet

Service Request #:	**K1705945, KQ1708538**	**Run #:**	**551394**
Test:	**Frz Dry**	**Balance ID:**	**K-Balance-45**
Method:	**Frz Dry**		

Pan ID:	Lab Code:	Tare (g)	Wet Wt. (g)	Tare + Dry Wt. (g)	Dry Weight (g)	% Total Solids	RPD
	K1705945-001	16.639	10.101	18.360	1.72	17.0	
	K1705945-002	16.861	10.017	18.901	2.04	20.4	
	K1705945-003	17.191	10.046	19.055	1.86	18.6	
	K1705945-004	16.935	10.086	18.712	1.78	17.6	
	K1705945-005	16.868	10.076	18.616	1.75	17.3	
	K1705945-005DUP	16.839	10.108	18.596	1.76	17.4	<1

	FreezeDryer ID	Date In	Time In	Date Out	Time Out	Thermometer ID
FreezeDry		06/30/17	13:10	06/03/17	09:40	

Cal EQID	Cal Start Value	Cal End Value	Start Date	Start Time	End Date	End Time

Comments: CCL GB Data entered 6-27-17 L.J. Reviewed 7/5/17 A.B.

LIPIDS

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Organics Data Review and Narrative Worksheet

Service Request: K1705945	Date: 07/07/17
Product Code: Lipids	Matrix: Tissue

Yes ☒ No ☐	Are method blanks for all methods <MRL or less than 5% of the sample results?
Yes ☒ No ☐	Are all MS/DMS or DUP RPDs within control criteria?
Yes ☒ No ☐	Are all LCS recoveries within control criteria?
Yes ☒ No ☐	No other discussion required (discuss X, Y, and Z flags as needed)?

For "No" responses see case narrative below.

Signature: [signature] Name: Carlus Pollard

Date: 07/07/17 Title: Extractions Supervisor

Data Validation Notes and Discussion

No anomalies were associated with this analysis.

File Path: R:\Case Narrative\K1705945_Lipids.doc

Lipids Raw Benchsheet

Lab ID	Client ID	Sample Weight (g)	Wt. Dish (g)	Wt. Dish + Lipid (g)
K1705945-001	CV62MUS-01	3.007	1.2959	1.3085
K1705945-002	CV62MUS-02	3.015	1.2666	1.2792
K1705945-003	CV62MUS-03	3.074	1.2739	1.2850
K1705945-004	CV62MUS-04	3.055	1.2836	1.2925
K1705945-005	CV62MUS-05	3.026	1.2721	1.2836
KWG1705440-4 MB	Method Blank	3.075	1.2942	1.2941
K1705554-003	Batch QC	3.010	1.2623	1.2728
K1705554-003 DUP	Sample Duplicate	3.015	1.2832	1.2933
K1705554-003 TRP	Sample Triplicate	3.037	1.2947	1.3028
KWG1705440-3 LCS	Laboratory Control Sample	0.905	1.2766	1.4592

Extraction Start Time/Date: 11:39 6/29/17
Extraction Stop Time/Date: 14:16 6/29/17
Extracted By: CZ

Extraction Method: 3541
DCM Lot #: DR436
Sulfate Lot #: 0000151827

Intermediate Volume of Extracts: 10 mL

Aliquot used for % Lipids: 2mL

Date Analyzed: 7/6/17
Analyzed By: CW

Balance ID: K-Balance 40

Prep Run #: 291799

Reviewed By: [signature]

Date: 7-7-17

wo #	wet wt	dish	dish/lip	% lip	mb corr	% lipids (rounded)	MRL
K1705945-001	3.007	1.2959	1.3085	2.111739	-0.0001	2.1	0.17
K1705945-002	3.015	1.2666	1.2792	2.106136	-0.0001	2.1	0.17
K1705945-003	3.074	1.2739	1.2850	1.821731	-0.0001	1.8	0.16
K1705945-004	3.055	1.2836	1.2925	1.472995	-0.0001	1.5	0.16
K1705945-005	3.026	1.2721	1.2836	1.916722	-0.0001	1.9	0.17
KWG1705440-4 MB	3.075	1.2942	1.2941	0.00000	-0.0001	0.00	0.16
K1705554-003	3.010	1.2623	1.2728	1.760797	-0.0001	1.8	0.17
K1705554-003 DUP	3.015	1.2832	1.2933	1.691542	-0.0001	1.7	0.17
K1705554-003 TRP	3.037	1.2947	1.3028	1.350016	-0.0001	1.4	0.16
KWG1705440-3 LCS	0.905	1.2766	1.4592	100.9392	-0.0001	101	0.55

Reviewed By: Volla

Date: 7-7-17